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PG&E Letter HIL-09-002

ATTN: Document Control Desk
Director, Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Materials License No. SNM-2514, Docket No. 72-27
Humboldt Bay Independent Spent Fuel Storage Installation

License Amendment Request 09-01
Revision to License Condition 14

Dear Commissioners and Staff:

Enclosed is an application for amendment to Materials License No. SNM-2514, Docket No. 72-27, for the Humboldt Bay (HB) Independent Spent Fuel Storage Installation (ISFSI) in accordance with 10 CFR 72.56. The enclosed License Amendment Request (LAR) proposes to change Material License No. SNM-2514, License Condition 14, regarding the location of the Quality Assurance Program (QAP) applicable to the HB ISFSI.

The LAR proposes to modify License Condition 14, to indicate that the HB ISFSI QA requirements have been relocated from the Diablo Canyon Power Plant (DCPP) Part 50 QAP to the Humboldt Bay Power Plant (HBPP) Part 50 QA Plan. As a result, the LAR proposes to transfer control of the HB ISFSI QAP from the DCPP Part 50 license to the HBPP Part 50 license.

Currently, License Condition 14 states that prior to the termination of the Part 50 license for DCPP, Pacific Gas and Electric Company (PG&E) would be required to submit a 10 CFR 72, Subpart G, compliant QAP for the HB ISFSI to the Commission for approval. The LAR does not fundamentally change this requirement. The LAR proposes to link this requirement to the termination of the HBPP Part 50 license rather than termination of the DCPP Part 50 license. The proposed requirement remains for PG&E to submit a Subpart G compliant QAP to the Commission for approval prior to terminating the controlling Part 50 license.

To support this modification to License Condition 14, PG&E proposes to relocate the Commission-approved HB ISFSI QA requirements from the DCPP Final Safety Analysis Report Update, Chapter 17, to the HB QA Plan. The HB QA Plan will then become a combination of the current NRC-approved QAP for the HB ISFSI and the

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current NRC-approved QA Plan for HBPP Unit 3. Upon NRC approval of this LAR, future changes to the HB QA Plan will be implemented under the requirements of 10 CFR 50.54(a). In addition, the combined HB QA Plan will be submitted to the NRC biennially in accordance with 10 CFR 50.54(a) (3) and 10 CFR 50.71(e).

Enclosure 1 contains a description of the proposed change to License Condition 14, and the supporting technical analysis. Enclosure 2 provides a markup of License Condition 14 showing the proposed change for NRC approval. Enclosure 3 provides a retyped (clean) version of License Condition 14 incorporating the proposed change for NRC approval.

Enclosure 4 is provided for information only, and contains the mark-up of the current version of the Commission-approved Part 50 DCPQ QAP, identifying the DCPQ-specific requirements being deleted because they do not pertain to the HB ISFSI QAP. Enclosure 5 is provided for information only, and is the clean version of the Enclosure 4 mark-up. Enclosure 5 contains the portion of the HB QA Plan that specifies the quality assurance requirements for the HB ISFSI, which were taken directly from the Commission-approved Part 50 DCPQ QAP.

PG&E has determined that this LAR is consistent with the considerations that govern the issuance of the initial ISFSI SNM License. Pursuant to 10 CFR 51.22(b), an environmental assessment does not need to be prepared since the proposed change does not involve a significant change in the types or in the amounts of any effluent that may be released offsite, or a significant increase in the individual or cumulative occupational radiation exposure.

PG&E respectfully requests the NRC to process this LAR in a timely manner. PG&E requests revised License Condition 14 be made effective upon NRC issuance, and to be implemented within 30 days of issuance.

I declare under penalty of perjury that the foregoing is true and correct.

This was executed on April 15, 2009.

If you have any questions or require additional information, please contact Mr. David Sokolsky at (707) 444-0801.

Sincerely,

James R. Becker
Site Vice President



Enclosures

cc: Gary Butner, California Department of Public Health
Elmo E. Collins, NRC Region IV
Shana R. Helton, NRC Project Manager, Division of Spent Fuel Storage
and Transportation
John B. Hickman, NRC
Humboldt Distribution

EVALUATION

1.0 DESCRIPTION

This License Amendment Request (LAR) proposes to amend Materials License No. SNM-2514 (Reference 6.1) for the Humboldt Bay (HB) Independent Spent Fuel Storage Installation (ISFSI). The proposed change would revise License Condition 14.

Currently, License Condition 14 states that the Commission has approved the Quality Assurance Program (QAP) for Diablo Canyon Power Plant (DCPP) Units 1 and 2, which will be applied to the HB ISFSI. Pacific Gas and Electric Company (PG&E) proposes to change License Condition 14 to refer to the HB Quality Assurance (QA) Plan, which will be a combination of the current NRC-approved QAP for the HB ISFSI, and the current NRC-approved QA Plan for Humboldt Bay Power Plant (HBPP) Unit 3. The HB ISFSI portion of the combined QA Plan will continue to comply with the same quality assurance requirements that previously existed in the Part 50 DCPP QAP. Upon approval of this LAR, the HB ISFSI portion of the QA Plan will be under the control of HBPP.

The current NRC-approved DCPP QAP as applied to the HB ISFSI is licensed under 10 CFR 50. The HB ISFSI portion of the HB QA Plan will continue to satisfy the requirements of 10 CFR 50, Appendix B. Currently, changes to the DCPP QAP as applied to the HB ISFSI can be made in accordance with the requirements of 10 CFR 50.54(a). Upon NRC approval of this LAR, future changes to the HB ISFSI portion of the HB QA Plan will still be implemented under the requirements of 10 CFR 50.54(a). In addition, the HB QA Plan will be submitted to the NRC biennially in accordance with 10 CFR 50.71(e).

Currently, License Condition 14 states that prior to the termination of the Part 50 license for DCPP, PG&E would be required to submit a 10 CFR 72, Subpart G, compliant QAP for the HB ISFSI to the Commission for approval. The LAR does not fundamentally change this requirement. However, the LAR proposes to link this requirement to the termination of the HBPP Part 50 license rather than termination of the DCPP Part 50 license. The proposed requirement remains for PG&E to submit a Subpart G compliant QAP to the Commission for approval.

In summary, this LAR is being requested to amend License Condition 14 in order to: (1) Relocate the HB ISFSI QA requirements from the DCPP Part 50 QAP to the HB Part 50 QA Plan, and (2) Require PG&E to submit a Part 72, Subpart G, QAP for NRC approval prior to terminating the HBPP Part 50 license. Approval of the LAR will allow PG&E to continue to control changes to the HB ISFSI QAP in accordance with 10 CFR 50.54(a).

2.0 PROPOSED CHANGE

Currently, License Condition 14 states that the Commission has approved the QAP for DCPD Units 1 and 2, which will be applied to the HB ISFSI. PG&E proposes to change License Condition 14 to refer to the HBPP QA Plan, which will contain the current NRC-approved QAP for the HB ISFSI.

Currently License Condition 14 states that prior to the termination of the Part 50 license for DCPD, PG&E is required to submit a 10 CFR 72, Subpart G, compliant QAP for the HB ISFSI to the Commission for approval. This requirement remains the same, except that the LAR links the HB QA Plan to the HBPP Part 50 license instead of the DCPD Part 50 license.

The proposed wording change to License Condition 14 is contained in Enclosures 2 and 3 of this letter. Enclosure 2 contains the mark-up of License Condition 14, and Enclosure 3 contains the clean, re-typed version of License Condition 14.

3.0 BACKGROUND

Paragraph (b) of 10 CFR 72.140 states in part, that each licensee shall establish, maintain, and execute a QAP satisfying each of the applicable criteria of 10 CFR 72, Subpart G. Paragraph (d) of 10 CFR 72.140 states that a Commission-approved QAP, which satisfies the applicable criteria of Appendix B of 10 CFR 50, and which is established, maintained, and executed with regard to an ISFSI, will be accepted as satisfying the requirements of 10 CFR 72.140(b). On November 17, 2005, the NRC issued Materials License No. SNM-2514 to PG&E to receive, possess, store, and transfer spent fuel and associated radioactive materials resulting from operation of HBPP Unit 3 into an ISFSI. In the NRC Safety Evaluation Report (Reference 6.2) for the HB ISFSI Materials License No. SNM-2514, the NRC reviewed Chapter 17, "Quality Assurance," of the DCPD Units 1 and 2 Final Safety Analysis Report Update (FSARU), and concluded that the description of PG&E's QAP for the HB ISFSI satisfies the requirements of 10 CFR 72, Subpart G.

License Condition 14 stated that the previously NRC-approved QAP for DCPD Units 1 and 2 met the requirements of 10 CFR 72, Subpart G, and would be applied to the HB ISFSI. The DCPD QAP (DCPD FSARU, Chapter 17) is a full 10 CFR 50, Appendix B Program (Reference 6.3). PG&E chose to apply the DCPD QAP to the HB ISFSI rather than the HBPP Unit 3 QAP, because the HBPP Unit 3 QAP is not a full 10 CFR 50, Appendix B Program, and it would have required prior NRC approval of extensive QAP revisions to satisfy the requirements of 10 CFR 72, Subpart G.

On December 11, 2008, PG&E completed the transfer of all spent fuel from the HBPP spent fuel pool (SFP) into the HB ISFSI. With spent fuel no longer stored in the HBPP SFP, full-scale decommissioning of HBPP Unit 3 can begin. With the HB site transitioning into a new phase, PG&E personnel reviewed programs used at other similarly situated sites for applicability to the HB site. As a result of this review, PG&E believes that relocating DCPD FSARU Chapter 17 intact, except for the removal of DCPD-specific requirements, into a single, consolidated HB QA Plan, will allow easier and consistent implementation and modification of quality assurance requirements at the HB site. The DCPD Quality Verification Director will remain responsible for overall implementation of, and changes to, the HB QA Plan.

4.0 TECHNICAL ANALYSIS

Currently, the DCPD FSARU Chapter 17 serves as the HB ISFSI QAP. This complies with the requirements of 10 CFR 72, Subpart G, and is based on a full 10 CFR 50, Appendix B Program. Changes are made in accordance with the provisions of 10 CFR 50.54(a).

Following relocation of the HB ISFSI quality requirements from the DCPD FSARU Chapter 17 to the HB QA Plan, the HB QA Plan will continue to be a full 10 CFR 50, Appendix B Program, and will continue to comply with the requirements of 10 CFR 72, Subpart G. In addition, the HB QA Plan will continue to be based on an existing QAP that was accepted by the Commission as satisfying the requirements of a 10 CFR 50, Appendix B Program, because all the HB ISFSI QA requirements will be relocated to the HB QA Plan, with only DCPD-specific requirements removed. Future changes to the HB QA Plan, which will include the quality requirements for the ISFSI, will be performed in accordance with the provisions of 10 CFR 50.54(a). Therefore, the completeness and provisions of the HB ISFSI quality requirements, and applicability of 10 CFR 50 regulations previously under the DCPD Part 50 license, will remain the same under the HBPP Part 50 license.

Currently, License Condition 14 states that prior to the termination of the Part 50 license for DCPD, PG&E is required to submit a 10 CFR 72, Subpart G, compliant QAP for the HB ISFSI to the Commission for approval. This LAR proposes to include similar language in License Condition 14, such that PG&E would be required to submit, for Commission approval, a QAP for the HB ISFSI that satisfies each of the elements of Subpart G prior to the termination of the HBPP Unit 3 Part 50 license. Therefore, the provisions of License Condition 14 using the DCPD Part 50 license will remain the same using the HBPP Unit 3 Part 50 license.

5.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.41, PG&E has reviewed the environmental impact of the proposed amendment, and has determined that it meets the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(11). The proposed changes do not significantly change the type or significantly increase the amounts of any effluents that may be released offsite. There is no significant increase in individual or cumulative occupational radiation exposures.

6.0 REFERENCES

- 6.1 Materials License No. SNM-2514 for the Humboldt Bay Independent Spent Fuel Storage Installation (TAC No. L23683), dated November 17, 2005
- 6.2 NRC Safety Evaluation Report for the Humboldt Bay Independent Spent Fuel Storage Installation, Materials License No. SNM-2514, Enclosure 2, dated November 2005
- 6.3 Diablo Canyon Power Plant Final Safety Analysis Report Update, Chapter 17, Quality Assurance Program

Proposed License Condition 14 Changes (mark-up)

14. The Commission's finding that the Quality Assurance Program complies with the requirements of 10 CFR Part 72, Subpart G is based on the existence of a Quality Assurance Program accepted by the Commission as satisfying the requirements of 10 CFR 50, Appendix B. The Commission has approved the Quality Assurance Program for the Diablo Canyon Power Plant, Units 1 & 2, which will be applied to the Humboldt Bay ISFSI. **The portion of the Commission-approved Quality Assurance Program that is applicable to the Humboldt Bay ISFSI has been relocated into the Humboldt Bay Quality Assurance Plan and is under the control of the Humboldt Bay Power Plant, Unit 3 Part 50 license.** Prior to the termination of the Part 50 license for the ~~Diablo Canyon Power Plant, Units 1 and 2,~~ **Humboldt Bay Power Plant, Unit 3,** the licensee must submit, for Commission approval, a Quality Assurance Program for the Humboldt Bay ISFSI that satisfies each of the elements of Subpart G.

Proposed License Condition 14 Changes (retyped)

14. The Commission's finding that the Quality Assurance Program complies with the requirements of 10 CFR Part 72, Subpart G is based on the existence of a Quality Assurance Program accepted by the Commission as satisfying the requirements of 10 CFR 50, Appendix B. The Commission has approved the Quality Assurance Program for the Diablo Canyon Power Plant, Units 1 & 2, which will be applied to the Humboldt Bay ISFSI. The portion of the Commission-approved Quality Assurance Program that is applicable to the Humboldt Bay ISFSI has been relocated into the Humboldt Bay Quality Assurance Plan and is under the control of the Humboldt Bay Power Plant, Unit 3 Part 50 license. Prior to the termination of the Part 50 license for the Humboldt Bay Power Plant, Unit 3, the licensee must submit, for Commission approval, a Quality Assurance Program for the Humboldt Bay ISFSI that satisfies each of the elements of Subpart G.

**Chapter 17, Diablo Canyon Power Plant Units 1 and 2 Final Safety Analysis
Report Update (Current Revision – Marked-Up)**

***(Changes are the DCCP-Specific Requirements that were removed in order
to make Attachment 4.2 of the Humboldt Bay QA Plan)***

Chapter 17, Diablo Canyon Power Plant Units 1 and 2 Final
Safety Analysis Report Update – Marked-Up To Indicate DCPP Specific
Requirements To Be Deleted

Chapter 17

QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI

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QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI
QUALITY ASSURANCE

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QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI
QUALITY ASSURANCE

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QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI

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Chapter 17

QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI
QUALITY ASSURANCE

17.1 ORGANIZATION

The Pacific Gas and Electric Company's (PG&E) efforts to assure the quality and safety of ~~the its nuclear power plants and independent spent fuel storage installations (ISFSIs)~~ are organized in a structured manner with clearly defined levels of authority, assignments of responsibility, and lines of communication. Assignment of responsibility for an item or activity includes responsibility for its quality. Figure 17.1-1 depicts the organizational structure of PG&E. The position of the quality verification (QV) organization in the utility organization is shown in Figure 17.1-2.

PG&E has assumed full responsibility to its employees, stockholders, the general public, and affected governmental regulatory agencies for the establishment and execution of the Quality Assurance (QA) Program prescribed herein, quality related program directives, and administrative procedures. The work of executing selected portions of the QA Program may be delegated to organizations external to PG&E; however, in all such instances, PG&E retains overall responsibility.

Specific responsibilities pertaining to quality assurance matters are assigned by the QA Program and its implementing procedures and instructions to various individuals throughout PG&E. In each instance, the assignment of a responsibility to an individual includes with it a commensurate delegation of sufficient authority that the person can, in fact, fulfill that responsibility. Unless otherwise specifically prohibited, it is understood that the functions, tasks, and activities necessary to carry out a responsibility may be delegated to and performed by other qualified individuals. All delegations of functions, tasks, activities, and authority shall be documented.

Figure 17.1-2 identifies those individuals and organizational components of PG&E with direct responsibilities related to the quality of the:

- ~~design, maintenance, and operation of DCP, and~~
- design, fabrication, construction, testing, operation, maintenance, modification, and decommissioning of ISFSI structures, systems, and components (SSCs) that are important to safety.

The narrative description throughout this section is based on Figures 17.1-1 and 17.1-2.

THE BOARD OF DIRECTORS OF PG&E CORPORATION is responsible for all facets of PG&E's utility business.

THE CHAIRMAN, CEO, AND PRESIDENT, PG&E CORPORATION, is accountable to the Board of Directors and establishes the corporate policies, goals, and objectives related to all of PG&E's activities and operations. Reporting to the Chairman, CEO, and President is the President and Chief Executive Officer - PG&E Company.

THE PRESIDENT AND CHIEF EXECUTIVE OFFICER - PG&E, is a member of the Board of Directors and is responsible for and directs the planning, distribution, and development of all the Company's energy resources and nuclear power generation. These functions include such activities as planning and development, engineering, construction, and fossil and nuclear power plant and ISFSI operations. Reporting to the President and Chief Executive Officer is the Senior Vice President and Chief Operating Officer.

The SENIOR VICE PRESIDENT and CHIEF OPERATING OFFICER is responsible for leading and managing the utility's day-to-day operations, including oversight of the ~~Diablo Canyon Power Plant~~, energy delivery, engineering and operations, generation, ISTS, and shared services. Reporting to the Senior Vice President and Chief Operating Officer is the Senior Vice President - Generation and Chief Nuclear Officer; the Senior Vice President - Engineering & Operations; and the Vice President Shared Services.

THE SENIOR VICE PRESIDENT - ENGINEERING AND OPERATIONS, through the Director - Applied Technology Services, is responsible for providing, upon request: (1) technical investigations, tests, analyses, examinations, and calibration services in support of ~~Diablo Canyon and the Humboldt Bay Power Plants~~ and ~~its~~ the ISFSIs; (2) developing, evaluating, qualifying, testing, and improving welding, brazing, and heat-treating procedures required by the company; and (3) providing evaluation support of these procedures.

THE VICE PRESIDENT - SHARED SERVICES AND CHIEF PROCUREMENT OFFICER, through the Support Services Supervisor - Engineering Records Unit, is responsible for providing document services support for ~~Diablo Canyon and the Humboldt Bay Power Plants~~ and the ~~Diablo Canyon and Humboldt Bay~~ ISFSIs. These services include indexing, preparing, and duplicating microfiche for the drawing control system; storing the master microfiche and drawings that cannot be microfilmed; and scanning and indexing drawings when requested. They also provide remote storage of master microfilm reels for the records management system (RMS) and storage of vendor manuals. The Vice President - Shared Services and Chief Procurement Officer, through the Manager, Procurement Services, is responsible for administering, coordinating, planning, and operation of warehousing and procurement of materials in support of DCPP HBPP and ISFSI operations and construction, as well as for contract services.

THE SENIOR VICE PRESIDENT - GENERATION AND CHIEF NUCLEAR OFFICER, is responsible for the ~~safe and efficient operation of the Company's nuclear power plants.~~ He is responsible for overall ISFSI safety and for taking measures needed to ensure

acceptable performance of the ISFSI staff in designing, fabricating, constructing, testing, operating, modifying, decommissioning, and providing technical support to the ISFSI. ~~The Senior Vice President - Generation and Chief Nuclear Officer, is the corporate officer specified by the DCPD Technical Specifications, who shall have corporate responsibility for overall DCPD nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to DCPD to ensure nuclear safety. Reporting directly to the Senior Vice President - Generation and Chief Nuclear Officer is the Site Vice President, the Director and Plant Manager - Humboldt Bay Nuclear; the Director - Quality~~

Verification; and the Employee Concerns Program supervisor. The Senior Vice President - Generation and Chief Nuclear Officer, or his designee, as specified in administrative procedures, approves and signs official company correspondence to the U.S. Nuclear Regulatory Commission (NRC) or its representatives. The Independent Review and Audit Program and the ~~Diablo Canyon Plant Staff Review Committee (PSRC)~~ reports to the Senior Vice President - Generation and Chief Nuclear Officer. He approves revisions to the QA Program as described herein that constitute a reduction in a commitment made to the NRC. He also approves revisions to program directives.

~~THE SITE VICE PRESIDENT is responsible for the conduct of all onsite activities related to the safe and efficient maintenance and operation of the plant as well as activities related to ISFSI operation and decommissioning. He is responsible to develop, and has been delegated the necessary authority to approve and direct the implementation of, those programs, procedures, and instructions required for the operation of the plant and ISFSI, within limits established by the QA Program, Technical Specifications, and administrative guidelines established by the Senior Vice President - Generation and Chief Nuclear Officer. Reporting directly to the Site Vice President is the Station Director; the Senior Director, Engineering; the Director, Site Services; and the Director, Learning Services.~~

~~THE STATION DIRECTOR is the plant manager specified in the DCPD TS, Section 5. He is responsible for operations, maintenance, and safety. Reporting directly to the Station Director is the Director - Operations Services; the Director - Maintenance Services; the Director - Outage Management; and the Supervisor, Safety.~~

~~THE DIRECTOR - OPERATIONS SERVICES, is responsible for operations, radiological protection, and chemistry and environmental operations. Reporting to the Director - Operations Services are the Manager - Operations; the Manager - Radiation Protection; and the Manager - Chemistry and Environmental Operations.~~

~~THE SENIOR DIRECTOR - ENGINEERING, is responsible for providing engineering and design services, geotechnical services, project management and strategic project services; and nuclear fuels management. This includes configuration control, design-bases defense and management, performance of modifications to DCPD, providing day-~~

~~to-day technical support for DCP operations; managing technical programs related to system and component health and long term planning; and complying with regulatory requirements pertaining to SSCs. This includes the Diablo Canyon ISFSI. This position is responsible for reporting trend and performance status information to the Site Vice President. This position is specifically charged with development, evaluation, qualification, testing, and improvement of nondestructive examination procedures required by PG&E and for evaluation of these types of procedures that are used at DCP by other organizations. Reporting directly to the Senior Director Engineering are the Director Engineering Services; the Director Geosciences; the Manager Nuclear Fuels; and the Director Strategic Projects.~~

~~THE DIRECTOR - SITE SERVICES, thru the Manager, Regulatory Services, is responsible for coordinating with the NRC for all matters relating to obtaining, maintaining, amending, revising, and otherwise changing the DCP license. The position is also responsible for providing support for the independent review groups and agencies, such as the Diablo Canyon Independent Safety Committee.~~

The DIRECTOR AND PLANT MANAGER - HUMBOLDT BAY NUCLEAR, is responsible for the conduct of all activities related to the Humboldt Bay ISFSI. This includes responsibility for operation, maintenance, engineering, radiation protection, training, and security. He is the chairman of the Humboldt Bay PSRC. He is responsible to develop, and is authorized to approve and direct the implementation of those programs, procedures, and instructions required for the ISFSI within limits established by this QA Program, the Humboldt Bay ISFSI Technical Specifications, and administrative guidelines established in the Humboldt Bay ISFSI Final Safety Analysis Report (FSAR) Update. Design authority for the Humboldt Bay ISFSI has also been delegated to the Director and Plant Manager - Humboldt Bay Nuclear.

THE HBPP ENGINEERING MANAGER reports directly to the Director and Plant Manager - Humboldt Bay Nuclear, and is responsible for technical aspects of the engineering and design of Humboldt Bay ISFSI SSCs for monitoring system performance and trends; for performance of modifications to the Humboldt Bay ISFSI; for configuration control and design bases defense and management; for quality classification of Humboldt Bay ISFSI SSCs; and for the specification of technical and quality requirements for the purchase of Humboldt Bay ISFSI material and equipment.

~~He is also responsible for the specification of technical and quality requirements for the purchase of DCP and Diablo Canyon ISFSI material and equipment.~~

THE DIRECTOR - QUALITY VERIFICATION, is responsible for management of the QA Program and for assuring that the QA Program prescribed herein, program directives, and administrative procedures are effectively implemented and complied with by all involved organizations, both internal and external to PG&E. The Chairman, CEO, and President - PG&E Corporation; the President and Chief Executive Officer - PG&E; the Senior Vice President and Chief Operating Officer; and the Senior Vice President - Generation and Chief Nuclear Officer. have given the Director, Quality Verification, the

organizational freedom and delegated the requisite authority to investigate any area or aspect of

PG&E's operations as necessary to identify and define problems associated with establishment or execution of the QA Program. They have also delegated to the Director, Quality Verification, the authority to initiate, recommend, or provide solutions for such problems to whatever management level is necessary, and to verify that effective corrective action is taken in a timely manner. This delegation includes the authority to assess, review, inspect, audit, and monitor the conduct of quality-related activities performed by or for PG&E to assure compliance with the QA Program and other regulatory requirements.

The Director - QV, reports directly to the Senior Vice President - Generation and Chief Nuclear Officer and has access to the Chairman, CEO, and President - PG&E Corporation; the President and Chief Executive Officer - PG&E; the Senior Vice President and Chief Operating Officer; ~~the Site Vice President;~~ and the Director and Plant Manager - Humboldt Bay Nuclear; and appropriate directors and managers for any significant quality-related problem or deficiency. He is authorized to prescribe a uniform company-wide method of performing an activity affecting quality by sponsoring or requiring the issuance of procedures when such standardization is considered desirable or essential to the effectiveness of the QA Program. Such uniform methods are contained in program directives and administrative procedures, and compliance with their requirements by all PG&E personnel is mandatory.

The Director - QV, will not be responsible for any activities unrelated to responsibilities described in the QA Program that would prevent the required attention to QA matters. Further, the responsibility of the implementation of the QA Program will take precedence over the other non-QA duties.

The Director - QV, shall meet the following qualification requirements: management experience through assignments to responsible positions; knowledge of QA regulations, policies, practices, and standards; and experience working in QA or related activity in reactor design, construction, or operation or in a similar highly technological industry. At the time of ~~initial core loading or~~ assignment to the active position, the Director - QV; shall have six years experience in implementing quality assurance, preferably at an operating nuclear plant, or operations supervisory experience. At least one year of these six years of experience shall be nuclear power plant experience in the overall implementation of the QA Program. A minimum of one year of this six-year experience requirement shall be related technical or academic training. A maximum of four years of this six-year experience requirement may be fulfilled by related technical or academic training.

The Director - QV, is responsible to regularly assess and report on the status, adequacy, and effectiveness of ~~PG&E's~~ this QA Program to the Senior Vice President - Generation and Chief Nuclear Officer and other affected PG&E management and nuclear oversight committees. He is responsible to identify, prepare, and submit for

approval such changes to the QA Program prescribed herein as are necessary to maintain the QA Program up to date and in conformance with current regulatory requirements and PG&E commitments to the NRC. He is responsible for the review of all regulatory submittals as they pertain to the QA Program, and his concurrence is required prior to submittal. He is responsible for assessing and assuring that the QA Program is effectively implemented at ~~DCPP and the~~ ISFSI sites. He assures timely and effective corrective actions through audits, regular assessments, and quality assessment status reports. Reporting to the Director - QV, are the quality assurance, supplier quality, project quality, and independent quality control inspection functions.

The Director - QV, is responsible for providing recommendations on solutions to quality problems and performing monitoring, assessments, independent QC inspections, reviews, and audits for the areas covered by the QA Program including supplier quality. The Director - QV, is also responsible for quality assurance associated with the Humboldt Bay Power Plant.

The Director - QV, has the authority and responsibility to stop work should there be a serious breach of any part of the QA Program, or of technical or regulatory requirements wherein public health or safety could be involved. ~~If stopping work would involve changing a nuclear generating unit's power level or separating such a unit from the PG&E system, the concurrence of the Senior Vice President - Generation and Chief Nuclear Officer, the Site Vice President, or the Station Director is required.~~

Through the conduct of assessments, audits, reviews, monitors, and independent QC inspections, the Director - QV, is responsible for quality overview of:

- ~~DCPP operating characteristics, DCPP operations, modifications, maintenance, and surveillance; and~~
- ISFSI design, fabrication, construction, testing, operation, modification, decommissioning, and related activities

to verify independently that these activities are performed correctly and that human errors are reduced as much as practicable.

THE EMPLOYEE CONCERNS PROGRAM SUPERVISOR reports to the Senior Vice President - Generation and Chief Nuclear Officer.

THE DCPP MANAGER - PROCUREMENT SERVICES, reports through the Director, Generation Supply Chain, to the Vice President - Shared Services and Chief Procurement Officer and is matrixed to the DCPP Director - Site Services. The DCPP Manager - Procurement Services, is responsible for administering, coordinating, planning, and operation of warehousing and procurement of materials in support of DCPP HBPP and ISFSI operations and construction, as well as for contract services.

This position is responsible for the functions within the materials procurement group including: the procurement specialist group, warehousing operations, administrative coordination of warehouse quality control receipt inspection activities, and materials coordination.

The DIRECTOR - GEOSCIENCES, is matrixed to the Director and Plant Manager, HBPP, and is responsible to the Senior Director - Engineering, for providing geo-scientific studies; reports, and calculations (including geology, seismology, vibration ground motion studies, surface faulting, stability of subsurface materials, and slope stability) in support of ~~DCPP,~~ the ISFSI, and HBPP.

The following committees function at the managerial level within PG&E to provide review of ~~DCPP and ISFSI~~ design, maintenance, and operation activities.

THE NUCLEAR SAFETY OVERSIGHT COMMITTEE, which reports to the Senior Vice President - Generation and Chief Nuclear Officer, implements the Independent Review and is described in Section 17.2.3.

~~The mission of the NSOC is to provide an integral part of the DCPP oversight process by independently assessing the nuclear safety and performance of the station and advising the Senior Vice President - Generation and Chief Nuclear Officer on issues that could affect station performance and/or nuclear safety. The scope includes facility operations, the adequacy and implementation of all DCPP nuclear safety policies and programs, and any issues related to nuclear, radiological, industrial, and environmental safety. Based on this assessment, the NSOC will provide comments and/or recommendations to the Senior Vice President - Generation and Chief Nuclear Officer that are directed at ensuring overall excellence in Operations and overall station performance.~~

~~THE DCPP PLANT STAFF REVIEW COMMITTEE reports to the Senior Vice President - Generation and Chief Nuclear Officer, and is responsible to advise the Station Director on matters related to nuclear safety. The Committee is responsible for providing timely and continuing monitoring of operating activities to assist the Station Director in keeping aware of general DCPP and Diablo Canyon ISFSI conditions and to verify that day-to-day operating activities are conducted safely and in accordance with applicable administrative controls. The Committee performs periodic reviews of DCPP and Diablo Canyon ISFSI operations and to plan future activities. In addition, the DCPP PSRC performs special reviews, investigations or analyses, and screens subjects of special concern. PSRC functions, responsibilities, and meeting requirements are described in Section 17.2.~~

THE HBPP PLANT STAFF REVIEW COMMITTEE reports to the Senior Vice President - Generation and Chief Nuclear Officer, and is responsible to advise on matters related to nuclear safety. The Committee is responsible for providing timely and continuing monitoring of ISFSI operating activities to assist the Director and Plant Manager - Humboldt Bay Nuclear, in keeping aware of general ISFSI conditions and to verify that

day-to-day operating activities are conducted safely and in accordance with applicable administrative controls. The Committee performs periodic reviews of ISFSI operating activities to evaluate operations and to plan future activities. In addition, the HBPP PSRC performs special reviews, investigations or analyses, and screens subjects of special concern as requested by NSOC. HBPP PSRC functions, responsibilities, and meeting requirements are described in Section 17.2.

Administrative procedures or charters for the above committees or programs provide detailed responsibilities and functions, as well as membership, authority, and reporting requirements. The reporting relationships of the committee are identified in the organization chart on Figure 17.1-2.

Verification of conformance to established requirements (except designs) is accomplished by individuals or groups within QV who do not have direct responsibility for performing the work being verified or by individuals or groups trained and qualified in QA concepts and practices and independent of the organization responsible for performing the task. The persons and organizations performing QA and quality control functions have direct access to management levels that assure the ability to: (a) identify quality problems; (b) initiate, recommend, or provide solutions through designated channels; and (c) verify implementation of solutions. They are sufficiently free from direct pressures for cost and schedule and have the responsibility to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming material. (The organizational positions with stop work authority are identified in the implementing procedures.) QV reviews and documents concurrence with all procedures and instructions that define methods for implementing the QA Program.

Each organization that supports ~~DCPP and~~ the ISFSIs documents and maintains current a written description of its internal organization. This documentation describes the business unit or department's structure, levels of authority, lines of communication, and assignments of responsibility. Such documentation takes the form of organization charts supported by written job descriptions or other narrative material in sufficient detail that the duties and authority of each individual whose work affects quality is clear. Interfaces between organizations are described in administrative procedures or other documents controlled in accordance with the appropriate requirements of ~~FSAR Update~~, Section 17.6.

The individuals assigned to the positions having a particular responsibility in program directives and administrative procedures (as described above) are the only individuals who are authorized to perform these activities. However, circumstances may arise where it is considered either necessary or desirable to have such activities, or some portion of them, actually performed by someone else. In such cases, the assigning organization retains responsibility and shall verify that the procedures and instructions to be followed in performing the work are adequate for controlling the work and meet applicable requirements. In such circumstances, the detailed procedures and instructions to be followed in performing the work are reviewed and approved by the person assigned responsibility for the work prior to the commencement of work. The

purpose of such review and approval is to verify that such procedures and instructions reflect an acceptable method of performing the work and are in compliance with the requirements of the QA Program. All instances in which authority is to be delegated or support services are to be provided are documented.

~~Suppliers to DCPP and the ISFSIs~~ suppliers are required to conform to ~~the PG&E~~ this QA Program or to their own program approved by PG&E. Supplier QA Programs are required to comply with the applicable portions of both 10 CFR 50, Appendix B, and 10 CFR 72, Subpart G, and the applicable regulatory documents and industry standards identified in Table 17.1-1. The quality program is defined in the contract or similar procurement document. Suppliers to PG&E are required to document their internal organizational arrangements to the extent necessary for PG&E to assure the supplier is capable of effectively managing, directing, and executing the requirements of the procurement documents. The authority and responsibility of persons and organizations who perform activities that might affect the quality of the procured items or services shall be clearly established. The Suppliers' organizational structure, levels of authority, and functional assignments of responsibility shall be such that:

- (1) The QA function of formally verifying conformance to the technical and quality requirements of the procurement documents is accomplished by qualified personnel who are independent of those who performed or directly supervised the work.
- (2) Personnel who perform QA functions have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; to verify implementation of those solutions; and to control further processing of the items or services until proper dispositioning has occurred.

17.2 QUALITY ASSURANCE PROGRAM

17.2.1 PROGRAM APPLICABILITY

The quality of the:

- ~~safety related aspects of the design, construction, and operation of DCPP, and~~
- important-to-safety aspects related to the design, fabrication, construction, testing, operation, maintenance, modification, and decommissioning of the ~~Diablo Canyon and Humboldt Bay~~ ISFSI structures, systems, and components (SSCs)

shall be assured through the QA Program prescribed herein, quality-related program directives, and administrative procedures. The QA Program requirements, as a minimum, apply to those ~~DCPP SSCs classified as Design Class I in Section 3.2 of the FSAR Update.~~ The QA Program requirements apply to the ~~Diablo Canyon and HB~~ ISFSI SSCs classified as important to safety in their respective ~~the HB~~ ISFSI FSAR Update, Section 4.5. The applicable QA criteria are executed to an extent that is commensurate with the importance to safety.

The QA Program also applies to the following:

- ~~(1) DCPP design, construction, and operation of SSCs that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. The SSCs that serve these functions are classified as Design Class I. In addition, certain QA Program requirements apply to the nonsafety related programs listed in (1) through (10) below to provide additional assurance that these objectives are satisfied.~~
- ~~(2) The design, construction, and operation of those portions of DCPP SSCs whose function is not required as above but whose failure could reduce the functioning of the above DCPP features to an unacceptable level or could incapacitate control room occupants. Certain of these SSCs are conservatively designated as Design Class I. Other nonsafety related SSCs with seismic qualification requirements are subject to the seismic configuration control program listed below. Seismically Induced System Interaction Program requirements are governed by quality related procedures.~~
- ~~(3) Activities affecting the above DCPP features.~~

~~(4)(1)~~ Managerial and administrative controls to ensure safe operation of the ISFSI, both prior to issuance of a license and throughout the life of the licensed activity.

~~(5)(2)~~ Activities that provide confidence that an ISFSI SSC will perform satisfactorily in service, including activities that determine that physical characteristics and quality of materials or components adhere to predetermined requirements.

In addition, the QA Program includes requirements that apply to the following DCPP and ISFSI nonsafety-related programs:

Program	DCPP	ISFSI
(1) Fire Protection	X	
(2)(1) Emergency Preparedness	X	X
(3)(2) Security	X	X
(4)(3) Radiation Protection	X	X
(5)(4) Radiological Monitoring and Controls Program	X	
(6)(5) ISFSI Radiological Environmental Monitoring		X
(7)(6) Environmental Monitoring	X	
(8)(7) Radioactive Waste Management	X	X
(9)(8) Fitness for Duty	X	
(10)(9) Regulatory Guide 1.97, Category 2 and 3 Instrumentation	X	
(11) Seismic Configuration Control	X	
(12) Anticipated Transient Without Scram Mitigation System Actuation Circuitry (AMSAC) Equipment	X	

17.2.2 PROGRAM CONTROL

The status and adequacy of this QA Program shall be regularly monitored, and it shall be revised as necessary to improve its effectiveness or to reflect changing conditions.

The Director - Quality Verification (QV), is responsible for the preparation, issue, interpretation, and control of this QA Program, and for concurring with changes to quality-related program directives and administrative procedures that propose a change to the QA Program as it is described in a commitment to a regulatory agency. The Director - QV, is responsible to assure the requirements set forth in this QA Program, quality-related program directives, and administrative procedures are in compliance with current regulatory requirements and PG&E commitments to the NRC as shown in Table 17.1-1. Proposed changes to program directives are also approved by the Senior Vice President - Generation and Chief Nuclear Officer.

The QA Program documents, including any changes, supplements, or appendices, are issued and maintained as controlled documents. ~~Changes to the DCPD specific QA Program as described herein that do not reduce commitments shall be included in the periodic updates required by 10 CFR 50.71.~~ Changes to the HB ISFSI-specific QA Program requirements shall be made in accordance with 10 CFR 50.54. Proposed changes to this QA Program that reduce commitments are reviewed and concurred with in writing by the Director - QV, and are approved by the Senior Vice President - Generation and Chief Nuclear Officer, or his designee, prior to being submitted to and approved by the NRC in accordance with 10 CFR 50.54 prior to issue for use.

Implementation of the QA Program is accomplished through separately issued procedures, instructions, and drawings. Each vice president, director, and manager is responsible for the establishment and implementation of detailed procedures and instructions prescribing the activities for which he is responsible. Such documents are derived from the requirements and reflect the responsibilities specified in the QA Program. Activities affecting quality are accomplished in accordance with these instructions, procedures, and drawings. All personnel are instructed that compliance with those requirements, and the requirements of the QA Program, is mandatory.

Questions or disputes involving interpretations of QA Program requirements, or of the commitments and requirements upon which it is based, are referred to the Director - QV, for resolution. Questions or disputes involving the responsibilities defined in this chapter and program directives are referred to the Senior Vice President - Generation and Chief Nuclear Officer. Questions or disputes involving other quality matters are resolved by referring the matter in a timely manner to successively higher levels of management until, if necessary, the matter reaches that level which has direct authority over all contesting parties.

Personnel who perform functions addressed by the QA Program are responsible for the quality of their work. They are indoctrinated, trained, and appropriately qualified to assure that they have achieved and maintained suitable proficiency to perform those functions. Qualifications of such personnel are in accordance with applicable codes, standards, and regulatory requirements.

The Director - QV, or his designated representative, regularly reports to the Senior Vice President - Generation and Chief Nuclear Officer, responsible company management,

and NSOC on the effectiveness of the QA Program as it relates to ~~DCPP and ISFSI~~ design, maintenance, and operation ~~of DCPP and the ISFSI~~. Such reports are based on the results of audits, reviews, inspections, tests, and other observations of activities as prescribed by the QA Program.

Annually, the Director - QV, shall report to the Senior Vice President - Generation and Chief Nuclear Officer, on the effectiveness of the QA Program and results of the Audit Program. The report shall include an evaluation of compliance with current regulatory requirements and commitments to the NRC.

17.2.3 INDEPENDENT REVIEW PROGRAM

The QA Program also includes an independent review, implemented by NSOC. This function provides an independent review of ~~DCPP and ISFSI~~ changes, tests, and procedures, which constitute a change to the ~~DCPP facility or ISFSI~~ as described in the ~~DCPP FSAR Update or HB ISFSI FSAR Updates~~. In addition, the independent review function will verify that reportable events are investigated in a timely manner and corrected in a manner that reduces the probability of recurrence of such events; and detect trends that may not appear to a day-to-day observer.

The individuals assigned responsibility for independent reviews shall be qualified in specific disciplines. These individuals shall collectively have the experience and competence required to review activities in the following areas:

- (1) ~~DCPP and ISFSI~~ operations
- (2) Nuclear engineering
- (3) Chemistry and radiochemistry
- (4) Metallurgy
- (5) Nondestructive testing
- (6) Instrument and control
- (7) Radiological safety
- (8) Mechanical and electrical engineering
- (9) Administrative controls
- (10) Quality assurance practices
- (11) Other appropriate fields

NSOC shall report to and advise the Senior Vice President - Generation and Chief Nuclear Officer, on those areas of responsibility specified in the sections below.

Composition – NSOC membership shall be comprised of site representatives and external members. Membership will normally include the Site Vice-President and four external members. The NSOC Chair shall have a minimum of 6 years of professional level managerial experience in the power field and NSOC members shall have a minimum of 5 years of professional level experience in the power field.

The NSOC Chair and all members shall have qualifications that meet or exceed the requirements and recommendations of Section 4.7 of ANSI/ANS 3.1 1978.

An individual may possess competence in more than one specialty area.

Consultants: Consultants shall be used as determined by the NSOC Chair to provide expert advice to NSOC.

Meeting Frequency: NSOC shall meet at least twice a year.

Quorum: A quorum of NSOC is necessary for the performance of the NSOC function required by the QA Program. The quorum shall consist of the Chair (or appointed Vice-Chair) and a minimum of 3 members, as long as one of the quorum is the Site Vice President or his designee.

Review: NSOC shall review:

- (1) The evaluations for: (a) changes to procedures, equipment, or systems, and (b) tests or experiments completed under the provision of 10 CFR 50.59 or 10 CFR 72.48, to verify that such actions did not require prior NRC approval
- (2) Proposed changes to procedures, equipment, or systems, that require prior NRC approval as defined in 10 CFR 50.59 or 10 CFR 72.48
- (3) Proposed tests or experiments that require prior NRC approval as defined in 10 CFR 50.59 or 10 CFR 72.48
- ~~(4) Proposed changes to Diablo Canyon Power Plant's Technical Specifications or Operating License~~
- ~~(5)~~(4) Proposed changes to the HB ISFSI Technical Specifications or licenses
- ~~(6)~~(5) Violations of codes, regulations, orders, Technical Specifications, license requirements, or of internal procedures or instructions having nuclear safety significance

- ~~(7)~~(6) Significant operating abnormalities or deviations from normal and expected performance of DCPP and ISFSI equipment that affect nuclear safety
- ~~(8)~~(7) All reportable events
- ~~(9)~~ All recognized indications of an unanticipated deficiency in some aspect of DCPP design or operation of safety-related SSCs that could affect nuclear safety
- ~~(10)~~(8) All recognized indications of an unanticipated deficiency in some aspect of ISFSI design or operation of important-to-safety SSCs that could affect nuclear safety
- ~~(11)~~(9) Reports and meeting minutes of the PSRC.
- ~~(12)~~(10) Any other matter involving safe operation of DCPP or the ISFSI that the quality verification director deems appropriate for consideration, or which is referred to the director by organizational units.

NSOC may delegate reviews of selected topics such as changes processed under 10 CFR 50.59 and 10 CFR 72.48 to QV. The appropriate NSOC subcommittee will consider QV's reviews of those topics in their meetings.

Records: Records of NSOC reviews and activities shall be prepared, approved, and distributed as indicated below:

- (1) A summary report shall be prepared, approved, and forwarded to the Senior Vice President - Generation and Chief Nuclear Officer, ~~the Site Vice President and Station Director the Director and the Plant Manager - Humboldt Bay Nuclear; and the DCPP directors that implement the QA program.~~
- (2) Minutes of each NSOC meeting shall be prepared, approved, and forwarded to the Senior Vice President - Generation and Chief Nuclear Officer, within 30 days following each meeting

17.2.4 PLANT STAFF REVIEW COMMITTEE

A PSRC has been established for ~~DCPP~~ and the HB ISFSIs. The committee satisfies applicable requirements of ANSI N18.7, 1976, and its activities are controlled as described below:

PSRC Function - The PSRC shall function to advise the ~~Station Director or the Director and Plant Manager - Humboldt Bay Nuclear, as applicable,~~ on all matters related to nuclear safety.

~~Diablo Canyon Composition - The PSRC shall be composed of a minimum of 8 senior management individuals, including the chairman, whose responsibilities include the functional areas of operations, maintenance, radiation protection, site services, engineering, and performance improvement that will provide for an interdisciplinary review of subject matter. The PSRC Chairman and the alternate chairmen shall be appointed in writing by the Station Director and the other members shall be appointed in writing by the PSRC Chairman. The qualifications of each PSRC member shall meet or exceed the requirements and recommendations of Section 4.7 of ANSI/ANS 3.1-1978. To maintain quality assurance and independent review independence, the Director-QV, shall not be a member of the PSRC, however, PSRC meeting notifications and review material shall be provided to the Director-QV.~~

Humboldt Bay ISFSI Composition - The PSRC shall be chaired by the Director and Plant Manager - Humboldt Bay Nuclear, or delegate, and shall be composed of members of the plant staff who have responsibility in the areas of ISFSI operations, mechanical maintenance, instrumentation and control maintenance; radiation protection, and nuclear engineering, ~~and quality control~~. The PSRC Chairman shall appoint all members in writing. Each PSRC member shall meet or exceed the minimum qualifications of ANSI/ANS 3.1-1978, Section 4.7, for comparable positions, except for ISFSI operations and radiation protection. ~~The ISFSI operations member shall be a certified fuel handler.~~ The radiation protection member shall meet or exceed the qualifications of Regulatory Guide 1.8, Revision 2, April 1987.

Alternates - The Chairman may designate in writing other regular members who may serve as the Acting Chairman of PSRC meetings. All alternate members shall be appointed in writing by the PSRC Chairman. Alternates may be designated for specific PSRC members and shall have expertise and qualifications in the same general area as the regular PSRC member they represent. No more than two alternates shall participate as voting members in PSRC activities at any one time.

~~Diablo Canyon Meeting Frequency - The PSRC shall meet at least once per calendar month and as convened by the PSRC Chairman or his designated alternate.~~

HB-ISFSI Meeting Frequency - The PSRC shall meet at least once per calendar quarter and as convened by the PSRC Chairman or his designated alternate.

Quorum - The minimum quorum of the PSRC necessary for performance of the PSRC responsibility and authority provisions of this QA Program shall be a majority (more than one-half) of the members of the PSRC. For purposes of the quorum, this majority shall include the Chairman or the acting chairman, and no more than two alternate members.

The PSRC shall be responsible for:

- (1) Reviewing the documents listed below to verify that proposed actions do not require prior NRC approval or require a change to the Technical

Specifications and recommending approval or disapproval in writing to the appropriate approval authority

- (a) Evaluations of proposed procedures and procedure changes completed under the provisions of 10 CFR 50.59 or 10 CFR 72.48
 - (b) Evaluations of proposed tests or experiments completed under the provisions of 10 CFR 50.59 or 10 CFR 72.48
 - (c) Evaluations of proposed changes or modifications to plant structures, systems, or equipment completed under the provisions of 10 CFR 50.59 or 10 CFR 72.48
 - (d) Evaluations of proposed changes to the following plans and programs completed under the provisions of 10 CFR 50.59, 10 CFR 72.48, or other applicable regulations:
 1. Security Plan
 2. Emergency Plan
 3. ~~Process Control Program for DCPP only~~
 4. ~~Fire Protection Program for DCPP only~~
- (2) Reviewing all proposed changes to the ~~DCPP Technical Specifications and ISFSI Technical Specifications~~ and advising the ~~Station Director or the Director and Plant Manager - Humboldt Bay Nuclear, as applicable,~~ on their acceptability
 - (3) Investigating all violations of the ~~DCPP Technical Specifications and the applicable ISFSI Technical Specifications~~ including the preparation and forwarding of reports covering evaluation and recommendations to prevent recurrence to the Senior Vice President - Generation and Chief Nuclear Officer. The assessment shall include an assessment of the safety significance of each violation
 - (4) Reviewing all reportable events in order to advise the ~~Station Director or the Director and Plant Manager - Humboldt Bay Nuclear, as applicable,~~ on the acceptability of proposed corrective actions, and forwarding of reports covering evaluation and recommendations to prevent recurrence to the Senior Vice President - Generation and Chief Nuclear Officer.
 - (5) Reviewing significant ~~DCPP and ISFSI~~ operating experience or events that may indicate the existence of a nuclear safety hazard, and advising the ~~Station Director or the Director and Plant Manager - Humboldt Bay Nuclear, as applicable,~~ on an appropriate course of action

- (6) Reviewing the Security Plan and implementing procedures and submitting results and recommended changes to the ~~Station Director or the Director~~ and Plant Manager - Humboldt Bay Nuclear, ~~as applicable~~
- (7) Reviewing the Emergency Plan and implementing procedures and submitting results and recommended changes to the ~~Station Director or the Director~~ and Plant Manager - Humboldt Bay Nuclear, ~~as applicable~~
- (8) Reviewing any accidental, unplanned, or uncontrolled radioactive release including the preparation and forwarding of reports covering evaluation, recommendations, and disposition of the corrective action to prevent recurrence to the Senior Vice President - Generation and Chief Nuclear Officer
- (9) Recommending in writing to the appropriate approval authority, approval or disapproval of the items considered under paragraphs (1) and (2), above
- (10) Rendering determinations in writing with regard to whether each item considered under paragraphs (1) through (4), above, require prior NRC approval
- ~~(11) For Diablo Canyon, providing written notification within 24 hours to the Senior Vice President - Generation and Chief Nuclear Officer, of disagreement between the PSRC and the Station Director; however, the Station Director shall have responsibility for resolution of such disagreements~~
- (12)(11) For HB ISFSI, in the event of a disagreement between PSRC members on a matter affecting nuclear or radiological safety, a conservative course shall be followed as determined by the Director and Plant Manager - Humboldt Bay Nuclear. Records of such disagreements shall be included in the meeting minutes.
- (13)(12) Reviewing, prior to approval, new procedures used to handle heavy loads in exclusion areas and changes directly related to methods and routes used to handle heavy loads in exclusion areas.

Records - The PSRC shall maintain written minutes of each PSRC meeting that, at a minimum, document the results of all PSRC activities performed under the responsibility and authority provisions of this QA Program section. Copies shall be provided to the Senior Vice President - Generation and Chief Nuclear Officer, and to the quality verification director.

17.3 DESIGN CONTROL

Design activities shall be performed in an orderly, planned, and controlled manner directed to achieving the ~~DCPP~~ and independent spent fuel storage installation (ISFSI) design that best serves the needs of PG&E and its customers without posing an undue risk to the health and safety of the public.

Design activities shall be controlled to assure that design, technical, and quality requirements are correctly translated into design documents and that changes to design and design documents are properly controlled. Design control procedures shall address responsibilities for all phases of design including:

- (1) Responsibilities
- (2) Interface control
- (3) Design input
- (4) Design performance
- (5) Design verification
- (6) Design change

Systematic methods shall be established and documented for communicating needed design information across the external and internal design interfaces, including changes to the design information, as work progresses. The interfaces between the ~~DCPP engineering organization~~, the HB ISFSI engineering organization, and other organizations, either internal or external to PG&E, performing work affecting quality of design shall be identified and documented. This identification shall include those organizations providing criteria, designs, specifications, technical direction, and technical information and shall be in sufficient detail to cover each structure, system, or component (SSC) and the corresponding design activity.

Provisions for design input shall define the technical objectives for SSCs being designed or analyzed. For the SSC being designed, or for the design services being provided (for example, design verification), design input requirements shall be determined, documented, reviewed, approved, and controlled.

Required design analyses (such as physics, stress, thermal, hydraulic, and accident analysis; material compatibility; accessibility for inservice inspection, maintenance, and repair; and ALARA considerations) shall be performed in a planned, controlled, and correct manner. PG&E procedures shall identify the review and approval responsibilities for design analyses.

The preparation and control of design documents (such as specifications, drawings, reports, and installation procedures) shall be performed in a manner to assure design inputs are correctly translated into design documents (for example, a documented check to verify the dimensional accuracy and completeness of design drawings and specifications).

PG&E shall provide for reviewing, confirming, or substantiating the design to assure that the design meets the specified design inputs. Design verification shall be performed by competent individuals or groups other than those who performed the original design, but who may be from the same department. Individuals performing the verification shall not:

- (1) Have immediate supervisory responsibility for the individual performing the design. In exceptional circumstances, the designer's immediate supervisor can perform the verification provided:
 - (a) The supervisor is the only technically qualified individual
 - (b) The need is individually documented and approved in advance by the supervisor's management
 - (c) Quality assurance audits cover frequency and effectiveness of use of supervisors as design verifiers to guard against abuse
- (2) Have specified a singular design approach
- (3) Have ruled out certain design considerations
- (4) Have established the design inputs for the particular design aspect being verified

The results of the design verification efforts shall be documented with the identification of the verifier clearly provided. Design verification methods may include, but not be limited to, the following: design reviews, use of alternate calculations, and qualification testing. The design verification shall be identified and documented. The design verification shall be completed prior to relying upon the component system or structure to perform its function. Procedures shall assure that verified computer codes are certified for use and that their applicability is specified.

Proposed changes or modifications to ISFSI or DCPP systems or equipment that affect nuclear safety shall be designed by a qualified individual or organization, and reviewed by a qualified individual/group other than the individual/group who prepared the change or modification, but who may be from the same organization. These reviews shall include a determination as to whether additional cross-discipline reviews are necessary. If deemed necessary, they shall be performed by review personnel of the appropriate discipline(s). These reviews shall also determine whether an evaluation per 10 CFR 50.59 or

10 CFR 72.48 is necessary. If necessary, one shall be prepared and presented to the PSRC for review prior to approval.

~~Each DCPP and Diablo Canyon ISFSI change or modification shall be approved by the Station Director or his designee, and each Humboldt Bay ISFSI change or modification shall be approved by the Director and Plant Manager - Humboldt Bay Nuclear, or designee, as specified in administrative procedures, prior to implementation.~~

Procedures for implementing design changes, including field changes, shall assure that the impact of the change is carefully considered, required actions documented, and information concerning the change transmitted to all affected persons and organizations. These changes shall be subjected to design control measures commensurate with those applied to the original design. Design changes shall be reviewed and approved by the same organization or group that was responsible for the original design.

Document control measures shall be established for design documents that reflect the commitments of the ~~DCPP FSAR Update and the applicable~~ HB ISFSI FSAR Update. These design documents shall include, but are not limited to, specifications, calculations, computer programs, system descriptions, the ~~DCPP FSAR Update and applicable~~ HB ISFSI FSAR Update when used as a design document, and drawings including flow diagrams, piping and instrument diagrams, control logic diagrams, electrical single line diagrams, structural drawings for major facilities, site arrangements, and equipment locations.

Nonconforming activities such as procedure violations, deviations, or errors and deficiencies in approved design documents, including design methods (such as computer codes), shall be controlled as described in Sections 17.15 and 17.16.

17.4 PROCUREMENT DOCUMENT CONTROL

The procurement documents shall include those requirements necessary to assure that the items and services to be provided will be of the desired quality.

The procurement documents shall also include provisions for the following, as appropriate:

- (1) Basic Technical Requirements - These include drawings, specifications, codes, and industrial standards with applicable revision data; test and inspection requirements; and special instructions and requirements, such as for designing, fabricating, cleaning, erecting, packaging, handling, shipping, and, if applicable, extended storage in the field.
- (2) Quality Assurance Requirements - These include the requirements for the supplier to have an acceptable QA Program; provisions for access to the supplier's facilities and records for source inspection and audit when the need for such inspection and audit has been determined; and provisions for extending applicable QA Program and other requirements of procurement documents to subcontractors and suppliers, including PG&E's access to facilities and records.
- (3) Documentation Requirements - These shall include records to be prepared, maintained, submitted or made available for review and instructions on record retention and disposition.

The procedures that implement procurement document control shall describe the organizational responsibilities for procurement planning; preparation, review, approval and control of procurement documents; supplier selection; bid evaluations; and review and evaluation of supplier QA Programs prior to initiation of activities affected by the program.

Procedures shall be established to review the adequacy of technical and quality assurance requirements stated in procurement documents; determine that requirements are correctly stated, inspectable, and controllable; assure adequate acceptance and rejection criteria; and provide for the preparation, review, and approval of procurement documents in accordance with QA Program requirements. The review and documented concurrence of the adequacy of quality assurance requirements stated in procurement documents shall be performed by independent personnel trained and qualified in applicable QA practices and concepts.

Changes to procurement documents shall be subject to the same control as the original document.

17.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Activities affecting quality shall be prescribed by and accomplished in accordance with documented procedures, instructions, and drawings.

The vice president in charge of each PG&E organizational unit that performs activities affecting quality is responsible for the establishment and implementation of instructions, procedures, or drawings prescribing such activities. Standard guidelines for the format, content, and review and approval processes shall be established and set forth in a procedure or instruction issued by that organizational unit.

The method of performing activities affecting quality shall be prescribed in documented instructions, procedures, or drawings of a type appropriate to the circumstances. This may include shop drawings, process specifications, job descriptions, planning sheets, travelers, QA manuals, checklists, or any other written or pictorial form provided that the activity is described in sufficient detail such that competent personnel could be expected to satisfactorily perform the work functions without direct supervision.

~~Within the constraints, limitations, or other conditions as may be imposed by the specific DCPP Technical Specifications and other license requirements or commitments, procedures prescribing a preplanned method of conducting the following aspects of DCPP operations shall be established in accordance with the applicable regulations, codes, standards, and specifications: preoperational tests, systems operations, general DCPP activities, startup, shutdown, power operations and load changing, process monitoring, fuel handling, maintenance, modifications, radiation control, calibrations and tests, chemical-radiochemical control, abnormal or alarm conditions, emergency plan, tests and inspections, emergencies, and significant events.~~

Within the constraints, limitations, or other conditions as may be imposed by the independent spent fuel storage installation (ISFSI) Technical Specifications and other license requirements or commitments, procedures prescribing a preplanned method of conducting the activities and programs specified shall be established in accordance with the applicable regulations, codes, standards, and specifications.

In addition to the above, ~~DCPP and ISFSI~~ procedures and programs shall be established and controlled as described below.

- (1) Written procedures shall be established, implemented, and maintained covering the activities referenced in the HB ISFSI Technical Specifications.
- ~~(2) For DCPP, written procedures shall be established, implemented, and maintained covering the activities referenced in Specification 5.4.1 of the Diablo Canyon Power Plant's Technical Specifications.~~

~~(3)~~(2) Each procedure of paragraphs (1) and ~~(2)~~ above, and changes thereto, and all proposed tests or experiments that affect nuclear safety shall be reviewed and approved prior to implementation in accordance with the review and approval requirements below. Each procedure of paragraphs (1) and ~~(2)~~ above, as modified by Table 17.1-1, shall also be reviewed periodically as set forth in administrative procedures.

These procedure review and approval requirements apply when approving DCPP and ISFSI programs and procedures, or changes to DCPP and ISFSI programs and procedures. They also apply when approving or changing corporate procedures and procedures used by support organizations if they could have an immediate effect on DCPP and ISFSI operations or the operational status of safety-related structures, systems, or components (SSCs) or ISFSI SSCs that are important to safety. They do not apply to editorial or typographical changes.

~~(4)~~(3) Each procedure or program required by paragraphs (1) and ~~(2)~~ above, and other procedures, tests, and experiments that affect nuclear safety or the treatment of radwaste, and changes thereto, shall be prepared by a qualified individual/group. Each procedure, program, test, or experiment, and changes thereto, shall be reviewed by an individual/group other than the individual/group who prepared the proposed document or change, but who may be from the same organization as the individual/group who prepared it, and, for DCPP, shall be approved, prior to implementation, by the Station Director or his designee, as identified in administrative procedures. The Director and Plant Manager - Humboldt Bay Nuclear, or his designee, shall approve Humboldt Bay ISFSI procedures prior to implementation, as identified in administrative procedures.

~~(5)~~(4) A responsible organization shall be assigned for each program or procedure required by paragraphs (1) and ~~(2)~~ above. The responsible organization shall assign reviews of proposed procedures, programs, and changes to qualified personnel of the appropriate discipline(s).

~~(6)~~(5) Individuals responsible for the above reviews shall be knowledgeable in the document's subject area, shall meet or exceed the qualification requirements of Section 4.7.2 of ANSI/ANS 3.1-1978, and shall be designated as qualified reviewers by the Station Director or his designee for DCPP and Diable Canyon ISFSI procedures and by the Director and Plant Manager - Humboldt Bay Nuclear for Humboldt Bay ISFSI procedures.

~~(7)~~(6) The reviews specified in paragraph ~~(3)~~(2) above shall include a determination as to whether additional cross-discipline reviews are necessary. If deemed necessary, they shall be performed by review personnel of the appropriate discipline(s).

~~(8)(7)~~ The reviews specified in paragraph (32) above shall also determine whether an evaluation per 10 CFR 50.59 or 10 CFR 72.48 is necessary. If necessary, one shall be prepared and presented to the PSRC for review prior to approval.

~~(9)(8)~~ Temporary changes to procedures of paragraph (1) above may be made provided:

- (a) The intent of the original procedure is not altered
- (b) Administrative controls for approval and timely notification or training of personnel affected by the temporary change shall be implemented.
- (c) The change is documented, reviewed as described above, and approved by the appropriate approval authority within 14 days of implementation.

~~(10)~~ Temporary changes to procedures of paragraph (2) above may be made provided:

~~(a)~~ The intent of the original procedure is not altered

~~(b)~~ The change is approved by at least two exempt staff members who meet applicable qualification requirements of ANSI/ANS 3.1, 1978, and are knowledgeable in the subject area of the procedure. For changes to procedures listed below, at least one approver shall hold a Senior Reactor Operators license.

~~1.~~ All Operations Section procedures

~~2.~~ Surveillance Test Procedures

~~3.~~ Emergency Plan Implementing Procedures

~~4.~~ Any other procedure if the proposed change affects equipment or system operating status

~~If the approving Senior Reactor Operator is not the Shift Foreman of the affected unit, that individual shall determine whether the Shift Foreman should be notified of the change immediately, and shall notify him/her if appropriate.~~

~~(c)~~ The change is documented, reviewed as described above, and approved by the appropriate approval authority within 14 days of implementation.

17.6 DOCUMENT CONTROL

Documents and changes to documents that prescribe or verify activities affecting quality shall be controlled in a manner that precludes the use of inappropriate or outdated documents. As a minimum, controlled documents include: design documents, including documents related to computer codes; procurement documents; instructions and procedures for such activities as fabrication, construction, modification, installation, test, operation, maintenance, and inspection; as-built documents; quality assurance and quality control manuals and quality-affecting procedures; ~~DCPP FSAR Update; Diablo Canyon and Humboldt Bay Independent Spent Fuel Storage Installation FSAR Updates;~~ and nonconformance reports.

The organization responsible for establishing instructions, procedures, drawings, or other documents prescribing activities affecting quality is also responsible to develop and implement systematic methods for the control of such documents in accordance with the requirements herein. In those instances where such documents directly involve organizational interfaces, that organization with ultimate responsibility for the issuance of the documents is responsible for establishing the methods for their control.

Procedures and instructions shall assure that documents, including changes, are prepared; reviewed by a qualified individual other than the person who generated the document; approved for release by authorized personnel; distributed to the location where the activity is performed prior to commencing work; and used in performing the activity. Procedures and instructions shall require the development of as-built drawings and the removal or appropriate identification of obsolete or superseded documents.

Procedures and instructions that define methods for implementing the QA Program requirements shall be reviewed and concurred with by quality verification (QV), for compliance and alignment with the Program. Revisions to these documents shall also be reviewed and concurred with by QV if they propose a change to the QA Program as it is described in a commitment to a regulatory agency.

The controls shall identify those responsible for preparing, reviewing, approving, and issuing documents to be used. They shall also define the coordination and control of interfacing documents and shall require the establishment of current and updated distribution lists.

A document control system shall be established to identify the current revision of instructions, procedures, specifications, drawings, and procurement documents. Master lists, when utilized as an element of the document control system, shall be updated and distributed to predetermined responsible personnel.

17.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

Supplier activities in providing purchased material, equipment, and services shall be monitored as planned and necessary to assure such items and services meet procurement document requirements.

Procedures shall describe each organization's responsibilities for the control of purchased material, equipment, and services, including the interfaces between all affected organizations.

All materials, equipment, and services shall meet the specified technical and quality requirements. Verification that a supplier can meet the specified technical and quality requirements shall be by one or a combination of the following:

- (1) Evaluation of the supplier's history
- (2) Evaluation of current supplier quality records
- (3) Evaluation of the supplier's facilities, personnel, and implementation of a QA Program

Such evaluations shall be documented. Suppliers whose QA Programs have been found by quality verification (QV), to satisfy specified quality requirements shall be listed on the PG&E Qualified Suppliers List, which is controlled by QV.

Suppliers of commercial grade calibration services may be qualified based on their accreditation by a nationally-recognized accrediting body, as an alternative to qualification by supplier audit, commercial grade survey, or in-process surveillance.

A documented review of the suppliers' accreditation by the purchaser may be used as the qualification method, as described in PG&E commitments to NRC Regulatory Guides 1.123 and 1.144, which are documented in Table 17.1-1. This review shall include, at a minimum, all of the following:

- (1) The accreditation is to ANSI/ISO/IEC 17025
- (2) The accrediting body is either the National Voluntary Laboratory Accreditation Program (NVLAP) or an accrediting body recognized by NVLAP through a Mutual Recognition Agreement (MRA).
- (3) The published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.

A quality verification plan shall be established and documented that applies to each procurement and identifies the manner by which PG&E intends (with appropriate QV organization involvement) to assure the quality of the material, equipment, or service as

defined in the procurement documents and to accept those items or services from the supplier.

The quality verification plan shall identify inspection, audit, and/or surveillance activities to be performed including the characteristics or processes to be witnessed, inspected, or verified; the method of surveillance; and the extent of documentation required. The timing and sequence of the activities shall be planned to identify any system or product deficiencies before subsequent activities may preclude their disclosure.

The plan shall also be based on consideration of:

- (1) Importance to ~~DCPP~~ and independent spent fuel storage installation safety
- (2) Complexity of inspectable characteristics
- (3) Uniqueness of the item or service

Supplier performance and compliance with procurement documents may be monitored by either source verification, receiving inspection, or a combination of the two. Source verification activities may consist of inspections, audits, surveillance, or a combination thereof and are conducted at the supplier's facility. When source verification activities are specified in the quality verification plan, the timing and sequence of these activities are to be delineated.

Receiving inspection activities, as required by the quality verification plan, shall be coordinated with source verification activities performed prior to shipments. If sampling is performed, it shall be in accordance with procedures and/or recognized standards. Receipt inspection shall include a review which verifies that supplier quality records required by procurement documents are acceptable and that items are properly identified and traceable to appropriate documentation.

Records of quality verification activities shall be traceable to the materials, equipment, or services to which they apply. Documentation of acceptance in accordance with the procurement quality verification plan shall be available at the site prior to installation or acceptance for use. Documentary evidence that procurement document requirements have been met shall clearly reflect each requirement. Supplier's Certificates of Conformance are periodically evaluated by audits and independent inspections or tests to assure they are valid and the results documented.

When spare or replacement parts are procured, supplier selection and quality verification activities shall be planned and implemented to verify compliance with requirements meeting or exceeding those of the original.

17.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

Materials, parts, and components shall be identified and controlled in a manner to preclude the use of incorrect or defective items.

All materials, parts, and components, including partially fabricated subassemblies, batches, lots, and consumables, shall be identified in a manner that each can be related to its applicable drawing, specification, or other technical documentation at any stage from initial receipt through fabrication, installation, repair, or modification. Controls and implementing procedures shall ensure that only correct and accepted items are used during all stages and describe the responsibilities of the involved organizations.

Physical identification of items shall be used whenever possible and practical. Controls may, however, be through physical separation, procedure, or other appropriate means. Identification may be either on the item or on records traceable to the item.

Identification marking, where employed, shall be clear, unambiguous, and indelible and its application shall not impair the function of the identified item or any other item. When an item is subdivided, the identifying marking shall be transferred to each resulting part. Markings shall not be rendered illegible by treatment, process, assembly, installation, or coating unless other means of identification and determining acceptability are provided.

Verification activities, such as inspection, shall be performed to ensure that the provisions of this policy and related implementing procedures are followed for items prior to release for fabrication, assembly, shipping, installation, and use.

When required by code, standard, or specification, traceability of materials, parts, or components to specific inspection or test records shall be provided for and verified.

17.9 SPECIAL PROCESSES

Special processes shall be controlled and performed by qualified personnel using qualified procedures or instructions in accordance with applicable codes, standards, specifications, criteria, or other special requirements.

A special process is an activity in which the quality of the result is highly dependent upon either process variables or the skill and performance of the person doing the work, and the specified quality is difficult to verify by inspection and test after the process is completed.

Special processes include, but are not limited to:

- (1) Welding
- (2) Heat treating
- (3) Nondestructive examination
- (4) Chemical cleaning
- (5) Others as specified in design and procurement documents (examples are certain protective coating applications and concrete batch plant operations, which are controlled by specifications on a case-by-case basis)

The implementing instructions shall contain the criteria for assuring proper process control and shall be qualified and controlled to assure compliance with applicable codes, standards, QA procedures, and design specifications. Substantiating records of qualifications and controls shall be maintained.

17.10 INSPECTION

A comprehensive program of inspection of items and activities affecting quality shall be conducted to verify conformance with established requirements. Procedures shall describe the organizational responsibilities necessary to carry out the inspection program.

The objective of the inspection program shall be to verify the quality of the items and activities and conformance to the applicable documented instructions, procedures, and drawings for accomplishing activities affecting quality. The inspection program, including information relative to individual inspections to be performed, shall be developed based on a review of the design drawings, specifications, and other controlled documents which prescribe items and activities affecting quality. Inspections shall be performed utilizing appropriate inspection procedures and instructions together with the necessary drawings, specifications, and other controlled documents. The inspections shall be documented and evaluated.

Inspection procedures, instructions, or checklists shall provide for the following: identification of characteristics and activities to be inspected; a description of the method of inspection; identification of the individuals or groups responsible for performing the inspection operation; acceptance and rejection criteria; identification of required procedures, drawings, and specifications and revisions; recording the name of the inspector or data recorder and the results of the inspection operation; and specifying necessary measuring and test equipment including accuracy requirements. The inspection program shall include, but not be limited to, those inspections required by applicable codes, standards, specifications, and DCPP and Independent Spent Fuel Storage Installation (ISFSI) Technical Specifications. ~~The inspection program shall also require the following during the operational phase of DCPP:~~

- ~~(1) Inspection of modifications, repairs, and replacements, where required to assure a suitable level of confidence that an item will perform its intended function, shall verify conformance to the original design requirements or appropriately approved equivalents~~
- ~~(2) Verification of the cleanness of those portions of plant safety related systems that have been subject to potential contamination during maintenance and modification activities through an inspection performed immediately prior to closure of the portion of the system~~

The inspection program shall require inspection of ISFSI modifications, repairs, and replacements to be in accordance with existing design requirements.

The inspection program shall require inspection and/or test of items for each work operation where such is necessary to assure quality. If inspection of processed items is impossible or disadvantageous, indirect control by monitoring of process shall be required. Both inspection and process monitoring shall be required when control is

inadequate without both. Both inspection and process control shall be performed when required by applicable code, standard, or specification.

Mandatory quality control inspection hold points shall be identified in the inspection program. When required, the specific hold points shall be indicated in the drawings, procedures, or instructions that prescribe the work activity. Work shall not proceed beyond such hold points without the documented consent of Quality Verification.

When the inspection program permits or requires a sample of a large group of items that are amenable to statistical analysis, the sampling procedures to be used shall be based on recognized standard practices.

Inspections to verify the quality of work shall be performed by qualified individuals other than those who performed or directly supervised the activity being inspected. During the inspection, such persons shall not report directly to the immediate supervisors who are responsible for the work being inspected.

Personnel performing inspections shall be qualified in accordance with applicable regulations, codes, standards, and specifications.

Inspection records shall contain the following where applicable: a description of the type of observation, the date and results of the inspection, information related to conditions adverse to quality, inspector or data recorder identification, evidence as to the acceptability of the results, and action taken to resolve any discrepancies noted.

17.11 TEST CONTROL

A program of testing shall be conducted as necessary to demonstrate that structures, systems, and components will perform satisfactorily in service. This program shall ensure that the necessary testing is identified and performed at the appropriate time in accordance with written test procedures that incorporate or reference the requirements and acceptance limits contained in the applicable design documents.

The program shall cover all required tests, including tests prior to installation, preoperational tests, and operational tests.

The procedures that implement testing shall provide for meeting appropriate prerequisites for the test (for example, environmental conditions, specification of instrumentation, and completeness of tested item), sufficient instruction for the performance of the test, specification of any witness or hold points, acceptance and rejection criteria and limits, and the documentation of the test. The procedures shall provide for evaluation and documentation of the test results and data and their acceptability as determined by a qualified person or group.

Test records shall contain the following where applicable: a description of the type of observation, the date and results of the test, information related to conditions adverse to quality, inspector or data recorder identification, evidence as to the acceptability of the results, and action taken to resolve any discrepancies noted.

17.12 CONTROL OF MEASURING AND TEST EQUIPMENT

Organizational responsibilities shall be delineated for establishing, implementing, and assuring the effectiveness of the calibration program for measuring and test equipment (M&TE). This program shall include the generation, review, and documented concurrence of calibration procedures; the calibration of measuring and test equipment; and the maintenance and use of calibration standards.

M&TE, including reference standards, used to determine the acceptability of items or activities shall be strictly maintained within prescribed accuracy limits.

M&TE, including reference standards, shall be of suitable range, type, and accuracy to verify conformance with requirements.

Procedures for control of M&TE shall provide for the identification (labeling, codes, or alternate documented control system), recall, and calibration (including documented precalibration checks) of the M&TE. The calibration procedures shall delineate any necessary environmental controls, limits, or compensations in excess of those which may be inherent to the general program.

The calibrations shall utilize documented valid relationships to nationally recognized standards or accepted values of natural physical constants. Where national standards do not exist, the basis for the calibration shall be documented. Calibration of M&TE shall be against standards that have an accuracy of at least four times the required accuracy of the equipment being calibrated or, when this is not practical, have an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by responsible management of the PG&E organization performing that activity.

Calibrating standards have greater accuracy than standards being calibrated. Calibrating standards with the same accuracy may be used if it can be shown to be adequate for the requirements and the basis of acceptance is documented and authorized by responsible management.

The calibration intervals, whether calendar- or usage-based, shall be predetermined and documented. Indication of expiration, if feasible, will be displayed on or with the M&TE. Significant environmental or usage restrictions will be indicated on or with the equipment or be factored into the documented system used to control the issuance of the M&TE. Special calibration shall be required whenever the accuracy of the equipment is suspect.

Records shall be maintained to show that established schedules and procedures for the calibration of the M&TE have been followed. M&TE shall be identified and traceable to the calibration test data. Records of the usage of the M&TE shall be maintained to facilitate corrective action in the event of the discovery of a deficiency concerning the calibration or use of M&TE, so that measures may be taken and documented to determine the validity of previous inspections performed and of the acceptability of items inspected or tested since the previous calibration of the deficient M&TE.

17.13 HANDLING, STORAGE, AND SHIPPING

Material and equipment shall be handled, stored, and shipped in accordance with design and procurement requirements in a manner that will prevent damage, deterioration, or loss.

Special coverings, equipment, and protective environments shall be specified and provided where necessary for the protection of particular items from damage or deterioration. When such special protective features are required, their existence shall be verified and monitored as necessary to assure they continue to serve their intended function.

Special handling tools and equipment shall be provided where necessary to ensure items can be handled safely and without damage. Special handling tools and equipment shall be controlled and maintained in a manner such that they will be ready and fit to serve their intended function when needed. Such control shall include periodic inspection and testing to verify that special handling tools and equipment have been properly maintained.

Special attention shall be given to marking and labeling items during packaging, shipment, and storage. Such additional marking or labeling shall be provided as is necessary to ensure that items can be properly maintained and preserved. This shall include indication of the presence of special environments or the need for special control. Provisions shall be described for the storage of chemicals, reagents (including control of shelf life), lubricants, and other consumable materials.

Special handling, preservation, storage, cleaning, packaging, and shipping requirements are established and accomplished by suitably trained individuals in accordance with predetermined work and inspection instructions.

17.14 INSPECTION, TEST, AND OPERATING STATUS

The inspection, test, and/or operating status of material, equipment, and operating systems shall be readily apparent and verifiable.

The procedures used to indicate status shall provide means for assuring that required inspections and tests are performed in the prescribed sequence; acceptability is indicated; and nonconforming items are clearly identified throughout fabrication, installation, test, maintenance, repairs, and modification to prevent inadvertent use or operation. Items accepted and released are identified to indicate their inspection status prior to forwarding them to a controlled storage area or releasing them for installation or further work. Deviations from the prescribed sequence shall be subject to the same level of control as the generation of the original sequence to prevent the bypassing or omission of a required test or inspection.

Identification of status may be by such means as, but not limited to, tags, stamps, markings, labels, or travelers. In some instances, records traceable to the item may be used. The procedures implementing control of inspection, test, and operating status shall clearly delineate authority for the application, change, or removal of a status identifier.

17.15 CONTROL OF NONCONFORMING CONDITIONS

Items and activities that do not conform to requirements shall be controlled in a manner that will prevent their inadvertent use or installation. Technical decisions as to the disposition of each nonconforming condition shall be made by personnel with assigned authority in the relevant disciplines. The control, review, and disposition of nonconforming conditions shall be accomplished and documented in accordance with approved written procedures and instructions.

Nonconforming conditions shall be documented and affected organizations notified of such conditions. Further processing of the nonconforming conditions and other items affected by them shall be controlled in a manner to prevent their inadvertent use or installation pending a decision on their disposition.

The responsibility and authority for the disposition of nonconforming conditions shall be established and set forth in the applicable procedures and instructions for their control. The rework or repair of nonconforming items and the disposition of operational nonconforming conditions shall be accomplished in accordance with written procedures and instructions. Dispositions involving design changes shall be approved by the organization with the authority for design.

The acceptability of rework or repair of materials, parts, components, systems, or structures shall be verified by reinspecting and retesting the item as originally inspected and tested, or by a method that is at least equal to the original inspection or testing method. Reworked and repaired items shall be reinspected in accordance with applicable procedures and instructions. The acceptability of nonconforming items that have been dispositioned "repair" or "accept-as-is" shall be documented. Such documentation shall include a description of the change, waiver, or deviation that has been accepted in order to record the change and, if applicable, denote the as-built condition.

Corrective action for conditions adverse to quality shall be processed in accordance with Section 17.16.

In cases where required documentary evidence that items have passed required inspections and tests is not available, the associated materials or equipment shall be considered nonconforming. Until suitable documentary evidence is available to show that the material or equipment is in conformance, affected systems shall be considered to be inoperable and reliance shall not be placed on such systems to fulfill their intended safety functions.

Nonconforming conditions that require reporting to the NRC shall be reviewed by the Quality Verification organization. Such review shall include the results of any investigations made and the recommendations resulting from such investigations to preclude or reduce the probability of recurrence of the event or circumstance.

17.16 CORRECTIVE ACTION

Each individual condition adverse to quality shall be identified, controlled, and evaluated, and a disposition shall be determined for the remedial action and corrective action as soon as practicable. These activities shall be performed consistent with Section 17.15, Control of Nonconforming Conditions.

Systematic review and evaluation of all conditions adverse to quality shall be conducted and documented. Conditions adverse to quality shall include, but not be limited to: engineering, design, and drafting errors; equipment failures and malfunctions; abnormal occurrences; deficiencies; deviations; and defective material, equipment, and services.

The review and evaluation shall include identification of quality trends, repetitive occurrences, and significant conditions adverse to quality. The quality trends and other significant review findings shall be analyzed and appropriate corrective action determined. Findings and actual or recommended corrective action shall be reported to management by the responsible organization for review and assessment.

Significant conditions adverse to quality shall be investigated to the extent necessary to assess the root causes and to determine the corrective action required to prevent recurrence of the same or similar conditions. The corrective action required for significant conditions adverse to quality shall be accomplished in a timely manner. Significant conditions adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to management.

Significant conditions adverse to quality that are related to ~~DCPP or~~ Independent Spent Fuel Storage Installation (ISFSI) operations or maintenance shall be reported to the Quality Verification organization. Completion of corrective actions for significant conditions adverse to quality shall be reviewed and verified by personnel having no direct responsibility for either the disposition or the corrective action taken.

Follow-up reviews shall be conducted to verify that the corrective action was properly implemented, performed in a timely manner, and that it was effective in correcting the identified condition.

Significant conditions adverse to quality shall be evaluated for reportability to the NRC in accordance with 10 CFR 21, ~~40 CFR 50.72, 10 CFR 50.73, 10 CFR 50.9, 10 CFR 72.74,~~ and 10 CFR 72.75, the ~~DCPP and~~ ISFSI Technical Specifications, and other applicable regulations and shall be reported as required.

17.17 QUALITY ASSURANCE RECORDS

Sufficient records shall be maintained to furnish evidence of both the quality of items and activities affecting quality and to meet applicable code, standard, and regulatory requirements. The records include all documents referred to or described in the QA Program or required by implementing procedures such as operating logs, maintenance and modification procedures, related inspection results, and reportable occurrences; and other records required by the ~~DCPP~~ and independent spent fuel storage installation (ISFSI) Technical Specifications and Code of Federal Regulations. In addition to the records of the results of reviews, designs, fabrication, installation, inspections, calibrations, tests, maintenance, surveillances, audits, personnel qualification, special process qualification, and material analyses for PG&E quality-related activities and ISFSI structures, systems, and components that are important to safety, those of vendors, suppliers, subcontractors, and contractors shall also be maintained.

A management control system for the collection, storage, and maintenance of completed quality assurance (QA) records shall be maintained. This records management program shall be designed and implemented to assure that the QA records are complete, readily retrievable when needed, and protected from damage or destruction during storage by fire, flooding, theft, environmental conditions, or other causes.

QA records stored electronically will follow the guidance for electronic records management given in the Nuclear Information and Records Management Association (NIRMA) technical guidelines, TG 11-1998, "Authentication of Records;" TG 15-1998, "Management of Electronic Records;" TG 16-1998, "Software Configuration Management and Quality Assurance;" and TG 21-1998, "Electronic Records Protection and Restoration." QA records will be stored on electronic media (that is, optical disk, magnetic tape, network array, etc.) meeting the requirements of the NIRMA guidelines. Alternately, records stored on optical disks may meet the requirements of Generic Letter 88-18, "Plant Record Storage on Optical Disk," dated October 20, 1988. Information Systems will determine the appropriate electronic media. Regardless of the electronic media selected, the process must be capable of producing legible, accurate, and complete records during the required retention period.

Backup copies of in-process electronic media records will be maintained in multiple, physically-independent electronic locations. Backup copies of QA records in electronic media will be maintained in multiple, physically-independent electronic locations until such time as images of these records are created, copied, and verified on two copies of an appropriate electronic storage media. The two copies will then be stored in separate physical locations. File legibility verification will be completed on all QA records stored on electronic media by either visually verifying the file legibility or by electronically verifying exact binary file transfer.

Periodic media inspections to monitor image degradation will be conducted in accordance with the NIRMA guidelines or media manufacturers' recommendations. These periodic inspections shall be documented.

QA records stored on electronic media will be refreshed or copied on to new media and subsequently verified if the projected lifetime of that media does not exceed the retention period of the records stored on that media. These requirements meet the intent of Generic Letter 88-18.

Detailed records for items or activities shall be specified by instructions, procedures, drawings, or specification or other documents that prescribe the item or activity and shall be generated by the organization responsible for the item or activity including PG&E and non-PG&E organizations. Each department generating QA records is responsible for transmitting those records to the records processing organization for archival purposes.

All records shall be assigned a retention period in conformance with Title 10, Code of Federal Regulations, other applicable codes, standards, and specifications.

~~17.17.1 DCPP LIFETIME RECORDS~~

~~The following records are retained for the duration of the unit Operating License:~~

- ~~(1) Records and drawing changes reflecting unit design modifications made to systems and equipment described in the FSAR Update~~
- ~~(2) Records of new and irradiated fuel inventory, fuel transfers, and assembly burnup histories~~
- ~~(3) Records of radiation exposure for all individuals entering radiation control areas~~
- ~~(4) Records of gaseous and liquid radioactive material released to the environs~~
- ~~(5) Records of transient or operational cycles for those unit components identified in FSAR Update, Table 5.2.4.~~
- ~~(6) Records of reactor tests and experiments~~
- ~~(7) Records of training and qualification for current members of the unit staff~~
- ~~(8) Records of in-service inspection performed pursuant to the Technical Specifications~~
- ~~(9) Records of QA activities required by the FSAR Update, Chapter 17~~
- ~~(10) Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59~~
- ~~(11) Records of PSRC meetings~~
- ~~(12) Records of the Independent Review Program~~

- ~~(13) Records of analyses required by the Radiological Environmental Monitoring Program (Reg. Guide 4.15).~~
- ~~(14) Records of service lives of all hydraulic and mechanical snubbers required by the FSAR Update including the date at which the service life commences and associated installation and maintenance records~~
- ~~(15) Records of secondary water sampling and water quality~~
- ~~(16) Records of reviews performed for changes made to the Offsite Dose Calculation Manual~~
- ~~(17) Records of reviews performed for changes made to the Process Control Program~~

~~17.17.2 DCPP NONPERMANENT RECORDS~~

~~The following records are retained for at least five years:~~

- ~~(1) Records and logs of unit operation covering time interval at each power level~~
- ~~(2) Records and logs of principal maintenance activities, inspections, repair, and replacement of principal items of equipment related to nuclear safety~~
- ~~(3) All reportable events~~
- ~~(4) Records of surveillance activities, inspections, and calibrations required by the Technical Specifications~~
- ~~(5) Records of changes made to procedures required by Technical Specification 5.4.1~~
- ~~(6) Records of radioactive shipments~~
- ~~(7) Records of sealed source and fission detector leak tests and results~~
- ~~(8) Records of annual physical inventory of all sealed source material of record~~

~~17.17.31 DIABLO CANYON AND HUMBOLDT BAY ISFSI RECORDS~~

~~Important-to-safety records shall be classified as lifetime or nonpermanent. The following records shall be maintained as required for the Diablo Canyon and Humboldt Bay ISFSIs:~~

- ~~(1) Radiation protection program and survey records~~

- (2) Records associated with reporting defects and noncompliance)
- (3) Records important to decommissioning
- (4) Records of changes to the physical security plan made without prior NRC approval
- (5) Records of changes, tests and experiments, and of changes to procedures described in the ISFSI FSAR Update pursuant to 10 CFR 72.48
- (6) Records showing receipt, inventory, location, disposal, acquisition, and transfer of spent fuel
- (7) A copy of the current inventory of spent fuel in storage at the ISFSI
- (8) A copy of the current material control and accounting procedures
- (9) Other records required by license conditions or by NRC rules, regulations or orders
- (10) Records of the occurrence and severity of important natural phenomena that affect ISFSI design
- (11) QA records (including records pertaining to the design, fabrication, erection, testing, maintenance, and use of structures, systems, and components important to safety; and results of reviews, inspections, tests, audits, monitoring of work performance, and material analyses)
- (12) A copy of the current physical security plan, plus any superseded portions of the plan
- (13) A copy of the current safeguards contingency plan procedures, plus any superseded portions of the procedures
- (14) Operating records, including maintenance, alterations or additions made
- (15) Records of off-normal occurrences and events
- (16) Environmental survey records
- (17) Records of employee qualifications and certifications
- (18) Record copies of:

- ISFSI FSAR Updates
- Reports of accidental criticality or loss of special nuclear material
- Material status reports
- Nuclear material transfer reports
- Reports of pre-operational test acceptance criteria and results
- Procedures
- Environmental Report
- Emergency Plan

(19) Construction Records; and

(20) Records of events associated with radioactive releases.

Facilities for the temporary or permanent storage of completed QA records shall be established in predetermined locations as necessary to meet the requirements of codes, standards, and regulatory agencies. Such facilities shall be constructed and maintained so as to protect the contents from possible damage or destruction.

17.18 AUDITS

The adequacy and effectiveness of the Quality Assurance (QA) Program shall be continually monitored through a comprehensive system of internal and supplier audits. The audit system implemented by the Quality Verification (QV) organization includes all aspects of the QA Program. The audit system shall:

- (1) Verify, through examination and evaluation of objective evidence, that this QA Program has been implemented as required
- (2) Identify any deficiencies or nonconformances in this QA Program
- (3) Verify the correction of any identified deficiencies or nonconformances
- (4) Assess the adequacy and effectiveness of this QA Program

A comprehensive plan for the audit system shall be established and documented. Audit frequencies are determined by a performance-based evaluation plan. This plan uses assessment indicators to identify and schedule audits based on performance results and importance of the activity relative to safety. The plan shall identify the scope of individual audits that are to be performed, the aspects of this QA Program covered by each audit, and the schedule for performing audits. The audit system plan shall be reviewed at least semiannually, and revised as necessary, to assure that coverage and schedule reflect current activities and that audits of ~~DCPP operational phase activities and independent spent fuel storage installation (ISFSI) activities~~ are being accomplished in accordance with applicable requirements. Other associated activities included as part of the audit program are: indoctrination and training programs; the qualification and verification of implementation of QA programs of contractors and suppliers; interface control among the applicant and the principal contractors; audits by contractors and suppliers; corrective action, calibration, and nonconformance control systems; ~~DCPP FSAR Update and ISFSI FSAR Update~~ commitments; and activities associated with computer codes.

Auditors shall be independent of direct responsibility for the performance of the activities that they audit, have experience or training commensurate with the scope and complexity of their audit responsibility, and be qualified in accordance with applicable standards.

Auditing shall be initiated as early in the life of an activity as is practicable and consistent with the schedule for accomplishing the activity. In any case, auditing shall be initiated early enough to assure that this QA Program is effectively implemented throughout each activity. Individual audits shall be regularly scheduled on the basis of the status and importance of the activities, which they address.

For audits, other than those whose scheduled frequency is mandated by regulation (such as the Safeguards Contingency Plans or the Security Program), a grace period of up to 90 days may be utilized when the urgency of other priorities makes meeting the specified

schedule dates impractical. For audit activities deferred by using a grace period, the next scheduled due date shall be based on the original schedule due date but may not exceed the original due date plus 90 days.

Audit reports shall be prepared, signed by the Audit Team Leader, and issued to responsible management of both the audited and auditing organizations.

Audits are regularly scheduled on a formal audit schedule prepared by QV. The audit schedule is reviewed regularly by the Director - QV, and the schedule is revised as necessary to assure adequate coverage as commensurate with activities and past performance. Audits are performed in accordance with approved audit plans. Such audits may be augmented by other QV assessments and independent inspections. Additional audits may be performed as requested by NSOC, the Senior Vice President - Generation and Chief Nuclear Officer, ~~the Site Vice President,~~ or the Director - QV.

The following areas shall be audited at least once per 24 months, or more frequently as performance dictates:

- (1) The conformance of ~~DCPP and ISFSI~~ operation to provisions contained within the applicable Technical Specifications and applicable licenses
- (2) The performance, training, and qualifications of the entire ~~DCPP and ISFSI~~ staff
- (3) The results of actions taken to correct deficiencies occurring in ~~DCPP and ISFSI~~ equipment, structures, systems, or method of operation that affect nuclear safety
- (4) The performance of activities required by the QA Program to meet the criteria of Appendix B, 10 CFR 50
- ~~(5) The DCPP Radiological Environmental Monitoring Program, implementing procedures, and program results~~
- ~~(6) The DCPP Offsite Dose Calculation Procedure and its implementing procedures~~
- ~~(7) The DCPP Process Control Program and implementing procedures for processing and packaging radioactive wastes~~
- ~~(8) The DCPP Nonradiological Environmental Monitoring Program~~
- (9)(5) A representative sample of routine ~~DCPP and ISFSI~~ procedures that are used more frequently than every two years. This audit is to ensure the acceptability of the procedures and to verify that the procedures review and revision program is being implemented effectively.

~~(10)~~(6) The performance of activities required to be audited by ANS-3.2/ANSI N18.7-1976, Section 4.5.

~~(11)~~(7) Review of design documents and process to ensure compliance with the ~~FSAR Update~~, Section 17.3 (i.e., use of supervisors as design verifiers). In addition, QV shall sample and review specifications and design drawings to assure that the documents are prepared, reviewed, and approved in accordance with PG&E procedures and that the documents contain the necessary QA requirements, acceptance requirements, and quality documentation requirements.

~~(12)~~(8) QV shall audit the departments that qualify personnel and procedures to assure that the process qualification activity, records, and personnel meet the applicable requirements. They shall also audit the organizations implementing special processes to provide assurance that the processes are carried out in accordance with approved procedures by qualified personnel using qualified equipment and that required records are properly maintained.

~~(13)~~The performance of activities required by the ~~QA Program for the DCPP Radioactive Effluent Controls Program.~~

~~(14)~~(9) The Radiation Protection Program, in accordance with 10 CFR 20.

~~(15)~~The DCPP Fitness for Duty Program in accordance with 10 CFR 26.41.

The following activities shall be audited at least once per 12 months unless specified otherwise. However, if the audit frequencies required by the governing regulations are changed, audit frequencies shall at least meet the revised minimum requirements.

(1) The Security Program in accordance with 10 CFR 73.55(g)(4) and 10 CFR 73.56(g)

~~(2)~~For DCPP, the ~~Access Authorization Program in accordance with 10 CFR 73.56(g)(1) at least once per 24 months. If a contractor's or vendor's Access Authorization Program is accepted, that contractor's or vendor's Access Authorization Program shall be audited in accordance with 10 CFR 73.56(g)(2) at least once every 12 months~~

~~(3)~~FFD services that are provided to DCPP by contractor/vendor personnel who are offsite or are not under the direct daily supervision or observation of DCPP personnel and HHS certified laboratories must be audited on a nominal 12-month frequency in accordance with 10 CFR 26.41.

~~(4) For DCPP, the Fire Protection and Loss Prevention Program is audited in accordance with the annual, biennial, and triennial audit requirements of NRC Generic Letter 82-21.~~

(5)(2) The Humboldt Bay ISFSI Access Authorization Program.

Management of the audited organization shall review the audit report and respond to any quality problem reports, investigate any significant findings to identify their cause and determine the extent of corrective action required, including action to prevent recurrence. They shall schedule such corrective action and also take appropriate action to assure it is accomplished as scheduled. They shall respond to QV regarding each significant finding stating the root cause, immediate action taken, and the corrective action taken or planned to prevent recurrence. Such responses may be documented directly within electronic databases used for the corrective action program.

QV shall review the written responses to all audit findings, evaluate the adequacy of each response, assure that corrective action to prevent recurrence is identified and taken for each significant finding, and confirm that corrective action is accomplished as scheduled.

Audit records shall be generated and retained by QV for all audits.

Table 17.1-1

Sheet 1 of 11

**CURRENT REGULATORY REQUIREMENTS AND PG&E COMMITMENTS
PERTAINING TO THE QUALITY ASSURANCE PROGRAM**

The Quality Assurance Program for DCP, the Diablo Canyon Independent Spent Fuel Storage Installation (ISFSI), and the Humboldt Bay ISFSI, described in Chapter 17 of the FSAR Update in the HB QA Plan, program directives, and administrative procedures complies with the requirements set forth in the Code of Federal Regulations. In addition, it complies with the regulatory documents and industry standards listed below.

Changes to this list are not made without the review and concurrence of the Director - Quality Verification.

Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
(S.G.) 28	6/72	ANSI N45.2	1971	Quality Assurance Program Requirements for Nuclear Power Plants	
1.37	3/73	ANSI N45.2.1	1973	Quality Assurance Requirements for Cleaning Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants	Not applicable to the ISFSI.
1.38	5/77	ANSI N45.2.2	1972	Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants	Warehouse personnel will normally visually scrutinize incoming shipments for damage of the types listed in Section 5.2.1, this activity is not necessarily performed prior to unloading. Separate documentation of the shipping damage is not necessary. Release of the transport agent after unloading and the signing for receipt of the shipment provides adequate documentation of completion of the shipping damage inspection. Any damage noted will be documented and dispositioned. Persons performing this visual scrutiny are not considered to be performing an inspection function as defined under Reg. Guide 1.74; therefore they do not require certification as an inspector under Reg. Guide 1.58.

Table 17.1-1

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Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.39	9/77	ANSI N45.2.3	1973	Housekeeping Requirements for Water-Cooled Nuclear Power Plants	Housekeeping zones established at the power plants differ from those described in the standard; however, PG&E is in compliance with the intent of the standard.
1.30	8/72	ANSI N45.2.4	1972	Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment	<p>The evaluation of (data sheet) acceptability is indicated on the results and data sheets by the approval signature (paragraph 2.4).</p> <p>No visual examination for contact corrosion is made on breaker and starter contacts unless there is evidence of water damage or condensation. Contact resistance tests are made on breakers rated at 4 kV and above. No contact resistance test is made on lower voltage breakers or starters (paragraph 3[4]).</p> <p>No system test incorporates a noise measurement. If the system under test meets the test criteria, then noise is not a problem (paragraph 6.2.2).</p>
1.94	4/76	ANSI N45.2.5	1974	Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants	<p>Except PG&E will not require manufacturer's certification for material suitability as inferred in ANSI N45.2.5, Sections 3.1 and 3.2 when PG&E procures: (a) material from a supplier that has a QA program that meets the relevant requirements of 10CFR50, Appendix B and the supplier is included ASME Section III (NCA 3800/NCA 4000) or on the PG&E Qualified Supplier List; or (b) material as a "Commercial Grade" item and dedicates it in accordance with PG&E's Commercial Grade Dedication Program. Not applicable to the ISFSI.</p>

Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.29	9/78	--	--	Seismic Design Classification	
1.58	9/80	ANSI N45.2.6	1978	Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel	<p>ANSI N45. 2. 6 applies to individuals conducting independent QC inspections, examinations, and tests. ANSI/ ANS 3.1-1978 applies to personnel conducting inspections and tests of items or activities for which they are responsible (e.g., plant surveillance tests, maintenance tests, etc.).</p> <p>Except that inspector/examiner reevaluation due dates may be extended a maximum of 90 days. The next reevaluation due date shall be based on the original scheduled due date but shall not exceed the original due date plus 90 days.</p> <p>NDE personnel shall be qualified and certified in accordance with CP-189-1995.</p> <p>NDE personnel who perform examinations of the containment structure per the requirements of Section XI, Subsections IWE and IVL, visual examination and ultrasonic thickness measurement only, shall be qualified and certified to ANSI/ASNT CP-189-1991.</p> <p>ISI ultrasonic examiners shall meet the additional requirements of ASME Section XI, Appendix VIII, 2001 Edition with no Addenda.</p>
1.116	5/77	ANSI N45.2.8	1975	Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems	

Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.88	10/76	ANSI N45.2.9	1974	Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records	<p>Except PG&E will comply with the 2-hour rating of Section 5.6 of ANSI N45.2.9 issued July 15, 1979.</p> <p>Except PG&E will also meet the intent of the guidelines for the storage of QA records in electronic media as, endorsed by Generic Letter 88-18, "Plant Record Storage on Optical Disks," issued October 20, 1988, and Regulatory Issues Summary 2000-18, "Guidance on Managing Quality Assurance Records in Electronic Media," issued October 23, 2000.</p> <p>Note: PG&E will maintain records of spent fuel and high-level radioactive waste in storage in accordance with ANSI N 45.2.9-1974 rather than 10 CFR 72.72(d). Refer to ISFSI FSAR Update, Section 9.4.2.</p>
1.74	2/74	ANSI N45.2.10	1973	Quality Assurance Terms and Definitions	
1.64	6/76	ANSI N45.2.11	1974	Quality Assurance Requirements for the Design of Nuclear Power Plants	Except PG&E will allow the designer's immediate supervisor to perform design verification in exceptional circumstances and with the controls as described in NUREG-0800, Revision 2, July 1981.
1.144	1/79	ANSI N45.2.12	1977	Auditing of Quality Assurance Programs for Nuclear Power Plants	Except the scheduled date for triennial vendor audits and annual supplier evaluations may be extended a maximum of 90 days. The next scheduled due date shall be based on the original scheduled due date but shall not exceed the original due date plus 90 days.

Table 17.1-1

Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
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					<p>Except that the corrective action program stipulated in the QA Program may be used instead of the requirements of Section 4.5.1 as long as the appropriate time limits are applied to significant conditions adverse to quality. Also, no additional documentation is necessary if needed corrective actions are taken and verified prior to audit report issuance.</p> <p>See Note for Reg Guide 1.144</p>
1.123	7/77	ANSI N45.2.13	1976	Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants	<p>In addition to ANSI N45.2.13, Section 10.3.3, PG&E will accept items and services which are complex or involve special processes, environmental qualification, or critical characteristics which are difficult to verify upon receipt by suppliers' Certificate of Conformance if and only if the supplier has been evaluated and qualified utilizing Performance Based Supplier Audit techniques.</p> <p>See Note for Reg Guide 1.123</p>
1.146	8/80	ANSI N45.2.23	1978	Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants	<p>Except that auditor recertification due dates may be extended a maximum of 90 days. The next recertification due date shall be based on the original scheduled due date but shall not exceed the original due date plus 90 days.</p> <p>Except that in lieu of the requirements of 2.3.4 of ANSI N45.2-1978, the prospective lead auditor shall have participated in at least one nuclear quality assurance audit within the year preceding the individual's effective date of qualification.</p>

Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.33	2/78	ANSI N18.7	1976	Quality Assurance Program Requirements (Operation)	<p>Except that PG&E will not perform biennial review of all DCPP and ISFSI procedures, except under the conditions described in note below (See note at end of table).</p> <p>Except for temporary changes to procedures, PG&E will require a review by an individual who holds a Senior Reactor Operators license only if the procedure is one of the types listed in Section 17.5 (8) of this FSAR Update <u>QA Program</u>. Furthermore, this individual need not be the supervisor in charge of the shift.</p> <p>Except that audit frequencies specified in Regulatory Guide 1.33, Revision 2, need not be met. Audits shall be performed at the frequencies specified in Section 17.18 of this FSAR Update <u>QA Program</u>.</p> <p>Except that audits and reviews of the Emergency Preparedness Program shall be performed in accordance with 10 CFR 50.54(t).</p> <p>Except that a grace period of up to 90 days will be allowed for audit scheduling, except where the schedule is mandated by regulation. The next schedule due date shall be based on the original scheduled date but shall not exceed the original due date plus 90 days.</p>

Table 17.1-1

Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
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Except that when purchasing commercial-grade calibration services from certain accredited calibration laboratories, the procurement documents are not required to impose a quality assurance program consistent with ANSI N45.2-1971. Alternative requirements described in ~~FSAR Update, Section 17.7~~this QA Program for Regulatory Guide 1.123 may be implemented in lieu of imposing a quality assurance program consistent with ANSI N45.2-1971.

1.8 2/79 ANSI/ANS 3.1 1978 Personnel Selection and Training

Except that for the Quality Verification Director, the one year of qualifying nuclear power plant experience in the overall implementation of the Quality Assurance program can be obtained outside the Quality Assurance organizations.

~~DCPP only—Except certain personnel are trained and qualified to the Institute of Nuclear Power Operations (INPO) criteria as described in the DCPP FSAR Update Chapter 13.~~

~~DCPP only—Except that a retraining and replacement training program for the plant staff meet or exceed the requirements and recommendations of Section 5.5 of ANSI N18.1-1971 and 10 CFR Part 55. This exception is based on the NRC letter to PG&E, dated July 19, 1989, issuing License Amendments No. 43 and 42.~~

Except that the Radiation Protection Manager's qualifications shall meet or exceed the qualifications of Regulatory Guide 1.8, Revision 2, April 1987, for the Radiation Protection Manager.

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Table 17.1-1

Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
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Except that the person serving as the manager responsible for the independent review and audit program shall have a minimum of 6 years of professional level managerial experience in the power field. This exception is based on NRC letter to PG&E dated February 6, 1992, issuing Licensing Amendment No. 68/67.

~~DCPP only—Except that the Operations Manager shall meet the requirements of the Technical Specifications.~~

Except that the licensed reactor operators and senior reactor operators shall meet or exceed the minimum qualifications of ANSI/ANS 3.1-1993 as endorsed by Regulatory Guide 1.8, Revision 3, May 2000 with the exceptions clarified in the current revision to the Operator Licensing Examination Standards for Power Reactors, NUREG-1021, Section ES-202. This exception is based on NRC letter to PG&E dated May 26, 2006, issuing License Amendment Nos. 187/189.

HB ISFSI personnel shall meet the requirements of the HB ISFSI Training Program.

4.15	2/79	—	—	Quality Assurance for Radiological Monitoring Programs (Normal Operations)—Effluent Streams and the Environment	Record retention requirements are stated in Chapter 17, Section 17.17. This Regulatory Guide does not apply to the ISFSI.
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Table 17.1-1

Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
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BTP PCSB 9.5-1 Appendix A	5/76	—	—	Guidelines for Fire Protection for Nuclear Power Plants	<p>The fire protection program for DCPP satisfies the requirements of GDC 3 (1967) by complying with the guidelines of Appendix A to NRC Branch Technical Position (BTP) (APCSB) 9.5-1, and with the provisions of 10 CFR 50.48 and Appendix R, Section III.G, J, L, and O, as stipulated by Operating License Condition 2.C(5) and 2.C(4) for Units 1 and 2, respectively. Approved deviations from Appendix A to BTP (APCSB) 9.5-1, and Appendix R sections are identified in Supplement Numbers 8, 9, 13, 23, 27, and 31 to the Safety Evaluation Report.</p> <p>Due to the absence of combustible materials within the ISFSI, other than the fuel in the onsite transporter, and based upon an analysis of a transporter fuel tank fire, it is concluded that a fire protection program is not required for the ISFSI. Thus, this BTP is not applicable.</p>
1.26	2/76	—	—	Quality Group Classifications and Standards for Water, Steam, and Radioactive Waste Containing Components of Nuclear Power Plants	<p>Design and construction of Diablo Canyon Power Plant started in 1965 and most of the work cannot comply with the specific requirements of Regulatory Guide 1.26, February 1976. The intent of the Regulatory Guide has been followed as shown by comparing the Reg. Guide with Table 3.2-2 in the FSAR Update and the Q List (Reference 8 of Section 3.2).</p> <p>This Regulatory Guide does not apply to the ISFSI.</p>
---	--	NCIG-01	2	Visual Weld Acceptance Criteria for Structural Welding at Nuclear Power Plants	
Table 17.1-1				Sheet 10 of 11	
Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions

---	--	NCIG-02	2	Sampling Plan for Visual Reinspection of Welds	
---	--	NCIG-03	1	Training Manual for Inspection of Structural Weld at Nuclear Power Plants Using the Acceptance Criteria of NCIG-01	
1.97	05/83	ANSI/ANS 4.5	1980	Instrumentation for Light Water Cooled Nuclear Power Plants To Assess Plant And Environs Conditions During And Following An Accident	This Regulatory Guide is not applicable to the ISFSI.

Note for Reg. Guide 1.33:

These controls replace the biennial procedure review requirement found in Section 5.2.15 of ANSI N18.7-1976.

1. All applicable ~~DCPP and~~ ISFSI procedures (shall)* be reviewed following an unusual incident, such as an accident, unexpected transient, significant operator error, or equipment malfunction, and following any modification to a system, as specified by Section 5.2 of ANSI N18.7/ANS 3.2, which is endorsed by Regulatory Guide 1.33.
2. Non-routine procedures (e.g. emergency operating procedures, procedures which implement the emergency plan, and other procedures whose usage may be dictated by an event) (shall)* be reviewed at least every two years and revised as appropriate.
3. Routine ~~DCPP and~~ ISFSI procedures that have not been used for two years (shall)* be reviewed before use to determine if changes are necessary or desirable.

* The word should has been changed to shall denoting a regulatory commitment.

Note for Reg. Guide 1.144:

The following interpretation is added with respect to Regulatory Guide 1.144, Section C.3.b(2):

Table 17.1-1

Sheet 11 of 11

When purchasing commercial-grade calibration services from calibration laboratories accredited by a nationally-recognized body, the accreditation process and accrediting body may be credited with carrying out a portion of the Purchaser's duties of verifying acceptability and effective implementation of the calibration service supplier's quality assurance program.

Nationally-recognized accrediting bodies include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology (NIST) and other accrediting bodies recognized by NVLAP via a Mutual Recognition Agreement (MRA)

In lieu of performing an audit, accepting an audit by another licensee, or performing a commercial-grade supplier survey, a documented review of the suppliers' accreditation shall be performed by the Purchaser. This review shall include, at a minimum, verification of all the following:

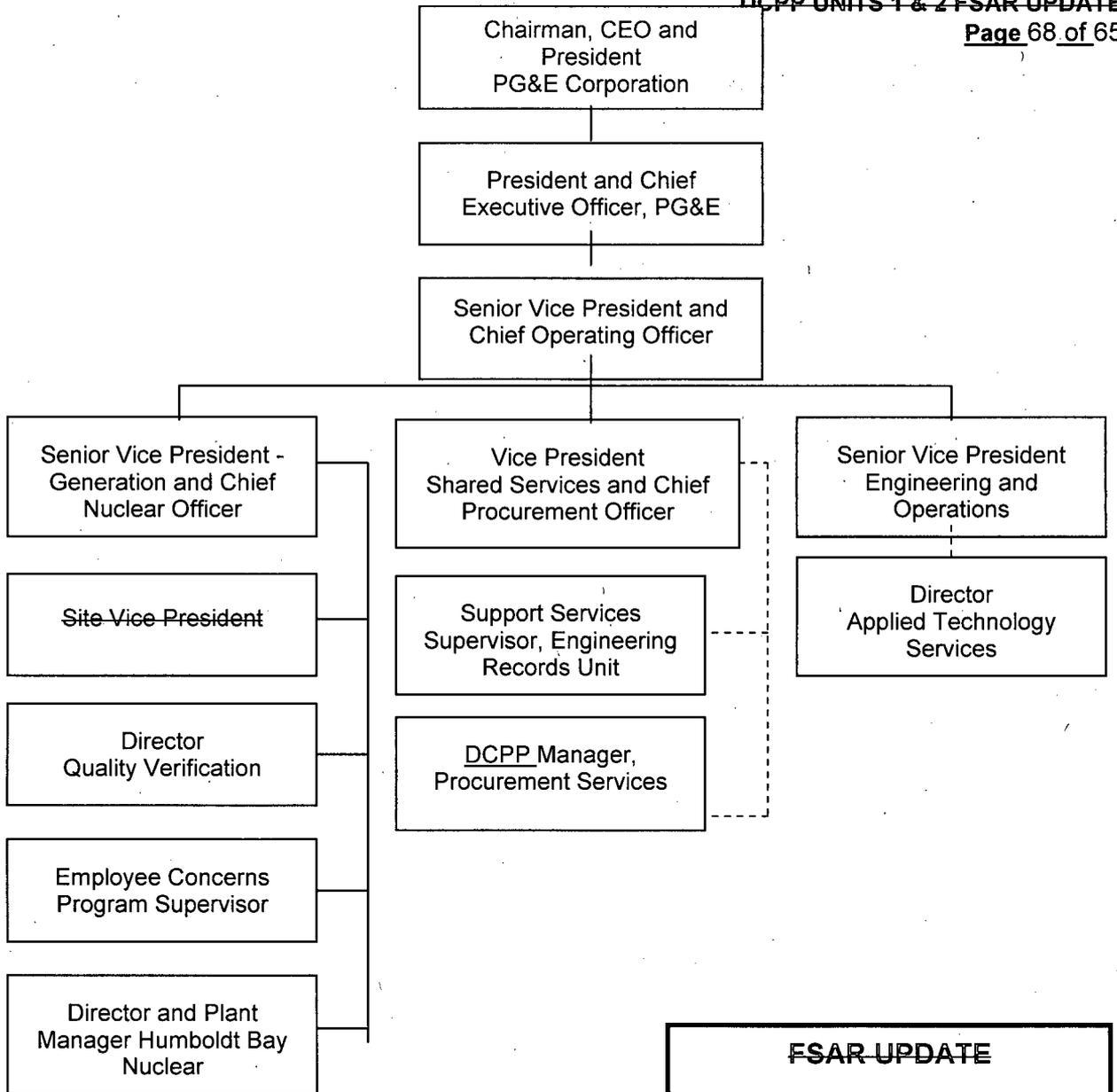
- (1) The accreditation is to ANSI/ISO/IEC 17025
- (2) The accrediting body is either NVLAP or A2LA, which is an accrediting body recognized by NVLAP through an MRA.
- (3) The published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.

Note for Reg. Guide 1.123:

The requirements of ANSI N45.2.13, Section 3.2, "Content of the Procurement Documents," Subsection 3.2.3, "Quality Assurance Program Requirements" are accepted with the following exception:

When purchasing commercial-grade services from calibration laboratories accredited by a nationally-recognized accrediting body, the procurement documents are not required to impose a quality assurance program consistent with ANSI N45.2-1971. Nationally-recognized accrediting bodies include the NVLAP administered by the NIST and other accrediting bodies recognized by NVLAP via a MRA. In such cases, accreditation may be accepted in lieu of the Purchaser imposing a QA Program consistent with ANSI N45.2-1971, provided all the following are met:

- (1) The accreditation is to ANSI/ISO/IEC 17025
- (2) The accrediting body is either NVLAP or A2LA, which is an accrediting body recognized by NVLAP through an MRA.
- (3) The published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.
- (4) The purchase documents impose additional technical and administrative requirements, as necessary, to satisfy DCPP QA Program and technical requirements, including the requirement that the calibration/certificate report include identification of the laboratory equipment/standard used.
- (5) The purchase documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.

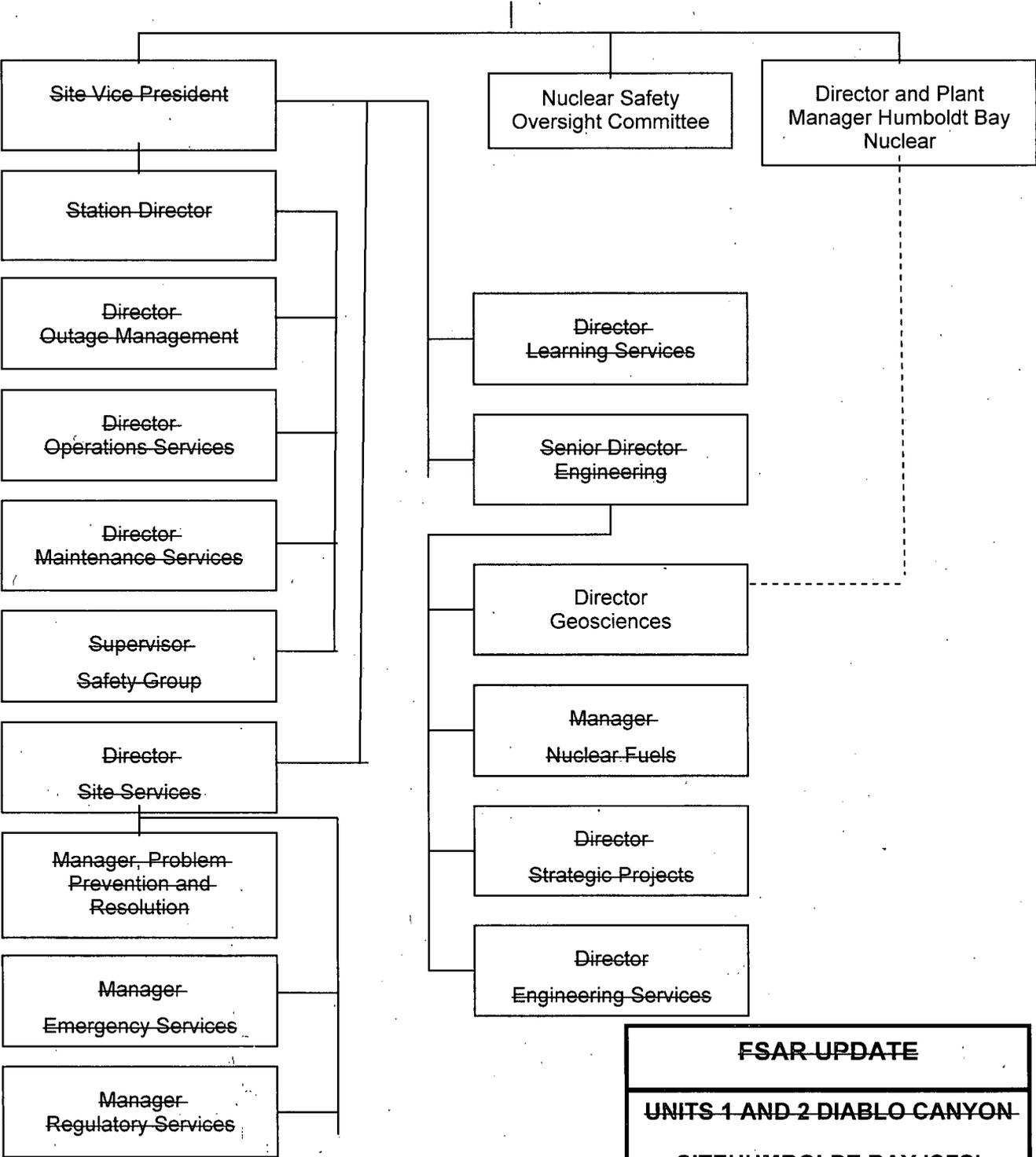


FSAR UPDATE
UNITS 1 AND 2 DIABLO CANYON
SITE HUMBOLDT BAY ISFSI
FIGURE 17.1-1
PACIFIC GAS AND ELECTRIC COMPANY
UTILITY ORGANIZATION

Employee Concerns Program Supervisor

Senior Vice President - Generation and Chief Nuclear Officer

Director Quality Verification



FSAR UPDATE
UNITS 1 AND 2 DIABLO CANYON-
SITE HUMBOLDT BAY ISFSI
FIGURE 17.1-2
NUCLEAR QUALITY IN THE
UTILITY ORGANIZATION

**Humboldt Bay Quality Assurance Plan
Attachment 4.2**

QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI

***(Requirements from Chapter 17, Diablo Canyon Power Plant Units 1 and 2
Final Safety Analysis Report Update)***

QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI

**(Requirements from Chapter 17, Diablo Canyon Power Plant Units 1 and 2 Final
Safety Analysis Report Updated)**

QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI

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QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI

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QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI

TABLES

<u>Table</u>	<u>Title</u>
17.1-1	Current Regulatory Requirements and PG&E Commitments Pertaining to the Quality Assurance Program

QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI

FIGURES

<u>Figure</u>	<u>Title</u>
17.1-1	Pacific Gas and Electric Company Utility Organization
17.1-2	Nuclear Quality in the Utility Organization

QUALITY ASSURANCE REQUIREMENTS FOR THE HUMBOLDT BAY ISFSI

17.1 ORGANIZATION

The Pacific Gas and Electric Company's (PG&E) efforts to assure the quality and safety of the independent spent fuel storage installation (ISFSI) is organized in a structured manner with clearly defined levels of authority, assignments of responsibility, and lines of communication. Assignment of responsibility for an item or activity includes responsibility for its quality. Figure 17.1-1 depicts the organizational structure of PG&E. The position of the quality verification (QV) organization in the utility organization is shown in Figure 17.1-2.

PG&E has assumed full responsibility to its employees, stockholders, the general public, and affected governmental regulatory agencies for the establishment and execution of the Quality Assurance (QA) Program prescribed herein, quality related program directives and administrative procedures. The work of executing selected portions of the QA Program may be delegated to organizations external to PG&E; however, in all such instances, PG&E retains overall responsibility.

Specific responsibilities pertaining to quality assurance matters are assigned by the QA Program and its implementing procedures and instructions to various individuals throughout PG&E. In each instance, the assignment of a responsibility to an individual includes with it a commensurate delegation of sufficient authority that the person can, in fact, fulfill that responsibility. Unless otherwise specifically prohibited, it is understood that the functions, tasks, and activities necessary to carry out a responsibility may be delegated to and performed by other qualified individuals. All delegations of functions, tasks, activities, and authority shall be documented.

Figure 17.1-2 identifies those individuals and organizational components of PG&E with direct responsibilities related to the quality of the design, fabrication, construction, testing, operation, maintenance, modification, and decommissioning of ISFSI structures, systems, and components (SSCs) that are important to safety.

The narrative description throughout this section is based on Figures 17.1-1 and 17.1-2.

THE BOARD OF DIRECTORS OF PG&E CORPORATION is responsible for all facets of PG&E's utility business.

THE CHAIRMAN, CEO, AND PRESIDENT, PG&E CORPORATION, is accountable to the Board of Directors and establishes the corporate policies, goals, and objectives related to all of PG&E's activities and operations. Reporting to the Chairman, CEO, and President is the President and Chief Executive Officer - PG&E Company.

THE PRESIDENT AND CHIEF EXECUTIVE OFFICER - PG&E, is a member of the Board of Directors and is responsible for and directs the planning, distribution, and development of all the Company's energy resources and nuclear power generation. These functions include such activities as planning and development, engineering, construction, and fossil and nuclear power plant and ISFSI operations. Reporting to the President and Chief Executive Officer is the Senior Vice President and Chief Operating Officer.

The SENIOR VICE PRESIDENT and CHIEF OPERATING OFFICER is responsible for leading and managing the utility's day-to-day operations, including oversight of energy delivery, engineering and operations, generation, ISTS, and shared services. Reporting to the Senior Vice President and Chief Operating Officer is the Senior Vice President - Generation and Chief Nuclear Officer; the Senior Vice President – Engineering & Operations; and the Vice President Shared Services.

THE SENIOR VICE PRESIDENT – ENGINEERING AND OPERATIONS, through the Director – Applied Technology Services, is responsible for providing, upon request: (1) technical investigations, tests, analyses, examinations, and calibration services in support of the Humboldt Bay Power Plant and the ISFSI; (2) developing, evaluating, qualifying, testing, and improving welding, brazing, and heat-treating procedures required by the company; and (3) providing evaluation support of these procedures.

THE VICE PRESIDENT – SHARED SERVICES AND CHIEF PROCUREMENT OFFICER, through the Support Services Supervisor – Engineering Records Unit, is responsible for providing document services support for the Humboldt Bay Power Plant and the Humboldt Bay ISFSI. These services include indexing, preparing, and duplicating microfiche for the drawing control system; storing the master microfiche and drawings that cannot be microfilmed; and scanning and indexing drawings when requested. They also provide remote storage of master microfilm reels for the records management system (RMS) and storage of vendor manuals. The Vice President – Shared Services and Chief Procurement Officer, through the Manager, Procurement Services, is responsible for administering, coordinating, planning, and operation of warehousing and procurement of materials in support of HBPP and ISFSI operations and construction, as well as for contract services.

THE SENIOR VICE PRESIDENT - GENERATION AND CHIEF NUCLEAR OFFICER, is responsible for overall ISFSI safety and for taking measures needed to ensure acceptable performance of the ISFSI staff in designing, fabricating, constructing, testing, operating, modifying, decommissioning, and providing technical support to the ISFSI. Reporting directly to the Senior Vice President - Generation and Chief Nuclear Officer is the Director and Plant Manager - Humboldt Bay Nuclear; the Director – Quality

Verification; and the Employee Concerns Program supervisor. The Senior Vice President - Generation and Chief Nuclear Officer, or his designee, as specified in administrative procedures, approves and signs official company correspondence to the

U.S. Nuclear Regulatory Commission (NRC) or its representatives. The Independent Review and Audit Program reports to the Senior Vice President – Generation and Chief Nuclear Officer. He approves revisions to the QA Program as described herein that constitute a reduction in a commitment made to the NRC. He also approves revisions to program directives.

The DIRECTOR AND PLANT MANAGER - HUMBOLDT BAY NUCLEAR, is responsible for the conduct of all activities related to the Humboldt Bay ISFSI. This includes responsibility for operation, maintenance, engineering, radiation protection, training, and security. He is the chairman of the Humboldt Bay PSRC. He is responsible to develop, and is authorized to approve and direct the implementation of those programs, procedures, and instructions required for the ISFSI within limits established by this QA Program, the Humboldt Bay ISFSI Technical Specifications, and administrative guidelines established in the Humboldt Bay ISFSI Final Safety Analysis Report (FSAR) Update. Design authority for the Humboldt Bay ISFSI has also been delegated to the Director and Plant Manager - Humboldt Bay Nuclear.

THE HBPP ENGINEERING MANAGER reports directly to the Director and Plant Manager - Humboldt Bay Nuclear, and is responsible for technical aspects of the engineering and design of Humboldt Bay ISFSI SSCs for monitoring system performance and trends; for performance of modifications to the Humboldt Bay ISFSI; for configuration control and design bases defense and management; for quality classification of Humboldt Bay ISFSI SSCs; and for the specification of technical and quality requirements for the purchase of Humboldt Bay ISFSI material and equipment.

THE DIRECTOR - QUALITY VERIFICATION, is responsible for management of the QA Program and for assuring that the QA Program prescribed herein, program directives, and administrative procedures are effectively implemented and complied with by all involved organizations, both internal and external to PG&E. The Chairman, CEO, and President - PG&E Corporation; the President and Chief Executive Officer - PG&E; the Senior Vice President and Chief Operating Officer; and the Senior Vice President - Generation and Chief Nuclear Officer have given the Director, Quality Verification, the organizational freedom and delegated the requisite authority to investigate any area or aspect of

PG&E's operations as necessary to identify and define problems associated with establishment or execution of the QA Program. They have also delegated to the Director, Quality Verification, the authority to initiate, recommend, or provide solutions for such problems to whatever management level is necessary, and to verify that effective corrective action is taken in a timely manner. This delegation includes the authority to assess, review, inspect, audit, and monitor the conduct of quality-related activities performed by or for PG&E to assure compliance with the QA Program and other regulatory requirements.

The Director - QV, reports directly to the Senior Vice President - Generation and Chief Nuclear Officer and has access to the Chairman, CEO, and President - PG&E Corporation; the President and Chief Executive Officer - PG&E; the Senior Vice President and Chief Operating Officer; and the Director and Plant Manager - Humboldt Bay Nuclear; and appropriate directors and managers for any significant quality-related problem or deficiency. He is authorized to prescribe a uniform company-wide method of performing an activity affecting quality by sponsoring or requiring the issuance of procedures when such standardization is considered desirable or essential to the effectiveness of the QA Program. Such uniform methods are contained in program directives and administrative procedures, and compliance with their requirements by all PG&E personnel is mandatory.

The Director - QV, will not be responsible for any activities unrelated to responsibilities described in the QA Program that would prevent the required attention to QA matters. Further, the responsibility of the implementation of the QA Program will take precedence over the other non-QA duties.

The Director - QV, shall meet the following qualification requirements: management experience through assignments to responsible positions; knowledge of QA regulations, policies, practices, and standards; and experience working in QA or related activity in reactor design, construction, or operation or in a similar highly technological industry. At the time assignment to the active position, the Director - QV, shall have six years experience in implementing quality assurance, preferably at an operating nuclear plant, or operations supervisory experience. At least one year of these six years of experience shall be nuclear power plant experience in the overall implementation of the QA Program. A minimum of one year of this six-year experience requirement shall be related technical or academic training. A maximum of four years of this six-year experience requirement may be fulfilled by related technical or academic training.

The Director - QV, is responsible to regularly assess and report on the status, adequacy, and effectiveness of this QA Program to the Senior Vice President - Generation and Chief Nuclear Officer and other affected PG&E management and nuclear oversight committees. He is responsible to identify, prepare, and submit for approval such changes to the QA Program prescribed herein as are necessary to maintain the QA Program up to date and in conformance with current regulatory requirements and PG&E commitments to the NRC. He is responsible for the review of all regulatory submittals as they pertain to the QA Program, and his concurrence is required prior to submittal. He is responsible for assessing and assuring that the QA Program is effectively implemented at the ISFSI site. He assures timely and effective corrective actions through audits, regular assessments, and quality assessment status reports. Reporting to the Director - QV, are the quality assurance, supplier quality, project quality, and independent quality control inspection functions.

The Director - QV, is responsible for providing recommendations on solutions to quality problems and performing monitoring, assessments, independent QC inspections,

reviews, and audits for the areas covered by the QA Program including supplier quality. The Director - QV, is also responsible for quality assurance associated with the Humboldt Bay Power Plant.

The Director - QV, has the authority and responsibility to stop work should there be a serious breach of any part of the QA Program, or of technical or regulatory requirements wherein public health or safety could be involved.

Through the conduct of assessments, audits, reviews, monitors, and independent QC inspections, the Director - QV, is responsible for quality overview of ISFSI design, fabrication, construction, testing, operation, modification, decommissioning, and related activities to verify independently that these activities are performed correctly and that human errors are reduced as much as practicable.

THE EMPLOYEE CONCERNS PROGRAM SUPERVISOR reports to the Senior Vice President - Generation and Chief Nuclear Officer.

THE DCPP MANAGER - PROCUREMENT SERVICES, reports through the Director, Generation Supply Chain, to the Vice President – Shared Services and Chief Procurement Officer and is matrixed to the DCPP Director - Site Services. The DCPP Manager – Procurement Services, is responsible for administering, coordinating, planning, and operation of warehousing and procurement of materials in support of HBPP and ISFSI operations and construction, as well as for contract services. This position is responsible for the functions within the materials procurement group including: the procurement specialist group, warehousing operations, administrative coordination of warehouse quality control receipt inspection activities, and materials coordination.

The DIRECTOR - GEOSCIENCES, is matrixed to the Director and Plant Manager, HBPP, and is responsible for providing geo-scientific studies; reports, and calculations (including geology, seismology, vibration ground motion studies, surface faulting, stability of subsurface materials, and slope stability) in support of the ISFSI and HBPP.

The following committees function at the managerial level within PG&E to provide review of ISFSI design, maintenance, and operation activities.

THE NUCLEAR SAFETY OVERSIGHT COMMITTEE, which reports to the Senior Vice President - Generation and Chief Nuclear Officer, implements the Independent Review and is described in Section 17.2.3.

THE HBPP PLANT STAFF REVIEW COMMITTEE reports to the Senior Vice President - Generation and Chief Nuclear Officer, and is responsible to advise on matters related to nuclear safety. The Committee is responsible for providing timely and continuing monitoring of ISFSI operating activities to assist the Director and Plant Manager - Humboldt Bay Nuclear, in keeping aware of general ISFSI conditions and to verify that day-to-day operating activities are conducted safely and in accordance with applicable

administrative controls. The Committee performs periodic reviews of ISFSI operating activities to evaluate operations and to plan future activities. In addition, the HBPP PSRC performs special reviews, investigations or analyses, and screens subjects of special concern as requested by NSOC. HBPP PSRC functions, responsibilities, and meeting requirements are described in Section 17.2.

Administrative procedures or charters for the above committees or programs provide detailed responsibilities and functions, as well as membership, authority, and reporting requirements. The reporting relationships of the committee are identified in the organization chart on Figure 17.1-2.

Verification of conformance to established requirements (except designs) is accomplished by individuals or groups within QV who do not have direct responsibility for performing the work being verified or by individuals or groups trained and qualified in QA concepts and practices and independent of the organization responsible for performing the task. The persons and organizations performing QA and quality control functions have direct access to management levels that assure the ability to: (a) identify quality problems; (b) initiate, recommend, or provide solutions through designated channels; and (c) verify implementation of solutions. They are sufficiently free from direct pressures for cost and schedule and have the responsibility to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming material. (The organizational positions with stop work authority are identified in the implementing procedures.) QV reviews and documents concurrence with all procedures and instructions that define methods for implementing the QA Program.

Each organization that supports the ISFSI documents and maintains current a written description of its internal organization. This documentation describes the business unit or department's structure, levels of authority, lines of communication, and assignments of responsibility. Such documentation takes the form of organization charts supported by written job descriptions or other narrative material in sufficient detail that the duties and authority of each individual whose work affects quality is clear. Interfaces between organizations are described in administrative procedures or other documents controlled in accordance with the appropriate requirements of Section 17.6.

The individuals assigned to the positions having a particular responsibility in program directives and administrative procedures (as described above) are the only individuals who are authorized to perform these activities. However, circumstances may arise where it is considered either necessary or desirable to have such activities, or some portion of them, actually performed by someone else. In such cases, the assigning organization retains responsibility and shall verify that the procedures and instructions to be followed in performing the work are adequate for controlling the work and meet applicable requirements. In such circumstances, the detailed procedures and instructions to be followed in performing the work are reviewed and approved by the

person assigned responsibility for the work prior to the commencement of work. The purpose of such review and approval is to verify that such procedures and instructions reflect an acceptable method of performing the work and are in compliance with the requirements of the QA Program. All instances in which authority is to be delegated or support services are to be provided are documented.

ISFSI suppliers are required to conform to this QA Program or to their own program approved by PG&E. Supplier QA Programs are required to comply with the applicable portions of both 10 CFR 50, Appendix B, and 10 CFR 72, Subpart G, and the applicable regulatory documents and industry standards identified in Table 17.1-1. The quality program is defined in the contract or similar procurement document. Suppliers to PG&E are required to document their internal organizational arrangements to the extent necessary for PG&E to assure the supplier is capable of effectively managing, directing, and executing the requirements of the procurement documents. The authority and responsibility of persons and organizations who perform activities that might affect the quality of the procured items or services shall be clearly established. The Suppliers' organizational structure, levels of authority, and functional assignments of responsibility shall be such that:

- (1) The QA function of formally verifying conformance to the technical and quality requirements of the procurement documents is accomplished by qualified personnel who are independent of those who performed or directly supervised the work.
- (2) Personnel who perform QA functions have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; to verify implementation of those solutions; and to control further processing of the items or services until proper dispositioning has occurred.

17.2 QUALITY ASSURANCE PROGRAM

17.2.1 PROGRAM APPLICABILITY

The quality of the important-to-safety aspects related to the design, fabrication, construction, testing, operation, maintenance, modification, and decommissioning of the Humboldt Bay ISFSI structures, systems, and components (SSCs) shall be assured through the QA Program prescribed herein, quality-related program directives, and administrative procedures. The QA Program requirements, as a minimum, apply to the HB ISFSI SSCs classified as important to safety in the HB ISFSI FSAR Update, Section 4.5. The applicable QA criteria are executed to an extent that is commensurate with the importance to safety.

The QA Program also applies to the following:

- (1) Managerial and administrative controls to ensure safe operation of the ISFSI, both prior to issuance of a license and throughout the life of the licensed activity.
- (2) Activities that provide confidence that an ISFSI SSC will perform satisfactorily in service, including activities that determine that physical characteristics and quality of materials or components adhere to predetermined requirements.

In addition, the QA Program includes requirements that apply to the following ISFSI nonsafety-related programs:

- (1) Emergency Preparedness
- (2) Security
- (3) Radiation Protection
- (4) ISFSI Radiological Environmental Monitoring
- (5) Radioactive Waste Management

17.2.2 PROGRAM CONTROL

The status and adequacy of this QA Program shall be regularly monitored, and it shall be revised as necessary to improve its effectiveness or to reflect changing conditions.

The Director - Quality Verification (QV), is responsible for the preparation, issue, interpretation, and control of this QA Program, and for concurring with changes to

quality-related administrative procedures that propose a change to the QA Program as it is described in a commitment to a regulatory agency. The Director - QV, is responsible to assure the requirements set forth in this QA Program, quality-related program directives, and administrative procedures are in compliance with current regulatory requirements and PG&E commitments to the NRC as shown in Table 17.1-1. Proposed changes to program directives are also approved by the Senior Vice President - Generation and Chief Nuclear Officer.

The QA Program documents, including any changes, supplements, or appendices, are issued and maintained as controlled documents. Changes to the HB ISFSI-specific QA Program requirements shall be made in accordance with 10 CFR 50.54. Proposed changes to this QA Program that reduce commitments are reviewed and concurred with in writing by the Director - QV, and are approved by the Senior Vice President - Generation and Chief Nuclear Officer, or his designee, prior to being submitted to and approved by the NRC in accordance with 10 CFR 50.54 prior to issue for use.

Implementation of the QA Program is accomplished through separately issued procedures, instructions, and drawings. Each vice president, director, and manager is responsible for the establishment and implementation of detailed procedures and instructions prescribing the activities for which he is responsible. Such documents are derived from the requirements and reflect the responsibilities specified in the QA Program. Activities affecting quality are accomplished in accordance with these instructions, procedures, and drawings. All personnel are instructed that compliance with those requirements, and the requirements of the QA Program, is mandatory.

Questions or disputes involving interpretations of QA Program requirements, or of the commitments and requirements upon which it is based, are referred to the Director - QV, for resolution. Questions or disputes involving the responsibilities defined in this chapter and program directives are referred to the Senior Vice President - Generation and Chief Nuclear Officer. Questions or disputes involving other quality matters are resolved by referring the matter in a timely manner to successively higher levels of management until, if necessary, the matter reaches that level which has direct authority over all contesting parties.

Personnel who perform functions addressed by the QA Program are responsible for the quality of their work. They are indoctrinated, trained, and appropriately qualified to assure that they have achieved and maintained suitable proficiency to perform those functions. Qualifications of such personnel are in accordance with applicable codes, standards, and regulatory requirements.

The Director - QV, or his designated representative, regularly reports to the Senior Vice President - Generation and Chief Nuclear Officer, responsible company management, and NSOC on the effectiveness of the QA Program as it relates to ISFSI design,

maintenance, and operation. Such reports are based on the results of audits, reviews, inspections, tests, and other observations of activities as prescribed by the QA Program.

Annually, the Director - QV, shall report to the Senior Vice President - Generation and Chief Nuclear Officer, on the effectiveness of the QA Program and results of the Audit Program. The report shall include an evaluation of compliance with current regulatory requirements and commitments to the NRC.

17.2.3 INDEPENDENT REVIEW PROGRAM

The QA Program also includes an independent review, implemented by NSOC. This function provides an independent review of ISFSI changes, tests, and procedures, which constitute a change to the ISFSI as described in the HB ISFSI FSAR Update. In addition, the independent review function will verify that reportable events are investigated in a timely manner and corrected in a manner that reduces the probability of recurrence of such events; and detect trends that may not appear to a day-to-day observer.

The individuals assigned responsibility for independent reviews shall be qualified in specific disciplines. These individuals shall collectively have the experience and competence required to review activities in the following areas:

- (1) ISFSI operations
- (2) Nuclear engineering
- (3) Chemistry and radiochemistry
- (4) Metallurgy
- (5) Nondestructive testing
- (6) Instrument and control
- (7) Radiological safety
- (8) Mechanical and electrical engineering
- (9) Administrative controls
- (10) Quality assurance practices

(11) Other appropriate fields

NSOC shall report to and advise the Senior Vice President - Generation and Chief Nuclear Officer, on those areas of responsibility specified in the sections below.

Composition – NSOC membership shall be comprised of site representatives and external members. Membership will normally include the Site Vice-President and four external members. The NSOC Chair shall have a minimum of 6 years of professional level managerial experience in the power field and NSOC members shall have a minimum of 5 years of professional level experience in the power field.

The NSOC Chair and all members shall have qualifications that meet or exceed the requirements and recommendations of Section 4.7 of ANSI/ANS 3.1 1978.

An individual may possess competence in more than one specialty area.

Consultants: Consultants shall be used as determined by the NSOC Chair to provide expert advice to NSOC.

Meeting Frequency: NSOC shall meet at least twice a year.

Quorum: A quorum of NSOC is necessary for the performance of the NSOC function required by the QA Program. The quorum shall consist of the Chair (or appointed Vice-Chair) and a minimum of 3 members, as long as one of the quorum is the Site Vice President or his designee.

Review: NSOC shall review:

- (1) The evaluations for: (a) changes to procedures, equipment, or systems, and (b) tests or experiments completed under the provision of 10 CFR 50.59 or 10 CFR 72.48, to verify that such actions did not require prior NRC approval
- (2) Proposed changes to procedures, equipment, or systems, that require prior NRC approval as defined in 10 CFR 50.59 or 10 CFR 72.48
- (3) Proposed tests or experiments that require prior NRC approval as defined in 10 CFR 50.59 or 10 CFR 72.48
- (4) Proposed changes to the HB ISFSI Technical Specifications or license

- (5) Violations of codes, regulations, orders, Technical Specifications, license requirements, or of internal procedures or instructions having nuclear safety significance
- (6) Significant operating abnormalities or deviations from normal and expected performance of ISFSI equipment that affect nuclear safety
- (7) All reportable events
- (8) All recognized indications of an unanticipated deficiency in some aspect of ISFSI design or operation of important-to-safety SSCs that could affect nuclear safety
- (9) Reports and meeting minutes of the PSRC.
- (10) Any other matter involving safe operation the ISFSI that the quality verification director deems appropriate for consideration, or which is referred to the director by organizational units.

NSOC may delegate reviews of selected topics such as changes processed under 10 CFR 50.59 and 10 CFR 72.48 to QV. The appropriate NSOC subcommittee will consider QV's reviews of those topics in their meetings.

Records: Records of NSOC reviews and activities shall be prepared, approved, and distributed as indicated below:

- (1) A summary report shall be prepared, approved, and forwarded to the Senior Vice President - Generation and Chief Nuclear Officer and the Plant Manager - Humboldt Bay Nuclear.
- (2) Minutes of each NSOC meeting shall be prepared, approved, and forwarded to the Senior Vice President - Generation and Chief Nuclear Officer, within 30 days following each meeting

17.2.4 PLANT STAFF REVIEW COMMITTEE

A PSRC has been established for the HB ISFSI. The committee satisfies applicable requirements of ANSI N18.7, 1976, and its activities are controlled as described below:

PSRC Function - The PSRC shall function to advise the Director and Plant Manager - Humboldt Bay Nuclear, on all matters related to nuclear safety.

Composition - The PSRC shall be chaired by the Director and Plant Manager - Humboldt Bay Nuclear, or delegate, and shall be composed of members of the plant staff who have responsibility in the areas of ISFSI operations, mechanical maintenance, instrumentation and control maintenance; radiation protection, and nuclear engineering. The PSRC Chairman shall appoint all members in writing. Each PSRC member shall meet or exceed the minimum qualifications of ANSI/ANS 3.1-1978, Section 4.7, for comparable positions, except for ISFSI operations and radiation protection. The radiation protection member shall meet or exceed the qualifications of Regulatory Guide 1.8, Revision 2, April 1987.

Alternates - The Chairman may designate in writing other regular members who may serve as the Acting Chairman of PSRC meetings. All alternate members shall be appointed in writing by the PSRC Chairman. Alternates may be designated for specific PSRC members and shall have expertise and qualifications in the same general area as the regular PSRC member they represent. No more than two alternates shall participate as voting members in PSRC activities at any one time.

Meeting Frequency - The PSRC shall meet at least once per calendar quarter and as convened by the PSRC Chairman or his designated alternate.

Quorum - The minimum quorum of the PSRC necessary for performance of the PSRC responsibility and authority provisions of this QA Program shall be a majority (more than one-half) of the members of the PSRC. For purposes of the quorum, this majority shall include the Chairman or the acting chairman, and no more than two alternate members.

The PSRC shall be responsible for:

- (1) Reviewing the documents listed below to verify that proposed actions do not require prior NRC approval or require a change to the Technical Specifications and recommending approval or disapproval in writing to the appropriate approval authority
 - (a) Evaluations of proposed procedures and procedure changes completed under the provisions of 10 CFR 50.59 or 10 CFR 72.48
 - (b) Evaluations of proposed tests or experiments completed under the provisions of 10 CFR 50.59 or 10 CFR 72.48
 - (c) Evaluations of proposed changes or modifications to plant structures, systems, or equipment completed under the provisions of 10 CFR 50.59 or 10 CFR 72.48

- (d) Evaluations of proposed changes to the following plans and programs completed under the provisions of 10 CFR 50.59, 10 CFR 72.48, or other applicable regulations:
1. Security Plan
 2. Emergency Plan
- (2) Reviewing all proposed changes to the ISFSI Technical Specifications and advising the Director and Plant Manager - Humboldt Bay Nuclear, on their acceptability
- (3) Investigating all violations of the ISFSI Technical Specifications including the preparation and forwarding of reports covering evaluation and recommendations to prevent recurrence to the Senior Vice President - Generation and Chief Nuclear Officer. The assessment shall include an assessment of the safety significance of each violation
- (4) Reviewing all reportable events in order to advise the Director and Plant Manager - Humboldt Bay Nuclear, on the acceptability of proposed corrective actions, and forwarding of reports covering evaluation and recommendations to prevent recurrence to the Senior Vice President - Generation and Chief Nuclear Officer.
- (5) Reviewing significant ISFSI operating experience or events that may indicate the existence of a nuclear safety hazard, and advising the Director and Plant Manager - Humboldt Bay Nuclear, on an appropriate course of action
- (6) Reviewing the Security Plan and implementing procedures and submitting results and recommended changes to the Director and Plant Manager - Humboldt Bay Nuclear.
- (7) Reviewing the Emergency Plan and implementing procedures and submitting results and recommended changes to the Director and Plant Manager - Humboldt Bay Nuclear.
- (8) Reviewing any accidental, unplanned, or uncontrolled radioactive release including the preparation and forwarding of reports covering evaluation, recommendations, and disposition of the corrective action to prevent recurrence to the Senior Vice President - Generation and Chief Nuclear Officer.
- (9) Recommending in writing to the appropriate approval authority, approval or disapproval of the items considered under paragraphs (1) and (2), above.

- (10) Rendering determinations in writing with regard to whether each item considered under paragraphs (1) through (4), above, require prior NRC approval.
- (11) For HB ISFSI, in the event of a disagreement between PSRC members on a matter affecting nuclear or radiological safety, a conservative course shall be followed as determined by the Director and Plant Manager - Humboldt Bay Nuclear. Records of such disagreements shall be included in the meeting minutes.
- (12) Reviewing, prior to approval, new procedures used to handle heavy loads in exclusion areas and changes directly related to methods and routes used to handle heavy loads in exclusion areas.

Records - The PSRC shall maintain written minutes of each PSRC meeting that, at a minimum, document the results of all PSRC activities performed under the responsibility and authority provisions of this QA Program section. Copies shall be provided to the Senior Vice President - Generation and Chief Nuclear Officer, and to the quality verification director.

17.3 DESIGN CONTROL

Design activities shall be performed in an orderly, planned, and controlled manner directed to achieving the independent spent fuel storage installation (ISFSI) design that best serves the needs of PG&E and its customers without posing an undue risk to the health and safety of the public.

Design activities shall be controlled to assure that design, technical, and quality requirements are correctly translated into design documents and that changes to design and design documents are properly controlled. Design control procedures shall address responsibilities for all phases of design including:

- (1) Responsibilities
- (2) Interface control
- (3) Design input
- (4) Design performance
- (5) Design verification
- (6) Design change

Systematic methods shall be established and documented for communicating needed design information across the external and internal design interfaces, including changes to the design information, as work progresses. The interfaces between the HB ISFSI engineering organization and other organizations, either internal or external to PG&E, performing work affecting quality of design shall be identified and documented. This identification shall include those organizations providing criteria, designs, specifications, technical direction, and technical information and shall be in sufficient detail to cover each structure, system, or component (SSC) and the corresponding design activity.

Provisions for design input shall define the technical objectives for SSCs being designed or analyzed. For the SSC being designed, or for the design services being provided (for example, design verification), design input requirements shall be determined, documented, reviewed, approved, and controlled.

Required design analyses (such as physics, stress, thermal, hydraulic, and accident analysis; material compatibility; accessibility for inservice inspection, maintenance, and repair; and ALARA considerations) shall be performed in a planned, controlled, and correct manner. PG&E procedures shall identify the review and approval responsibilities for design analyses.

The preparation and control of design documents (such as specifications, drawings, reports, and installation procedures) shall be performed in a manner to assure design inputs are correctly translated into design documents (for example, a documented check to verify the dimensional accuracy and completeness of design drawings and specifications).

PG&E shall provide for reviewing, confirming, or substantiating the design to assure that the design meets the specified design inputs. Design verification shall be performed by competent individuals or groups other than those who performed the original design, but who may be from the same department. Individuals performing the verification shall not:

- (1) Have immediate supervisory responsibility for the individual performing the design. In exceptional circumstances, the designer's immediate supervisor can perform the verification provided:
 - (a) The supervisor is the only technically qualified individual
 - (b) The need is individually documented and approved in advance by the supervisor's management
 - (c) Quality assurance audits cover frequency and effectiveness of use of supervisors as design verifiers to guard against abuse
- (2) Have specified a singular design approach
- (3) Have ruled out certain design considerations
- (4) Have established the design inputs for the particular design aspect being verified

The results of the design verification efforts shall be documented with the identification of the verifier clearly provided. Design verification methods may include, but not be limited to, the following: design reviews, use of alternate calculations, and qualification testing. The design verification shall be identified and documented. The design verification shall be completed prior to relying upon the component system or structure to perform its function. Procedures shall assure that verified computer codes are certified for use and that their applicability is specified.

Proposed changes or modifications to ISFSI systems or equipment that affect nuclear safety shall be designed by a qualified individual or organization, and reviewed by a qualified individual/group other than the individual/group who prepared the change or modification, but who may be from the same organization. These reviews shall include a determination as to whether additional cross-discipline reviews are necessary. If deemed

necessary, they shall be performed by review personnel of the appropriate discipline(s). These reviews shall also determine whether an evaluation per 10 CFR 50.59 or 10 CFR 72.48 is necessary. If necessary, one shall be prepared and presented to the PSRC for review prior to approval.

Each Humboldt Bay ISFSI change or modification shall be approved by the Director and Plant Manager - Humboldt Bay Nuclear, or designee, as specified in administrative procedures, prior to implementation.

Procedures for implementing design changes, including field changes, shall assure that the impact of the change is carefully considered, required actions documented, and information concerning the change transmitted to all affected persons and organizations. These changes shall be subjected to design control measures commensurate with those applied to the original design. Design changes shall be reviewed and approved by the same organization or group that was responsible for the original design.

Document control measures shall be established for design documents that reflect the commitments of the HB ISFSI FSAR Update. These design documents shall include, but are not limited to, specifications, calculations, computer programs, system descriptions, the HB ISFSI FSAR Update when used as a design document, and drawings including flow diagrams, piping and instrument diagrams, control logic diagrams, electrical single line diagrams, structural drawings for major facilities, site arrangements, and equipment locations.

Nonconforming activities such as procedure violations, deviations, or errors and deficiencies in approved design documents, including design methods (such as computer codes), shall be controlled as described in Sections 17.15 and 17.16.

17.4 PROCUREMENT DOCUMENT CONTROL

The procurement documents shall include those requirements necessary to assure that the items and services to be provided will be of the desired quality.

The procurement documents shall also include provisions for the following, as appropriate:

- (1) Basic Technical Requirements - These include drawings, specifications, codes, and industrial standards with applicable revision data; test and inspection requirements; and special instructions and requirements, such as for designing, fabricating, cleaning, erecting, packaging, handling, shipping, and, if applicable, extended storage in the field.
- (2) Quality Assurance Requirements - These include the requirements for the supplier to have an acceptable QA Program; provisions for access to the supplier's facilities and records for source inspection and audit when the need for such inspection and audit has been determined; and provisions for extending applicable QA Program and other requirements of procurement documents to subcontractors and suppliers, including PG&E's access to facilities and records.
- (3) Documentation Requirements - These shall include records to be prepared, maintained, submitted or made available for review and instructions on record retention and disposition.

The procedures that implement procurement document control shall describe the organizational responsibilities for procurement planning; preparation, review, approval and control of procurement documents; supplier selection; bid evaluations; and review and evaluation of supplier QA Programs prior to initiation of activities affected by the program.

Procedures shall be established to review the adequacy of technical and quality assurance requirements stated in procurement documents; determine that requirements are correctly stated, inspectable, and controllable; assure adequate acceptance and rejection criteria; and provide for the preparation, review, and approval of procurement documents in accordance with QA Program requirements. The review and documented concurrence of the adequacy of quality assurance requirements stated in procurement documents shall be performed by independent personnel trained and qualified in applicable QA practices and concepts.

Changes to procurement documents shall be subject to the same control as the original document.

17.5 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Activities affecting quality shall be prescribed by and accomplished in accordance with documented procedures, instructions, and drawings.

The vice president in charge of each PG&E organizational unit that performs activities affecting quality is responsible for the establishment and implementation of instructions, procedures, or drawings prescribing such activities. Standard guidelines for the format, content, and review and approval processes shall be established and set forth in a procedure or instruction issued by that organizational unit.

The method of performing activities affecting quality shall be prescribed in documented instructions, procedures, or drawings of a type appropriate to the circumstances. This may include shop drawings, process specifications, job descriptions, planning sheets, travelers, QA manuals, checklists, or any other written or pictorial form provided that the activity is described in sufficient detail such that competent personnel could be expected to satisfactorily perform the work functions without direct supervision.

Within the constraints, limitations, or other conditions as may be imposed by the independent spent fuel storage installation (ISFSI) Technical Specifications and other license requirements or commitments, procedures prescribing a preplanned method of conducting the activities and programs specified shall be established in accordance with the applicable regulations, codes, standards, and specifications.

In addition to the above, ISFSI procedures and programs shall be established and controlled as described below.

- (1) Written procedures shall be established, implemented, and maintained covering the activities referenced in the HB ISFSI Technical Specifications.
- (2) Each procedure of paragraph (1) above, and changes thereto, and all proposed tests or experiments that affect nuclear safety shall be reviewed and approved prior to implementation in accordance with the review and approval requirements below. Each procedure of paragraph (1) above, as modified by Table 17.1-1, shall also be reviewed periodically as set forth in administrative procedures.

These procedure review and approval requirements apply when approving ISFSI programs and procedures, or changes to ISFSI programs and procedures. They also apply when approving or changing corporate

procedures and procedures used by support organizations if they could have an immediate effect on ISFSI operations or the operational status of ISFSI SSCs that are important to safety. They do not apply to editorial or typographical changes.

- (3) Each procedure or program required by paragraph (1) above, and other procedures, tests, and experiments that affect nuclear safety or the treatment of radwaste, and changes thereto, shall be prepared by a qualified individual/group. Each procedure, program, test, or experiment, and changes thereto, shall be reviewed by an individual/group other than the individual/group who prepared the proposed document or change, but who may be from the same organization as the individual/group who prepared it. The Director and Plant Manager - Humboldt Bay Nuclear, or his designee, shall approve Humboldt Bay ISFSI procedures prior to implementation, as identified in administrative procedures.
- (4) A responsible organization shall be assigned for each program or procedure required by paragraph (1) above. The responsible organization shall assign reviews of proposed procedures, programs, and changes to qualified personnel of the appropriate discipline(s).
- (5) Individuals responsible for the above reviews shall be knowledgeable in the document's subject area, shall meet or exceed the qualification requirements of Section 4.7.2 of ANSI/ANS 3.1-1978, and shall be designated as qualified reviewers by the Director and Plant Manager - Humboldt Bay Nuclear for Humboldt Bay ISFSI procedures.
- (6) The reviews specified in paragraph (2) above shall include a determination as to whether additional cross-discipline reviews are necessary. If deemed necessary, they shall be performed by review personnel of the appropriate discipline(s).
- (7) The reviews specified in paragraph (2) above shall also determine whether an evaluation per 10 CFR 50.59 or 10 CFR 72.48 is necessary. If necessary, one shall be prepared and presented to the PSRC for review prior to approval.
- (8) Temporary changes to procedures of paragraph (1) above may be made provided:
 - (a) The intent of the original procedure is not altered

- (b) Administrative controls for approval and timely notification or training of personnel affected by the temporary change shall be implemented.
- (c) The change is documented, reviewed as described above, and approved by the appropriate approval authority within 14 days of implementation.

17.6 DOCUMENT CONTROL

Documents and changes to documents that prescribe or verify activities affecting quality shall be controlled in a manner that precludes the use of inappropriate or outdated documents. As a minimum, controlled documents include: design documents, including documents related to computer codes; procurement documents; instructions and procedures for such activities as fabrication, construction, modification, installation, test, operation, maintenance, and inspection; as-built documents; quality assurance and quality control manuals and quality-affecting procedures; Humboldt Bay Independent Spent Fuel Storage Installation FSAR Updates; and nonconformance reports.

The organization responsible for establishing instructions, procedures, drawings, or other documents prescribing activities affecting quality is also responsible to develop and implement systematic methods for the control of such documents in accordance with the requirements herein. In those instances where such documents directly involve organizational interfaces, that organization with ultimate responsibility for the issuance of the documents is responsible for establishing the methods for their control.

Procedures and instructions shall assure that documents, including changes, are prepared; reviewed by a qualified individual other than the person who generated the document; approved for release by authorized personnel; distributed to the location where the activity is performed prior to commencing work; and used in performing the activity. Procedures and instructions shall require the development of as-built drawings and the removal or appropriate identification of obsolete or superseded documents.

Procedures and instructions that define methods for implementing the QA Program requirements shall be reviewed and concurred with by quality verification (QV), for compliance and alignment with the Program. Revisions to these documents shall also be reviewed and concurred with by QV if they propose a change to the QA Program as it is described in a commitment to a regulatory agency.

The controls shall identify those responsible for preparing, reviewing, approving, and issuing documents to be used. They shall also define the coordination and control of interfacing documents and shall require the establishment of current and updated distribution lists.

A document control system shall be established to identify the current revision of instructions, procedures, specifications, drawings, and procurement documents. Master lists, when utilized as an element of the document control system, shall be updated and distributed to predetermined responsible personnel.

17.7 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

Supplier activities in providing purchased material, equipment, and services shall be monitored as planned and necessary to assure such items and services meet procurement document requirements.

Procedures shall describe each organization's responsibilities for the control of purchased material, equipment, and services, including the interfaces between all affected organizations.

All materials, equipment, and services shall meet the specified technical and quality requirements. Verification that a supplier can meet the specified technical and quality requirements shall be by one or a combination of the following:

- (1) Evaluation of the supplier's history
- (2) Evaluation of current supplier quality records
- (3) Evaluation of the supplier's facilities, personnel, and implementation of a QA Program

Such evaluations shall be documented. Suppliers whose QA Programs have been found by quality verification (QV), to satisfy specified quality requirements shall be listed on the PG&E Qualified Suppliers List, which is controlled by QV.

Suppliers of commercial grade calibration services may be qualified based on their accreditation by a nationally-recognized accrediting body, as an alternative to qualification by supplier audit, commercial grade survey, or in-process surveillance.

A documented review of the suppliers' accreditation by the purchaser may be used as the qualification method, as described in PG&E commitments to NRC Regulatory Guides 1.123 and 1.144, which are documented in Table 17.1-1. This review shall include, at a minimum, all of the following:

- (1) The accreditation is to ANSI/ISO/IEC 17025
- (2) The accrediting body is either the National Voluntary Laboratory Accreditation Program (NVLAP) or an accrediting body recognized by NVLAP through a Mutual Recognition Agreement (MRA).
- (3) The published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.

A quality verification plan shall be established and documented that applies to each

procurement and identifies the manner by which PG&E intends (with appropriate QV organization involvement) to assure the quality of the material, equipment, or service as defined in the procurement documents and to accept those items or services from the supplier.

The quality verification plan shall identify inspection, audit, and/or surveillance activities to be performed including the characteristics or processes to be witnessed, inspected, or verified; the method of surveillance; and the extent of documentation required. The timing and sequence of the activities shall be planned to identify any system or product deficiencies before subsequent activities may preclude their disclosure.

The plan shall also be based on consideration of:

- (1) Importance to independent spent fuel storage installation safety
- (2) Complexity of inspectable characteristics
- (3) Uniqueness of the item or service

Supplier performance and compliance with procurement documents may be monitored by either source verification, receiving inspection, or a combination of the two. Source verification activities may consist of inspections, audits, surveillance, or a combination thereof and are conducted at the supplier's facility. When source verification activities are specified in the quality verification plan, the timing and sequence of these activities are to be delineated.

Receiving inspection activities, as required by the quality verification plan, shall be coordinated with source verification activities performed prior to shipments. If sampling is performed, it shall be in accordance with procedures and/or recognized standards. Receipt inspection shall include a review which verifies that supplier quality records required by procurement documents are acceptable and that items are properly identified and traceable to appropriate documentation.

Records of quality verification activities shall be traceable to the materials, equipment, or services to which they apply. Documentation of acceptance in accordance with the procurement quality verification plan shall be available at the site prior to installation or acceptance for use. Documentary evidence that procurement document requirements have been met shall clearly reflect each requirement. Supplier's Certificates of Conformance are periodically evaluated by audits and independent inspections or tests to assure they are valid and the results documented.

When spare or replacement parts are procured, supplier selection and quality verification activities shall be planned and implemented to verify compliance with requirements meeting or exceeding those of the original.

17.8 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

Materials, parts, and components shall be identified and controlled in a manner to preclude the use of incorrect or defective items.

All materials, parts, and components, including partially fabricated subassemblies, batches, lots, and consumables, shall be identified in a manner that each can be related to its applicable drawing, specification, or other technical documentation at any stage from initial receipt through fabrication, installation, repair, or modification. Controls and implementing procedures shall ensure that only correct and accepted items are used during all stages and describe the responsibilities of the involved organizations.

Physical identification of items shall be used whenever possible and practical. Controls may, however, be through physical separation, procedure, or other appropriate means. Identification may be either on the item or on records traceable to the item.

Identification marking, where employed, shall be clear, unambiguous, and indelible and its application shall not impair the function of the identified item or any other item. When an item is subdivided, the identifying marking shall be transferred to each resulting part. Markings shall not be rendered illegible by treatment, process, assembly, installation, or coating unless other means of identification and determining acceptability are provided.

Verification activities, such as inspection, shall be performed to ensure that the provisions of this policy and related implementing procedures are followed for items prior to release for fabrication, assembly, shipping, installation, and use.

When required by code, standard, or specification, traceability of materials, parts, or components to specific inspection or test records shall be provided for and verified.

17.9 SPECIAL PROCESSES

Special processes shall be controlled and performed by qualified personnel using qualified procedures or instructions in accordance with applicable codes, standards, specifications, criteria, or other special requirements.

A special process is an activity in which the quality of the result is highly dependent upon either process variables or the skill and performance of the person doing the work, and the specified quality is difficult to verify by inspection and test after the process is completed.

Special processes include, but are not limited to:

- (1) Welding
- (2) Heat treating
- (3) Nondestructive examination
- (4) Chemical cleaning
- (5) Others as specified in design and procurement documents (examples are certain protective coating applications and concrete batch plant operations, which are controlled by specifications on a case-by-case basis),

The implementing instructions shall contain the criteria for assuring proper process control and shall be qualified and controlled to assure compliance with applicable codes, standards, QA procedures, and design specifications. Substantiating records of qualifications and controls shall be maintained.

17.10 INSPECTION

A comprehensive program of inspection of items and activities affecting quality shall be conducted to verify conformance with established requirements. Procedures shall describe the organizational responsibilities necessary to carry out the inspection program.

The objective of the inspection program shall be to verify the quality of the items and activities and conformance to the applicable documented instructions, procedures, and drawings for accomplishing activities affecting quality. The inspection program, including information relative to individual inspections to be performed, shall be developed based on a review of the design drawings, specifications, and other controlled documents which prescribe items and activities affecting quality. Inspections shall be performed utilizing appropriate inspection procedures and instructions together with the necessary drawings, specifications, and other controlled documents. The inspections shall be documented and evaluated.

Inspection procedures, instructions, or checklists shall provide for the following: identification of characteristics and activities to be inspected; a description of the method of inspection; identification of the individuals or groups responsible for performing the inspection operation; acceptance and rejection criteria; identification of required procedures, drawings, and specifications and revisions; recording the name of the inspector or data recorder and the results of the inspection operation; and specifying necessary measuring and test equipment including accuracy requirements. The inspection program shall include, but not be limited to, those inspections required by applicable codes, standards, specifications, and Independent Spent Fuel Storage Installation (ISFSI) Technical Specifications.

The inspection program shall require inspection of ISFSI modifications, repairs, and replacements to be in accordance with existing design requirements.

The inspection program shall require inspection and/or test of items for each work operation where such is necessary to assure quality. If inspection of processed items is impossible or disadvantageous, indirect control by monitoring of process shall be required. Both inspection and process monitoring shall be required when control is inadequate without both. Both inspection and process control shall be performed when required by applicable code, standard, or specification.

Mandatory quality control inspection hold points shall be identified in the inspection program. When required, the specific hold points shall be indicated in the drawings, procedures, or instructions that prescribe the work activity. Work shall not proceed beyond such hold points without the documented consent of Quality Verification.

When the inspection program permits or requires a sample of a large group of items

that are amenable to statistical analysis, the sampling procedures to be used shall be based on recognized standard practices.

Inspections to verify the quality of work shall be performed by qualified individuals other than those who performed or directly supervised the activity being inspected. During the inspection, such persons shall not report directly to the immediate supervisors who are responsible for the work being inspected.

Personnel performing inspections shall be qualified in accordance with applicable regulations, codes, standards, and specifications.

Inspection records shall contain the following where applicable: a description of the type of observation, the date and results of the inspection, information related to conditions adverse to quality, inspector or data recorder identification, evidence as to the acceptability of the results, and action taken to resolve any discrepancies noted.

17.11 TEST CONTROL

A program of testing shall be conducted as necessary to demonstrate that structures, systems, and components will perform satisfactorily in service. This program shall ensure that the necessary testing is identified and performed at the appropriate time in accordance with written test procedures that incorporate or reference the requirements and acceptance limits contained in the applicable design documents.

The program shall cover all required tests, including tests prior to installation, preoperational tests, and operational tests.

The procedures that implement testing shall provide for meeting appropriate prerequisites for the test (for example, environmental conditions, specification of instrumentation, and completeness of tested item), sufficient instruction for the performance of the test, specification of any witness or hold points, acceptance and rejection criteria and limits, and the documentation of the test. The procedures shall provide for evaluation and documentation of the test results and data and their acceptability as determined by a qualified person or group.

Test records shall contain the following where applicable: a description of the type of observation, the date and results of the test, information related to conditions adverse to quality, inspector or data recorder identification, evidence as to the acceptability of the results, and action taken to resolve any discrepancies noted.

17.12 CONTROL OF MEASURING AND TEST EQUIPMENT

Organizational responsibilities shall be delineated for establishing, implementing, and assuring the effectiveness of the calibration program for measuring and test equipment (M&TE). This program shall include the generation, review, and documented concurrence of calibration procedures; the calibration of measuring and test equipment; and the maintenance and use of calibration standards.

M&TE, including reference standards, used to determine the acceptability of items or activities shall be strictly maintained within prescribed accuracy limits.

M&TE, including reference standards, shall be of suitable range, type, and accuracy to verify conformance with requirements.

Procedures for control of M&TE shall provide for the identification (labeling, codes, or alternate documented control system), recall, and calibration (including documented precalibration checks) of the M&TE. The calibration procedures shall delineate any necessary environmental controls, limits, or compensations in excess of those which may be inherent to the general program.

The calibrations shall utilize documented valid relationships to nationally recognized standards or accepted values of natural physical constants. Where national standards do not exist, the basis for the calibration shall be documented. Calibration of M&TE shall be against standards that have an accuracy of at least four times the required accuracy of the equipment being calibrated or, when this is not practical, have an accuracy that assures the equipment being calibrated will be within required tolerance and that the basis of acceptance is documented and authorized by responsible management of the PG&E organization performing that activity.

Calibrating standards have greater accuracy than standards being calibrated. Calibrating standards with the same accuracy may be used if it can be shown to be adequate for the requirements and the basis of acceptance is documented and authorized by responsible management.

The calibration intervals, whether calendar- or usage-based, shall be predetermined and documented. Indication of expiration, if feasible, will be displayed on or with the M&TE. Significant environmental or usage restrictions will be indicated on or with the equipment or be factored into the documented system used to control the issuance of the M&TE. Special calibration shall be required whenever the accuracy of the equipment is suspect.

Records shall be maintained to show that established schedules and procedures for the calibration of the M&TE have been followed. M&TE shall be identified and traceable to the calibration test data. Records of the usage of the M&TE shall be maintained to

facilitate corrective action in the event of the discovery of a deficiency concerning the calibration or use of M&TE, so that measures may be taken and documented to determine the validity of previous inspections performed and of the acceptability of items inspected or tested since the previous calibration of the deficient M&TE.

17.13 HANDLING, STORAGE, AND SHIPPING

Material and equipment shall be handled, stored, and shipped in accordance with design and procurement requirements in a manner that will prevent damage, deterioration, or loss.

Special coverings, equipment, and protective environments shall be specified and provided where necessary for the protection of particular items from damage or deterioration. When such special protective features are required, their existence shall be verified and monitored as necessary to assure they continue to serve their intended function.

Special handling tools and equipment shall be provided where necessary to ensure items can be handled safely and without damage. Special handling tools and equipment shall be controlled and maintained in a manner such that they will be ready and fit to serve their intended function when needed. Such control shall include periodic inspection and testing to verify that special handling tools and equipment have been properly maintained.

Special attention shall be given to marking and labeling items during packaging, shipment, and storage. Such additional marking or labeling shall be provided as is necessary to ensure that items can be properly maintained and preserved. This shall include indication of the presence of special environments or the need for special control. Provisions shall be described for the storage of chemicals, reagents (including control of shelf life), lubricants, and other consumable materials.

Special handling, preservation, storage, cleaning, packaging, and shipping requirements are established and accomplished by suitably trained individuals in accordance with predetermined work and inspection instructions.

17.14 INSPECTION, TEST, AND OPERATING STATUS

The inspection, test, and/or operating status of material, equipment, and operating systems shall be readily apparent and verifiable.

The procedures used to indicate status shall provide means for assuring that required inspections and tests are performed in the prescribed sequence; acceptability is indicated; and nonconforming items are clearly identified throughout fabrication, installation, test, maintenance, repairs, and modification to prevent inadvertent use or operation. Items accepted and released are identified to indicate their inspection status prior to forwarding them to a controlled storage area or releasing them for installation or further work. Deviations from the prescribed sequence shall be subject to the same level of control as the generation of the original sequence to prevent the bypassing or omission of a required test or inspection.

Identification of status may be by such means as, but not limited to, tags, stamps, markings, labels, or travelers. In some instances, records traceable to the item may be used. The procedures implementing control of inspection, test, and operating status shall clearly delineate authority for the application, change, or removal of a status identifier.

17.15 CONTROL OF NONCONFORMING CONDITIONS

Items and activities that do not conform to requirements shall be controlled in a manner that will prevent their inadvertent use or installation. Technical decisions as to the disposition of each nonconforming condition shall be made by personnel with assigned authority in the relevant disciplines. The control, review, and disposition of nonconforming conditions shall be accomplished and documented in accordance with approved written procedures and instructions.

Nonconforming conditions shall be documented and affected organizations notified of such conditions. Further processing of the nonconforming conditions and other items affected by them shall be controlled in a manner to prevent their inadvertent use or installation pending a decision on their disposition.

The responsibility and authority for the disposition of nonconforming conditions shall be established and set forth in the applicable procedures and instructions for their control. The rework or repair of nonconforming items and the disposition of operational nonconforming conditions shall be accomplished in accordance with written procedures and instructions. Dispositions involving design changes shall be approved by the organization with the authority for design.

The acceptability of rework or repair of materials, parts, components, systems, or structures shall be verified by reinspecting and retesting the item as originally inspected and tested, or by a method that is at least equal to the original inspection or testing method. Reworked and repaired items shall be reinspected in accordance with applicable procedures and instructions. The acceptability of nonconforming items that have been dispositioned "repair" or "accept-as-is" shall be documented. Such documentation shall include a description of the change, waiver, or deviation that has been accepted in order to record the change and, if applicable, denote the as-built condition.

Corrective action for conditions adverse to quality shall be processed in accordance with Section 17.16.

In cases where required documentary evidence that items have passed required inspections and tests is not available, the associated materials or equipment shall be considered nonconforming. Until suitable documentary evidence is available to show that the material or equipment is in conformance, affected systems shall be considered to be inoperable and reliance shall not be placed on such systems to fulfill their intended safety functions.

Nonconforming conditions that require reporting to the NRC shall be reviewed by the Quality Verification organization. Such review shall include the results of any investigations made and the recommendations resulting from such investigations to preclude or reduce the probability of recurrence of the event or circumstance.

17.16 CORRECTIVE ACTION

Each individual condition adverse to quality shall be identified, controlled, and evaluated, and a disposition shall be determined for the remedial action and corrective action as soon as practicable. These activities shall be performed consistent with Section 17.15, Control of Nonconforming Conditions.

Systematic review and evaluation of all conditions adverse to quality shall be conducted and documented. Conditions adverse to quality shall include, but not be limited to: engineering, design, and drafting errors; equipment failures and malfunctions; abnormal occurrences; deficiencies; deviations; and defective material, equipment, and services.

The review and evaluation shall include identification of quality trends, repetitive occurrences, and significant conditions adverse to quality. The quality trends and other significant review findings shall be analyzed and appropriate corrective action determined. Findings and actual or recommended corrective action shall be reported to management by the responsible organization for review and assessment.

Significant conditions adverse to quality shall be investigated to the extent necessary to assess the root causes and to determine the corrective action required to prevent recurrence of the same or similar conditions. The corrective action required for significant conditions adverse to quality shall be accomplished in a timely manner. Significant conditions adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to management.

Significant conditions adverse to quality that are related to Independent Spent Fuel Storage Installation (ISFSI) operations or maintenance shall be reported to the Quality Verification organization. Completion of corrective actions for significant conditions adverse to quality shall be reviewed and verified by personnel having no direct responsibility for either the disposition or the corrective action taken.

Follow-up reviews shall be conducted to verify that the corrective action was properly implemented, performed in a timely manner, and that it was effective in correcting the identified condition.

Significant conditions adverse to quality shall be evaluated for reportability to the NRC in accordance with 10 CFR 21, 10 CFR 72.74, and 10 CFR 72.75, the ISFSI Technical Specifications, and other applicable regulations and shall be reported as required.

17.17 QUALITY ASSURANCE RECORDS

Sufficient records shall be maintained to furnish evidence of both the quality of items and activities affecting quality and to meet applicable code, standard, and regulatory requirements. The records include all documents referred to or described in the QA Program or required by implementing procedures such as operating logs, maintenance and modification procedures, related inspection results, and reportable occurrences; and other records required by the independent spent fuel storage installation (ISFSI) Technical Specifications and Code of Federal Regulations. In addition to the records of the results of reviews, designs, fabrication, installation, inspections, calibrations, tests, maintenance, surveillances, audits, personnel qualification, special process qualification, and material analyses for PG&E quality-related activities and ISFSI structures, systems, and components that are important to safety, those of vendors, suppliers, subcontractors, and contractors shall also be maintained.

A management control system for the collection, storage, and maintenance of completed quality assurance (QA) records shall be maintained. This records management program shall be designed and implemented to assure that the QA records are complete, readily retrievable when needed, and protected from damage or destruction during storage by fire, flooding, theft, environmental conditions, or other causes.

QA records stored electronically will follow the guidance for electronic records management given in the Nuclear Information and Records Management Association (NIRMA) technical guidelines, TG 11-1998, "Authentication of Records;" TG 15-1998, "Management of Electronic Records;" TG 16-1998, "Software Configuration Management and Quality Assurance;" and TG 21-1998, "Electronic Records Protection and Restoration." QA records will be stored on electronic media (that is, optical disk, magnetic tape, network array, etc.) meeting the requirements of the NIRMA guidelines. Alternately, records stored on optical disks may meet the requirements of Generic Letter 88-18, "Plant Record Storage on Optical Disk," dated October 20, 1988. Information Systems will determine the appropriate electronic media. Regardless of the electronic media selected, the process must be capable of producing legible, accurate, and complete records during the required retention period.

Backup copies of in-process electronic media records will be maintained in multiple, physically-independent electronic locations. Backup copies of QA records in electronic media will be maintained in multiple, physically-independent electronic locations until such time as images of these records are created, copied, and verified on two copies of an appropriate electronic storage media. The two copies will then be stored in separate physical locations. File legibility verification will be completed on all QA records stored on electronic media by either visually verifying the file legibility or by electronically verifying exact binary file transfer.

Periodic media inspections to monitor image degradation will be conducted in accordance with the NIRMA guidelines or media manufacturers' recommendations. These periodic inspections shall be documented.

QA records stored on electronic media will be refreshed or copied on to new media and subsequently verified if the projected lifetime of that media does not exceed the retention period of the records stored on that media. These requirements meet the intent of Generic Letter 88-18.

Detailed records for items or activities shall be specified by instructions, procedures, drawings, or specification or other documents that prescribe the item or activity and shall be generated by the organization responsible for the item or activity including PG&E and non-PG&E organizations. Each department generating QA records is responsible for transmitting those records to the records processing organization for archival purposes.

All records shall be assigned a retention period in conformance with Title 10, Code of Federal Regulations, other applicable codes, standards, and specifications.

17.17.1 HUMBOLDT BAY ISFSI RECORDS

Important-to-safety records shall be classified as lifetime or nonpermanent. The following records shall be maintained as required for the Humboldt Bay ISFSI:

- (1) Radiation protection program and survey records
- (2) Records associated with reporting defects and noncompliance)
- (3) Records important to decommissioning
- (4) Records of changes to the physical security plan made without prior NRC approval
- (5) Records of changes, tests and experiments, and of changes to procedures described in the ISFSI FSAR Update pursuant to 10 CFR 72.48
- (6) Records showing receipt, inventory, location, disposal, acquisition, and transfer of spent fuel
- (7) A copy of the current inventory of spent fuel in storage at the ISFSI
- (8) A copy of the current material control and accounting procedures
- (9) Other records required by license conditions or by NRC rules, regulations or orders

- (10) Records of the occurrence and severity of important natural phenomena that affect ISFSI design
- (11) QA records (including records pertaining to the design, fabrication, erection, testing, maintenance, and use of structures, systems, and components important to safety; and results of reviews, inspections, tests, audits, monitoring of work performance, and material analyses)
- (12) A copy of the current physical security plan, plus any superseded portions of the plan
- (13) A copy of the current safeguards contingency plan procedures, plus any superseded portions of the procedures
- (14) Operating records, including maintenance, alterations or additions made
- (15) Records of off-normal occurrences and events
- (16) Environmental survey records
- (17) Records of employee qualifications and certifications
- (18) Record copies of:
 - ISFSI FSAR Updates
 - Reports of accidental criticality or loss of special nuclear material
 - Material status reports
 - Nuclear material transfer reports
 - Reports of pre-operational test acceptance criteria and results
 - Procedures
 - Environmental Report
 - Emergency Plan
- (19) Construction Records; and
- (20) Records of events associated with radioactive releases.

Facilities for the temporary or permanent storage of completed QA records shall be established in predetermined locations as necessary to meet the requirements of codes, standards, and regulatory agencies. Such facilities shall be constructed and maintained so as to protect the contents from possible damage or destruction.

17.18 AUDITS

The adequacy and effectiveness of the Quality Assurance (QA) Program shall be continually monitored through a comprehensive system of internal and supplier audits. The audit system implemented by the Quality Verification (QV) organization includes all aspects of the QA Program. The audit system shall:

- (1) Verify, through examination and evaluation of objective evidence, that this QA Program has been implemented as required
- (2) Identify any deficiencies or nonconformances in this QA Program
- (3) Verify the correction of any identified deficiencies or nonconformances
- (4) Assess the adequacy and effectiveness of this QA Program

A comprehensive plan for the audit system shall be established and documented. Audit frequencies are determined by a performance-based evaluation plan. This plan uses assessment indicators to identify and schedule audits based on performance results and importance of the activity relative to safety. The plan shall identify the scope of individual audits that are to be performed, the aspects of this QA Program covered by each audit, and the schedule for performing audits. The audit system plan shall be reviewed at least semiannually, and revised as necessary, to assure that coverage and schedule reflect current activities and that audits of independent spent fuel storage installation (ISFSI) activities are being accomplished in accordance with applicable requirements. Other associated activities included as part of the audit program are: indoctrination and training programs; the qualification and verification of implementation of QA programs of contractors and suppliers; interface control among the applicant and the principal contractors; audits by contractors and suppliers; corrective action, calibration, and nonconformance control systems; ISFSI FSAR Update commitments; and activities associated with computer codes.

Auditors shall be independent of direct responsibility for the performance of the activities that they audit, have experience or training commensurate with the scope and complexity of their audit responsibility, and be qualified in accordance with applicable standards.

Auditing shall be initiated as early in the life of an activity as is practicable and consistent with the schedule for accomplishing the activity. In any case, auditing shall be initiated early enough to assure that this QA Program is effectively implemented throughout each activity. Individual audits shall be regularly scheduled on the basis of the status and importance of the activities, which they address.

For audits, other than those whose scheduled frequency is mandated by regulation (such as the Safeguards Contingency Plans or the Security Program), a grace period of up to 90 days may be utilized when the urgency of other priorities makes meeting the specified schedule dates impractical. For audit activities deferred by using a grace period, the next scheduled due date shall be based on the original schedule due date but may not exceed the original due date plus 90 days.

Audit reports shall be prepared, signed by the Audit Team Leader, and issued to responsible management of both the audited and auditing organizations.

Audits are regularly scheduled on a formal audit schedule prepared by QV. The audit schedule is reviewed regularly by the Director - QV, and the schedule is revised as necessary to assure adequate coverage as commensurate with activities and past performance. Audits are performed in accordance with approved audit plans. Such audits may be augmented by other QV assessments and independent inspections. Additional audits may be performed as requested by NSOC, the Senior Vice President - Generation and Chief Nuclear Officer, or the Director - QV.

The following areas shall be audited at least once per 24 months, or more frequently as performance dictates:

- (1) The conformance of ISFSI operation to provisions contained within the applicable Technical Specifications and applicable licenses
- (2) The performance, training, and qualifications of the entire ISFSI staff
- (3) The results of actions taken to correct deficiencies occurring in ISFSI equipment, structures, systems, or method of operation that affect nuclear safety
- (4) The performance of activities required by the QA Program to meet the criteria of Appendix B, 10 CFR 50
- (5) A representative sample of routine ISFSI procedures that are used more frequently than every two years. This audit is to ensure the acceptability of the procedures and to verify that the procedures review and revision program is being implemented effectively.
- (6) The performance of activities required to be audited by ANS-3.2/ANSI N18.7-1976, Section 4.5.
- (7) Review of design documents and process to ensure compliance with the Section 17.3 (i.e., use of supervisors as design verifiers). In addition, QV shall sample and review specifications and design drawings to assure that the documents are prepared, reviewed, and approved in accordance with

PG&E procedures and that the documents contain the necessary QA requirements, acceptance requirements, and quality documentation requirements.

- (8) QV shall audit the departments that qualify personnel and procedures to assure that the process qualification activity, records, and personnel meet the applicable requirements. They shall also audit the organizations implementing special processes to provide assurance that the processes are carried out in accordance with approved procedures by qualified personnel using qualified equipment and that required records are properly maintained.
- (9) The Radiation Protection Program, in accordance with 10 CFR 20.

The following activities shall be audited at least once per 12 months unless specified otherwise. However, if the audit frequencies required by the governing regulations are changed, audit frequencies shall, at least meet the revised minimum requirements.

- (1) The Security Program in accordance with 10 CFR 73.55(g)(4) and 10 CFR 73.56(g)
- (2) The Humboldt Bay ISFSI Access Authorization Program.

Management of the audited organization shall review the audit report and respond to any quality problem reports, investigate any significant findings to identify their cause and determine the extent of corrective action required, including action to prevent recurrence. They shall schedule such corrective action and also take appropriate action to assure it is accomplished as scheduled. They shall respond to QV regarding each significant finding stating the root cause, immediate action taken, and the corrective action taken or planned to prevent recurrence. Such responses may be documented directly within electronic databases used for the corrective action program.

QV shall review the written responses to all audit findings, evaluate the adequacy of each response, assure that corrective action to prevent recurrence is identified and taken for each significant finding, and confirm that corrective action is accomplished as scheduled.

Audit records shall be generated and retained by QV for all audits.

**CURRENT REGULATORY REQUIREMENTS AND PG&E COMMITMENTS
 PERTAINING TO THE QUALITY ASSURANCE PROGRAM**

The Quality Assurance Program for the Humboldt Bay ISFSI, described in the HB QA Plan, program directives, and administrative procedures complies with the requirements set forth in the Code of Federal Regulations. In addition, it complies with the regulatory documents and industry standards listed below.

Changes to this list are not made without the review and concurrence of the Director - Quality Verification.

Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
(S.G.) 28	6/72	ANSI N45.2	1971	Quality Assurance Program Requirements for Nuclear Power Plants	
1.38	5/77	ANSI N45.2.2	1972	Quality Assurance Requirements for Packaging, Shipping, Receiving, Storage, and Handling of Items for Water-Cooled Nuclear Power Plants	Warehouse personnel will normally visually scrutinize incoming shipments for damage of the types listed in Section 5.2.1, this activity is not necessarily performed prior to unloading. Separate documentation of the shipping damage is not necessary. Release of the transport agent after unloading and the signing for receipt of the shipment provides adequate documentation of completion of the shipping damage inspection. Any damage noted will be documented and dispositioned. Persons performing this visual scrutiny are not considered to be performing an inspection function as defined under Reg. Guide 1.74; therefore they do not require certification as an inspector under Reg. Guide 1.58.
1.39	9/77	ANSI N45.2.3	1973	Housekeeping Requirements for Water-Cooled Nuclear Power Plants	Housekeeping zones established at the power plants differ from those described in the standard; however, PG&E is in compliance with the intent of the standard.

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Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.30	8/72	ANSI N45.2.4	1972	Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment	<p>The evaluation of (data sheet) acceptability is indicated on the results and data sheets by the approval signature (paragraph 2.4).</p> <p>No visual examination for contact corrosion is made on breaker and starter contacts unless there is evidence of water damage or condensation. Contact resistance tests are made on breakers rated at 4 kV and above. No contact resistance test is made on lower voltage breakers or starters (paragraph 3[4]).</p> <p>No system test incorporates a noise measurement. If the system under test meets the test criteria, then noise is not a problem (paragraph 6.2.2).</p>
1.58	9/80	ANSI N45.2.6	1978	Qualification of Nuclear Power Plant Inspection, Examination and Testing Personnel	<p>ANSI N45. 2. 6 applies to individuals conducting independent QC inspections, examinations, and tests. ANSI/ ANS 3.1-1978 applies to personnel conducting inspections and tests of items or activities for which they are responsible (e.g., surveillance tests, maintenance tests, etc.).</p> <p>Except that inspector/examiner reevaluation due dates may be extended a maximum of 90 days. The next reevaluation due date shall be based on the original scheduled due date but shall not exceed the original due date plus 90 days.</p> <p>NDE personnel shall be qualified and certified in accordance with CP-189-1995.</p>

Table 17.1-1

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Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.58 (cont.)					<p>NDE personnel who perform examinations of the containment structure per the requirements of Section XI, Subsections IWE and IWL, visual examination and ultrasonic thickness measurement only, shall be qualified and certified to ANSI/ASNT CP-189-1991.</p> <p>ISI ultrasonic examiners shall meet the additional requirements of ASME Section XI, Appendix VIII, 2001 Edition with no Addenda.</p>
1.116	5/77	ANSI N45.2.8	1975	Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems	
1.88	10/76	ANSI N45.2.9	1974	Collection, Storage, and Maintenance of Nuclear Power Plant Quality Assurance Records	<p>Except PG&E will comply with the 2-hour rating of Section 5.6 of ANSI N45.2.9 issued July 15, 1979.</p> <p>Except PG&E will also meet the intent of the guidelines for the storage of QA records in electronic media as, endorsed by Generic Letter 88-18, "Plant Record Storage on Optical Disks," issued October 20, 1988, and Regulatory Issues Summary 2000-18, "Guidance on Managing Quality Assurance Records in Electronic Media," issued October 23, 2000.</p> <p>Note: PG&E will maintain records of spent fuel and high-level radioactive waste in storage in accordance with ANSI N 45.2.9-1974 rather than 10 CFR 72.72(d). Refer to ISFSI FSAR Update, Section 9.4.2.</p>
1.74	2/74	ANSI-N45.2.10	1973	Quality Assurance Terms and Definitions	

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Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.64	6/76	ANSI N45.2.11	1974	Quality Assurance Requirements for the Design of Nuclear Power Plants	Except PG&E will allow the designer's immediate supervisor to perform design verification in exceptional circumstances and with the controls as described in NUREG-0800, Revision 2, July 1981.
1.144	1/79	ANSI N45.2.12	1977	Auditing of Quality Assurance Programs for Nuclear Power Plants	Except the scheduled date for triennial vendor audits and annual supplier evaluations may be extended a maximum of 90 days. The next scheduled due date shall be based on the original scheduled due date but shall not exceed the original due date plus 90 days.
					<p>Except that the corrective action program stipulated in the QA Program may be used instead of the requirements of Section 4.5.1 as long as the appropriate time limits are applied to significant conditions adverse to quality. Also, no additional documentation is necessary if needed corrective actions are taken and verified prior to audit report issuance.</p> <p>See Note for Reg Guide 1.144</p>
1.123	7/77	ANSI N45.2.13	1976	Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants	<p>In addition to ANSI N45.2.13, Section 10.3.3, PG&E will accept items and services which are complex or involve special processes, environmental qualification, or critical characteristics which are difficult to verify upon receipt by suppliers' Certificate of Conformance if and only if the supplier has been evaluated and qualified utilizing Performance Based Supplier Audit techniques.</p> <p>See Note for Reg Guide 1.123</p>

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Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.146	8/80	ANSI N45.2.23	1978	Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants	<p>Except that auditor recertification due dates may be extended a maximum of 90 days. The next recertification due date shall be based on the original scheduled due date but shall not exceed the original due date plus 90 days.</p> <p>Except that in lieu of the requirements of 2.3.4 of ANSI N45.2-1978, the prospective lead auditor shall have participated in at least one nuclear quality assurance audit within the year preceding the individual's effective date of qualification.</p>
1.33	2/78	ANSI N18.7	1976	Quality Assurance Program Requirements (Operation)	<p>Except that PG&E will not perform biennial review of all ISFSI procedures, except under the conditions described in note below (See note at end of table).</p> <p>Except for temporary changes to procedures, PG&E will require a review by an individual who holds a Senior Reactor Operators license only if the procedure is one of the types listed in Section 17.5 (8) of this QA Program. Furthermore, this individual need not be the supervisor in charge of the shift.</p> <p>Except that audit frequencies specified in Regulatory Guide 1.33, Revision 2, need not be met. Audits shall be performed at the frequencies specified in Section 17.18 of this QA Program.</p> <p>Except that audits and reviews of the Emergency Preparedness Program shall be performed in accordance with 10 CFR 50.54(t).</p>

Table 17.1-1

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Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.33 (cont.)					<p>Except that a grace period of up to 90 days will be allowed for audit scheduling, except where the schedule is mandated by regulation. The next schedule due date shall be based on the original scheduled date but shall not exceed the original due date plus 90 days.</p> <p>Except that when purchasing commercial-grade calibration services from certain accredited calibration laboratories, the procurement documents are not required to impose a quality assurance program consistent with ANSI N45.2-1971. Alternative requirements described in this QA Program for Regulatory Guide 1.123 may be implemented in lieu of imposing a quality assurance program consistent with ANSI N45.2-1971.</p>
1.8	2/79	ANSI/ANS 3.1	1978	Personnel Selection and Training	<p>Except that for the Quality Verification Director, the one year of qualifying nuclear power plant experience in the overall implementation of the Quality Assurance program can be obtained outside the Quality Assurance organizations.</p> <p>Except that the Radiation Protection Manager's qualifications shall meet or exceed the qualifications of Regulatory Guide 1.8, Revision 2, April 1987, for the Radiation Protection Manager.</p>

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Reg. Guides	Date	Standard No.	Rev.	Title/Subject	Exceptions
1.8 (cont.)					<p>Except that the person serving as the manager responsible for the independent review and audit program shall have a minimum of 6 years of professional level managerial experience in the power field. This exception is based on NRC letter to PG&E dated February 6, 1992, issuing Licensing Amendment No. 68/67.</p> <p>Except that the licensed reactor operators and senior reactor operators shall meet or exceed the minimum qualifications of ANSI/ANS 3.1-1993 as endorsed by Regulatory Guide 1.8, Revision 3, May 2000 with the exceptions clarified in the current revision to the Operator Licensing Examination Standards for Power Reactors, NUREG-1021, Section ES-202. This exception is based on NRC letter to PG&E dated May 26, 2006, issuing License Amendment Nos. 187/189.</p> <p>HB ISFSI personnel shall meet the requirements of the HB ISFSI Training Program.</p>
---	--	NCIG-01	2	Visual Weld Acceptance Criteria for Structural Welding at Nuclear Power Plants	
---	--	NCIG-02	2	Sampling Plan for Visual Reinspection of Welds	
---	--	NCIG-03	1	Training Manual for Inspection of Structural Weld at Nuclear Power Plants Using the Acceptance Criteria of NCIG-01	

Table 17.1-1

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Note for Reg. Guide 1.33:

These controls replace the biennial procedure review requirement found in Section 5.2.15 of ANSI N18.7-1976.

1. All applicable ISFSI procedures (shall)* be reviewed following an unusual incident, such as an accident, unexpected transient, significant operator error, or equipment malfunction, and following any modification to a system, as specified by Section 5.2 of ANSI N18.7/ANS 3.2, which is endorsed by Regulatory Guide 1.33.
2. Non-routine procedures (e.g. emergency operating procedures, procedures which implement the emergency plan, and other procedures whose usage may be dictated by an event) (shall)* be reviewed at least every two years and revised as appropriate.
3. Routine ISFSI procedures that have not been used for two years (shall)* be reviewed before use to determine if changes are necessary or desirable.

* The word should has been changed to shall denoting a regulatory commitment.

Note for Reg. Guide 1.144:

The following interpretation is added with respect to Regulatory Guide 1.144, Section C.3.b(2):

When purchasing commercial-grade calibration services from calibration laboratories accredited by a nationally-recognized body, the accreditation process and accrediting body may be credited with carrying out a portion of the Purchaser's duties of verifying acceptability and effective implementation of the calibration service supplier's quality assurance program.

Nationally-recognized accrediting bodies include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology (NIST) and other accrediting bodies recognized by NVLAP via a Mutual Recognition Agreement (MRA)

In lieu of performing an audit, accepting an audit by another licensee, or performing a commercial-grade supplier survey, a documented review of the suppliers' accreditation shall be performed by the Purchaser. This review shall include, at a minimum, verification of all the following:

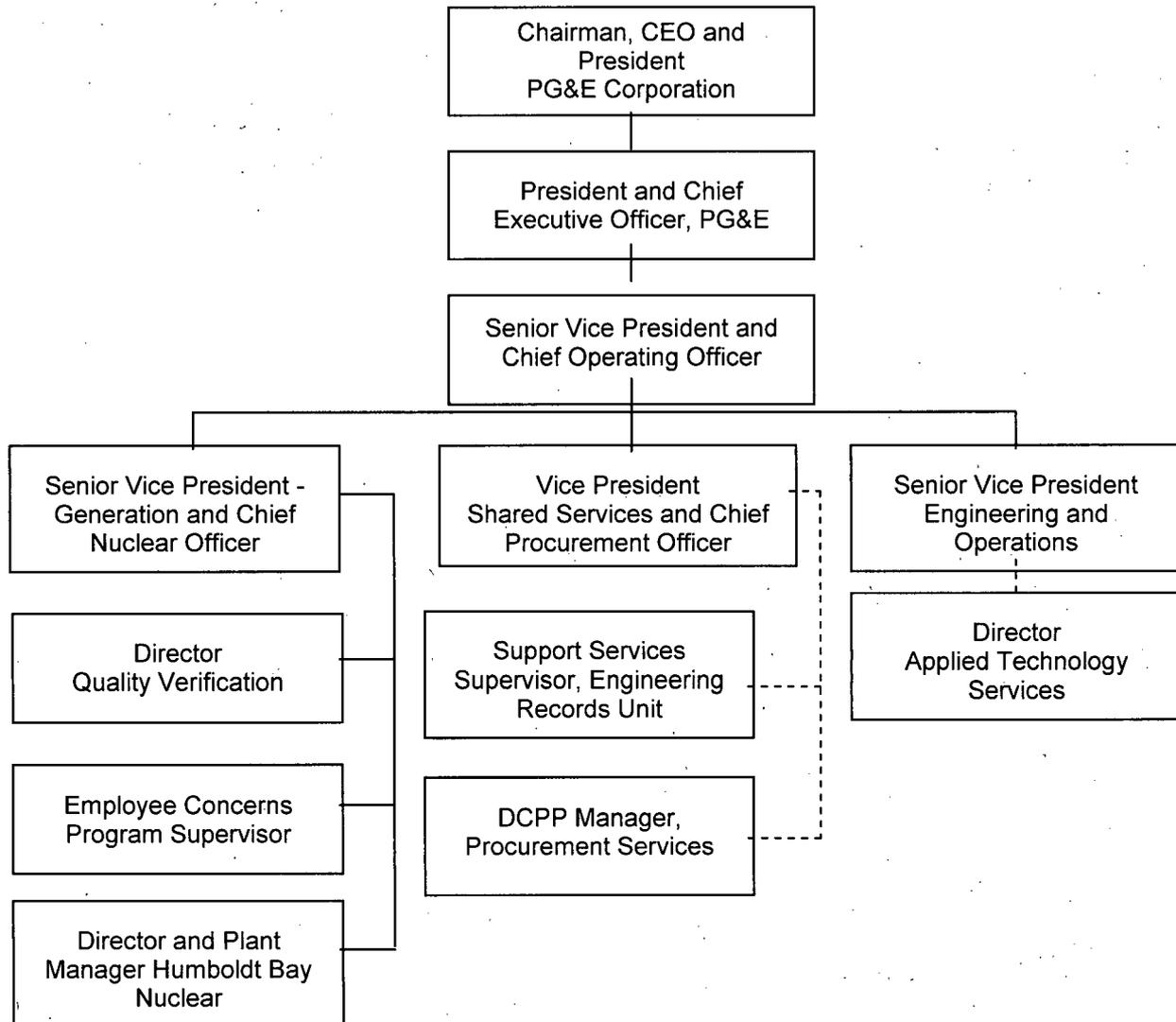
- (1) The accreditation is to ANSI/ISO/IEC 17025
- (2) The accrediting body is either NVLAP or A2LA, which is an accrediting body recognized by NVLAP through an MRA.
- (3) The published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.

Note for Reg. Guide 1.123:

The requirements of ANSI N45.2.13, Section 3.2, "Content of the Procurement Documents," Subsection 3.2.3, "Quality Assurance Program Requirements" are accepted with the following exception:

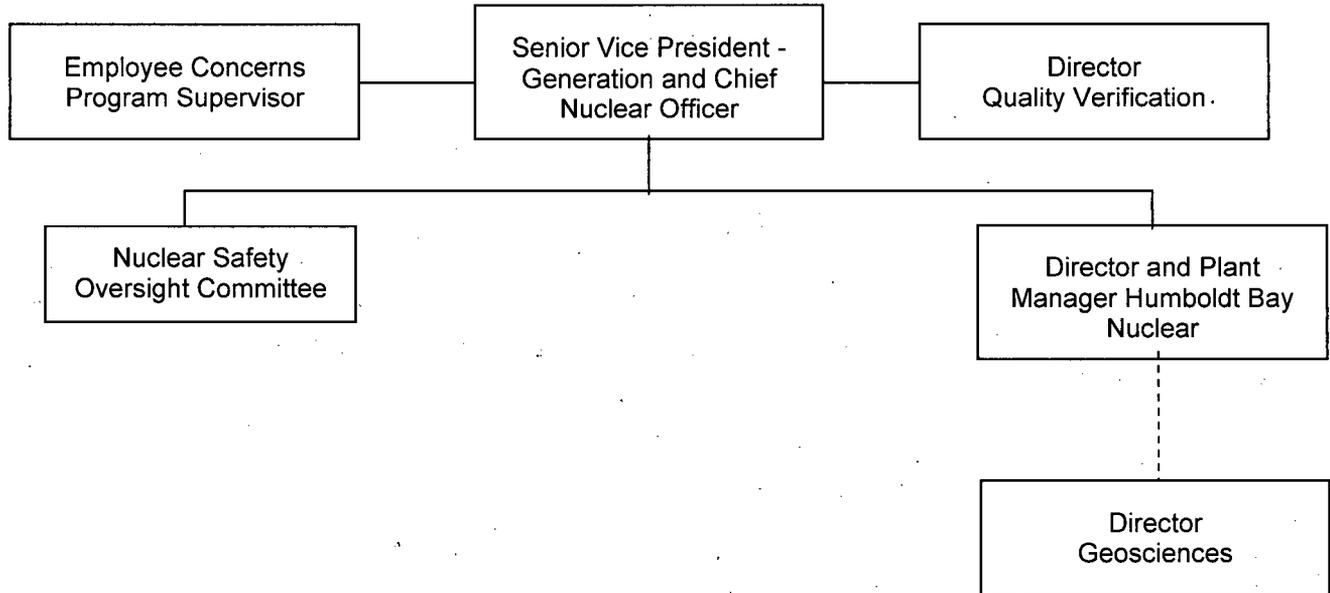
When purchasing commercial-grade services from calibration laboratories accredited by a nationally-recognized accrediting body, the procurement documents are not required to impose a quality assurance program consistent with ANSI N45.2-1971. Nationally-recognized accrediting bodies include the NVLAP administered by the NIST and other accrediting bodies recognized by NVLAP via a MRA. In such cases, accreditation may be accepted in lieu of the Purchaser imposing a QA Program consistent with ANSI N45.2-1971, provided all the following are met:

- (1) The accreditation is to ANSI/ISO/IEC 17025
- (2) The accrediting body is either NVLAP or A2LA, which is an accrediting body recognized by NVLAP through an MRA.
- (3) The published scope of accreditation for the calibration laboratory covers the needed measurement parameters, ranges, and uncertainties.
- (4) The purchase documents impose additional technical and administrative requirements, as necessary, to satisfy DCPD QA Program and technical requirements, including the requirement that the calibration/certificate report include identification of the laboratory equipment/standard used.
- (5) The purchase documents require reporting as-found calibration data when calibrated items are found to be out-of-tolerance.



HUMBOLDT BAY ISFSI

**FIGURE 17.1-1
PACIFIC GAS AND
ELECTRIC COMPANY
UTILITY ORGANIZATION**



HUMBOLDT BAY ISFSI
FIGURE 17.1-2 NUCLEAR QUALITY IN THE UTILITY ORGANIZATION