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| PG&E | **Nuclear Power Generation**<br>**Humboldt Bay Power Plant** | NUMBER **L-4**<br>VOLUME **4**<br>REVISION **39**<br>EFFEC DATE **2-4-20**<br>PAGE **1 of 1** |
| | TITLE<br>**HUMBOLDT BAY QUALITY ASSURANCE PLAN (HBQAP)** | APPROVED BY<br>**ORIGINAL SIGNED 1-29-20**<br>DIRECTOR / HB NUCLEAR DATE |

**(Procedure Classification - Quality Related)**

1.0 DESCRIPTION

This document describes the Quality Assurance Plan to be applied to Humboldt Bay Power Plant Unit 3 during decommissioning, and includes Humboldt Bay Independent Spent Fuel Storage Installation (HB ISFSI) activities. The HBQAP satisfies the requirements of 10 CFR 50 Appendix B, and 10 CFR 72 Subpart G. In addition, NRC Approval No. 202, Revision 8 "Quality Assurance Program for Radioactive Material Packages" has approved the HBQAP as satisfying the provisions of 10 CFR 71 subpart H for the procurement, maintenance, repair and use of radioactive materials transport packages.

2.0 ATTACHMENTS

2.1 Humboldt Bay Quality Assurance Plan (HBQAP), Revision 39.

3.0 RESPONSIBLE ORGANIZATION

Director, Quality Verification

# HUMBOLDT BAY QUALITY ASSURANCE PLAN (HBQAP)

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# HUMBOLDT BAY QUALITY ASSURANCE PLAN (HBQAP)

## INTRODUCTION

Pacific Gas and Electric (PG&E) has established and is implementing a comprehensive Quality Assurance Program for Humboldt Bay Power Plant Unit 3 (HBPP Unit 3) and Humboldt Bay Independent Spent Fuel Storage Installation (HB ISFSI) to assure compliance with established regulatory requirements set forth by the Nuclear Regulatory Commission (NRC).

The Humboldt Bay QA Program consists of the HBQAP and implementing procedures and instructions. The HBQAP describes the responsibilities for implementing quality requirements; establishing and maintaining the QA Program; and assessing the performance of activities subject to the HBQAP.

The HBQAP is a comprehensive statement of the quality assurance controls governing the Important to Safety (ITS) Structures Systems and Components (SSC). The HBQAP describes the organizational structure, functional responsibilities, levels of authority, line of communication, and interfaces. The HBQAP satisfies the requirements of 10 CFR 50 Appendix B, 10 CFR 71 Subpart H and 10 CFR 72 Subpart G. The requirements for management and administrative controls are described in appendix B of this HBQAP.

The requirements and commitments contained in the HBQAP are mandatory and must be implemented, enforced, and adhered to by all individuals and organizations performing activities affecting quality. Workers are encouraged to actively participate in the continued improvement and implementation of the HBQAP. Any necessary changes should be promptly communicated and implemented.

The implementation of the requirements of the HBQAP is performed in a graded approach commensurate with any items or activities importance to safety. This graded approach is applicable to ITS SSCs and is responsive to NRC Regulatory Guide 7.10.

The HBQAP is implemented through the use of approved procedures (i.e. policies, procedures, manuals, instructions, or other documents) that provide written guidance for the control of ITS items and activities. The HBQAP also provides for development of documentation to demonstrate objective evidence of compliance with the stated requirements.

## 1.0 ORGANIZATION

PG&E's efforts are to assure the quality and safety of the decommissioning of the HBPP Unit 3, packaging and transportation of radioactive material and the operation and maintenance of the HB ISFSI utilizing the HBQAP. The program is organized in a structured manner with clearly defined levels of authority, assignments of responsibility and lines of communication. Assignment of the responsibility for an item or activity includes responsibility for its quality. The Quality Organization provides independent oversight of quality activities and maintains lines of communication with Senior Management.

PG&E has assumed full responsibility for the establishment and execution of the HBQAP prescribed herein, programs and administrative procedures. The work of executing selected portions of the HBQAP 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 HBQAP 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. Individuals may fulfill more than one function unless prevented by the need to maintain independence as specified in the HBQAP.

The HBQAP describes the HB ISFSI and HB decommissioning functional responsibilities, levels of authority, lines of communication, and interfaces of persons and organizations performing activities governed by the HBQAP.

The functional responsibilities are described below. Generic titles are used for the functions and responsibilities. Differences (if any) between actual titles used in the organization are traceable to the HBQAP titles by the use of administrative procedures.

## 1.1 HUMBOLDT BAY ISFSI ORGANIZATION

The SENIOR VICE PRESIDENT, GENERATION AND CHIEF NUCLEAR OFFICER (CNO) establishes the corporate policies, goals and objectives related to PG&E's nuclear power generation assets, activities and operation. The CNO, or designee, as specified in administrative procedures, approves and signs official company correspondence to the U.S. Nuclear Regulatory Commission (NRC) or its representatives pertaining to the HB ISFSI.

The CNO approves revisions to the QA Program for nuclear power generation assets, activities and operation as described herein that constitute a reduction in a commitment made to the NRC. The CNO is responsible for designating individual(s) to perform an Independent Management Review to periodically assess the effectiveness of the HB QA Program.

The SITE VICE PRESIDENT DIABLO CANYON POWER PLANT (Site VP DCPP) reports to the CNO. As the senior leader for HB ISFSI, the Site VP DCPP has overall responsibility for the

safe storage of nuclear fuel. The Site VP DCPP is also responsible for taking measures to ensure acceptable performance of HB ISFSI operations.

The SENIOR DIRECTOR, ENGINEERING, TECHNICAL AND EMERGENCY SERVICES (HB ISFSI Senior Director), reports to the Site VP DCPP and has overall responsibility for HB ISFSI project execution.

The DIRECTOR - NUCLEAR QUALITY VERIFICATION (Quality Director) is responsible for assuring that the HBQAP and HB ISFSI implementing procedures are effectively implemented and complied with by all involved organizations, both internal and external to PG&E. The Quality Director has the organizational freedom and requisite authority to assess, review, inspect, audit, and monitor the conduct of quality activities to assure compliance with the HBQAP and other regulatory requirements.

The Quality Director reports to the CNO for HB ISFSI quality activities, and has access to the President, the Senior Director of Nuclear Services, and appropriate managers for any significant quality problem or deficiency related to the HB ISFSI.

The Quality Director is responsible for maintaining and submitting for approval changes to the HBQAP. The Quality Director is responsible for the review of all regulatory submittals as they pertain to the HBQAP and his/her concurrence is required prior to submittal.

Reporting to the Quality Director are the quality assurance, supplier quality and independent quality control inspection functions. These individuals or groups do not have direct responsibility for performing the work being verified; are trained and qualified in QA concepts and practices; are independent of the organization responsible for performing the task and have direct access to management levels. The Quality Organization is sufficiently free from direct pressures for cost and schedule that assures the ability to: (a) identify quality problems; (b) initiate, recommend, or provide solutions through designated channels; and (c) verify implementation of solutions. Individuals within the Quality Organization have the authority to stop unsatisfactory work and control further processing, delivery, or installation of nonconforming material. Organizational positions with stop work authority are identified in the implementing procedures.

The DIRECTOR – NUCLEAR SECURITY and EMERGENCY SERVICES (HB ISFSI Director) reports to the HB ISFSI Senior Director and is responsible for the conduct of activities related to the HB ISFSI. This includes responsibility for operation, maintenance, training, security and emergency preparedness. The day-to-day responsibilities are delegated to and executed by the HB ISFSI management team. Specific responsibilities are described in administrative procedures.

The HB ISFSI Director is also responsible for the development of programs, procedures, and instructions required for HB ISFSI within the requirements and/or limits established in the HBQAP; HB ISFSI Technical Specifications; and administrative guidelines established in the HB ISFSI Final Safety Analysis Report (FSAR).

The HB ISFSI Director shall delegate these responsibilities to other members of the HB ISFSI management team during his/her absence.

The ISFSI MANAGER reports to the HB ISFSI Director and is responsible for the operation and maintenance of the HB ISFSI, maintenance of the Physical Security Plan and interfacing with outside agencies.

The Diablo Canyon Power Plant (DCPP) RADIATION PROTECTION MANAGER is responsible for implementing the HB ISFSI radiation protection program for the protection of the workers and members of the public. DCPP radiation protection HB ISFSI support activities are under the direction of the DCPP Site VP.

The DCPP DIRECTOR NUCLEAR ENGINEERING reports to the HB ISFSI Senior Director and is responsible for technical aspects of the engineering and design of HB ISFSI SSCs including, performance of modifications; configuration control and design bases defense and management; quality classification of SSCs; and the specification of technical and quality requirements for the purchase of services, materials and equipment.

An INDEPENDENT MANAGEMENT REVIEW is periodically performed to assess the effectiveness of the HB QA Program, including audit program. Results of the Independent Management Review are provided to the CNO for corrective action, as necessary. The Independent Management Review includes oversight of the HBQAP implementation and matters relating to safe storage of spent nuclear fuel, as directed by the CNO.

INDEPENDENT SAFETY REVIEWER(S) (ISR) performs independent safety reviews of proposed changes, tests and experiments to SSCs, activities, program documents and procedures that are subject to the HBQAP requirements.

ISRs shall be individuals without direct responsibility for the performance of these activities under review, and shall be competent and knowledgeable in the subject area being reviewed. ISRs are designated by the HB ISFSI Director for ISFSI activities, as applicable.

CORPORATE SUPPORT for ITS activities includes, but is not limited to, procurement and employee concerns. Each organization documents and maintains a written description of its internal organization.

SUPPLIERS that provide ITS SSCs or services are required to comply with the HBQAP or to a QA Program approved by PG&E. Supplier QA Programs are required to comply with the applicable portions of 10 CFR 50, Appendix B; 10 CFR 71, Subpart H; or 10 CFR 72, Subpart G. The Quality Program requirements are defined in the contract or similar procurement document.

Suppliers to PG&E are required to document their internal organization, 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.

Staff Qualifications

Except as specified in other portions of the HBQAP, each member of the HB ISFSI staff shall meet or exceed the minimum qualifications described in the HB ISFSI FSAR.

The RADIATION PROTECTION MANAGER shall meet or exceed the requirements of Regulatory Guide 1.8, Revision 2, April 1987.

The QUALITY DIRECTOR shall have knowledge of QA regulations, policies, practices, and standards; and experience working in QA, nuclear power plant, fuel storage facility, or in a similar highly technological industry. At the time of assignment to the active position, the Quality Director shall have six years of experience in implementing Quality Assurance.

At least one year of these six years of experience shall be nuclear power plant or fuel storage facility experience in the overall implementation of a Quality Assurance Program (QAP). 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 one year of qualifying nuclear power plant or fuel storage facility experience in the overall implementation of the Quality Assurance program can be obtained outside the Quality Assurance organizations.

## 1.2 HUMBOLDT BAY DECOMMISSIONING ORGANIZATION

The SENIOR VICE PRESIDENT, GENERATION AND CHIEF NUCLEAR OFFICER (CNO) establishes the corporate policies, goals and objectives related to PG&E's nuclear decommissioning assets and activities pertaining to HBPP Unit 3. The CNO, or designee, as specified in administrative procedures, approves and signs official company correspondence to the U.S. Nuclear Regulatory Commission (NRC) or its representatives pertaining to the HB decommissioning.

The CNO approves revisions to the QA Program for nuclear decommissioning as described herein that constitute a reduction in a commitment made to the NRC.

The SENIOR DIRECTOR, REGULATORY, RISK AND DECOMMISSIONING (RR&D) reports to the CNO. As the senior leader of decommissioning, the Senior Director RR&D is responsible for taking measures needed to ensure acceptable performance during the decommissioning of PG&E nuclear facilities.

The SENIOR DIRECTOR, NUCLEAR DECOMMISSIONING reports to the Senior Director RR&D and has overall responsibility for safety, planning, staffing, project execution, and security for HBPP Unit 3.

The DIRECTOR - NUCLEAR QUALITY VERIFICATION (Quality Director) reports to the CNO for HBPP Unit 3 quality activities, and has access to the President, the Senior Director, Nuclear Decommissioning, and appropriate managers for any significant quality assurance problem or deficiency related to HB Unit 3.

The Quality Director is responsible for maintaining and submitting for approval changes to the HBQAP. The Quality Director is responsible for the review of all regulatory submittals as they pertain to the HBQAP and his/her concurrence is required prior to submittal.

The DIRECTOR - HUMBOLDT BAY POWER PLANT (HB Director) reports to the Senior Director Nuclear Decommissioning and is responsible for the conduct of activities related to the HBPP Unit 3 decommissioning. This includes responsibility for engineering; radiation protection; training; radioactive material packaging, and transport for decommissioning activities. The day-to-day responsibilities are delegated to and executed by the HB decommissioning management team that directly reports to the HB Director. Specific responsibilities are described in administrative procedures.

The HB Director is also responsible for the development of programs, procedures, and instructions required for HBPP Unit 3 within the requirements and/or limits established in the HBQAP; HBPP Unit 3 Technical Specifications; and administrative guidelines established in the HBPP Unit 3 Defueled Safety Analysis Report (DSAR). The HB Director is the design authority for the HBPP Unit 3 and is responsible for QA Oversight of the remaining HBPP Unit 3 quality-related activities (e.g., Final Status Surveys).

The HB Director shall delegate these responsibilities to other members of the HB management team during his/her absence.

The HBPP RADIATION PROTECTION MANAGER reports to the Senior Director Nuclear Decommissioning and is responsible for implementing the decommissioning radiation protection program for the protection of the workers and members of the public. The Radiation Protection Manager function is performed by the Site Closure Manager.

An INDEPENDENT MANAGEMENT REVIEW is periodically performed to assess the effectiveness of the HB QA Program, including audit program. Results of the Independent Management Review are provided to the CNO for corrective action, as necessary. The Independent Management Review includes oversight of HBQAP implementation and matters relating to the decommissioning of nuclear facilities, as directed by the CNO.

INDEPENDENT SAFETY REVIEWER(S) (ISR) performs independent safety reviews of proposed changes, tests and experiments to SSCs, activities, program documents and procedures that are subject to the HBQAP requirements.

ISRs shall be individuals without direct responsibility for the performance of these activities under review, and shall be competent and knowledgeable in the subject area being reviewed. ISRs are designated by the HB Director for nuclear decommissioning activities, as applicable.

CORPORATE SUPPORT for quality activities includes, but is not limited to, procurement and employee concerns. Each organization documents and maintains a written description of its internal organization.

SUPPLIERS that provide quality services are required to comply with the HBQAP or to a QA Program approved by PG&E. Supplier QA Programs are required to comply with the applicable portions of 10 CFR 50, Appendix B. The Quality Program requirements are defined in the contract or similar procurement document.

Suppliers to PG&E are required to document their internal organization, 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.

Staff Qualifications

Except as specified in other portions of the HBQAP, each member of the HBPP Unit 3 staff shall meet or exceed the minimum qualifications of ANSI N18.1 (1971) for comparable positions.

The RADIATION PROTECTION MANAGER shall meet or exceed the requirements of Regulatory Guide 1.8, Revision 2, April 1987.

The QUALITY DIRECTOR shall have knowledge of QA regulations, policies, practices, and standards; and experience working in QA, nuclear power plant, fuel storage facility, or in a similar highly technological industry. At the time of assignment to the active position, the Quality Director shall have six years of experience in implementing Quality Assurance.

At least one year of these six years of experience shall be nuclear power plant or fuel storage facility experience in the overall implementation of a Quality Assurance Program (QAP). 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 one year of qualifying nuclear power plant or fuel storage facility experience in the overall implementation of the Quality Assurance program can be obtained outside the Quality Assurance organizations.

## 2.0 QUALITY ASSURANCE PROGRAM

### 2.1 PROGRAM APPLICABILITY

The HBQAP requirements, apply to SSCs designated as ITS in Appendix A.

The quality requirements for the management and administrative programs in Appendix B that support ITS SSCs in Appendix A are subject to the specific criterion in the HBQAP.

The quality requirements for the management and administrative programs that support HBPP Unit 3 are designated in administrative programs and procedures.

A graded approach is used to define the controls applied to quality activities commensurate with the activity's importance to safety. The graded approach also applies to the level of quality oversight for quality activities.

Activities that require review and concurrence by Quality personnel are delineated in administrative procedures and are based on the activity's importance to safety.

The effectiveness of the implementation of the HBQAP shall be assured through Quality Related programs, procedures and drawings.

### 2.2 PROGRAM CONTROL

The status and adequacy of the HBQAP shall be regularly monitored and it shall be revised as necessary to improve its effectiveness or to reflect changing conditions.

The HBQAP, including any changes, supplements, or appendices are issued and maintained as controlled documents. Changes to the HBQAP requirements shall be made in accordance with 10 CFR 50.54. Changes to the HBQAP that do not reduce commitments shall be included in the periodic updates required by 10 CFR 50.71. Prior to issuance for use, proposed changes to the HBQAP that reduce commitments are reviewed and concurred with in writing by the Quality Director. These changes are approved by the CNO, or designee, for changes related to nuclear generation and decommissioning prior to being submitted to and approved by the NRC in accordance with 10 CFR 50.54.

Implementation of the HBQAP is accomplished through separately issued procedures, instructions, and drawings. Each organization is responsible for the establishment and implementation of detailed procedures and instructions prescribing the quality activities for which they are responsible. Such documents are derived from the requirements and reflect the responsibilities specified in the HBQAP.

Questions or disputes involving interpretations of HBQAP requirements and commitments are referred to the Quality Director for resolution. Questions or disputes involving the responsibilities defined in the HBQAP are referred to the CNO for issues related to nuclear generation and decommissioning.

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 the management level which has direct authority over all contesting parties.

## 2.3 INDOCTRINATION AND TRAINING

Indoctrination and training for personnel implementing ITS activities are conducted to assure suitable proficiency is achieved and maintained. The extent of indoctrination and training is commensurate with the scope, complexity and importance to safety of the assigned task; in conjunction with the education and experience of the individual. Personnel involved in implementing the activities within the scope of the HBQAP shall be responsible for the quality of their work. At a minimum, these personnel shall receive:

- Indoctrination in the requirements of the HBQAP;
- Indoctrination in their organization's implementing procedures; and
- Training and qualification in tasks requiring special skills or knowledge, as required.

Indoctrination, training, qualification, and re-qualification (when applicable) shall be prescribed and performed in accordance with written procedures; and applicable codes, standards and regulatory requirements; which specify the management responsibilities; training areas; frequency of training; method of qualification and requalification; and documentation requirements.

Training and qualification records are maintained in accordance with implementing procedures.

## 2.4 REGULATORY COMMITMENTS

Regulatory commitments, where applicable, are specified in the Unit 3 DSAR, ISFSI FSAR, Technical Specifications or Licenses.

## 3.0 DESIGN CONTROL

Design Control applies to the 10 CFR 72 SSCs designated as ITS in Appendix A. 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:

(1) Interface control
(2) Design input
(3) Design performance
(4) Design verification
(5) 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. Document control measures shall be established for design documents that reflect commitments in applicable design basis documents (e.g., specifications, calculations, computer programs, system descriptions, drawings). Provisions for design input shall define the technical objectives for SSCs being designed or analyzed. Design inputs shall be documented, reviewed and approved and translated to design documents. Required design analyses (such as stress, thermal, hydraulic and accident analysis; material compatibility; 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.

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.

The results of the design verification efforts shall be documented with the identification of the verifier clearly provided. 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.

Changes or modifications to the designated SSCs in Appendix A shall be approved by the Design Authority, 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 affected persons and organizations. These changes shall be subjected to design control measures commensurate with those applied to the original design.

Nonconforming activities such as, deviations, errors or deficiencies in approved design documents, including design methods (such as computer codes), shall be controlled as described in Sections 15.0 and 16.0.

## 4.0 PROCUREMENT DOCUMENT CONTROL

Procurement Document Control applies to SSCs designated as ITS in Appendix A. Procurement documents shall include those requirements necessary to assure that the items and services to be provided will be of the desired quality.

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; identification of replacement parts, where applicable; and review and evaluation of the supplier's QA Program prior to initiation of activities affected by the program.

Procedures shall be established to review the adequacy of the technical and QA 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 applicable requirements. The review and documented concurrence of the adequacy of technical, and QA 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 controls as the original document.

## 5.0 INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Controls for Instructions, Procedures, and Drawings apply to SSCs designated as ITS in Appendix A. Activities, other than skill of the craft, shall be prescribed by and accomplished in accordance with documented instructions, procedures, and drawings. These documents shall include quantitative or qualitative acceptance criteria for verifying that an activity was satisfactorily accomplished, where applicable (i.e., verification activities for procurement, inspection tests).

Procedures prescribing a preplanned method of conducting activities required by the HBQAP shall be established in accordance with the applicable regulation, codes, standards, and specifications.

Changes to or deviations from established instructions, procedures, or drawings require the same review and approval as the original document. Instructions, procedures, or drawings, including changes and deviations, subject to the HBQAP shall be maintained.

Administrative controls shall be established that provide the methods by which temporary changes can be made to approved procedures, including the designation of persons authorized to approve such changes. Temporary changes that clearly do not change the intent of the approved procedure from the standpoint of nuclear safety may be approved by two members of the HBPP/ISFSI management team. Such changes shall be documented and, if appropriate, incorporated into the next revision of the affected procedure. Administrative controls for approval and timely notification or training of personnel affected by the temporary change shall be implemented.

Procedures subject to the HBQAP shall be periodically reviewed as described in administrative procedures.

## 6.0 DOCUMENT CONTROL

Document Control applies to SSCs designated as ITS in Appendix A, and the administrative programs described in Appendix B. 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.

A document control system shall be established to identify the current revision of instructions, procedures, specifications, drawings, and procurement documents. Written procedures shall identify those responsible for preparing, reviewing, approving, and issuing documents.

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, instructions and other documents that implement HBQAP requirements shall be reviewed and concurred with by the Quality Organization. Revisions to procedures, instructions and other documents shall also be reviewed and concurred with by the Quality Organization, as specified in administrative procedures.

## 7.0 CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

Control of Purchased Material, Equipment, and Services applies to SSCs and associated activities that are designated as ITS in Appendix A. Supplier activities that provide purchased material, equipment, and services shall be monitored as 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 documented.

A Supplier's QA Program that satisfies specified quality requirements shall be listed on the PG&E Qualified Suppliers List. The PG&E Qualified Suppliers List shall be controlled.

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.

The effectiveness of contractors and supplier's quality controls shall be assessed at intervals consistent with the importance, complexity, and quantity of the product or service. Supplier performance and compliance with procurement documents are monitored by source verification, receipt inspection, or a combination of the two.

Source verification and/or receipt inspection activities are performed to assure that the requirements of the procurement documents have been met. Accepted items are appropriately marked, removed from the inspection area, and located in a controlled storage area until use.

ITS SSCs and services from a supplier whose QA Program has not been reviewed or accepted may be used provided additional controls such as source inspection, special receipt instructions, and/or testing are imposed. These additional controls shall be documented and approved by the appropriate level of management.

Spare and replacement parts are procured such that their performance and quality are at least equivalent to those of the parts that will be replaced. Commercial grade items are controlled by written procedure.

Designated Quality personnel or other personnel with appropriate qualifications are responsible for assuring source inspections, surveys, or audits of suppliers are performed as necessary.

Documentation of acceptance shall be available prior to installation or acceptance for use.

## 8.0 IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

The Identification and Control of Materials, Parts and Components apply to SSCs designated as ITS in Appendix A. Materials, parts, and components shall be identified and controlled in a manner to preclude the use of incorrect or defective items.

Implementing procedures shall describe the organizational responsibilities and controls to ensure that only correct and accepted items are used.

Materials, parts, and components, including partially fabricated subassemblies, batches, lots, and consumables, shall be identified in a manner that each can be traceable to its applicable drawing, specification, or other technical documentation at any stage from initial receipt through fabrication, installation, repair, modification or use of an item. 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.

Items having limited shelf or operating life are controlled to preclude use after the shelf life or operating life has expired.

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.

## 9.0 SPECIAL PROCESSES

Special Processes apply to SSCs designated as ITS in Appendix A. Special processes shall be controlled and performed by qualified personnel using written 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: welding, heat treating, nondestructive examination, and chemical cleaning.

Equipment used for special processes shall be qualified, maintained, stored, issued in accordance applicable procedures and operated by qualified personnel.

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

## 10.0 INSPECTION

Inspection activities apply to SSCs designated as ITS in Appendix A. 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.

Inspections shall be planned in accordance with approved procedures, and based on drawings, specifications, and other controlled documents. Inspections shall be performed in accordance with written and approved inspection plans and/or inspection procedures to verify that the quality of items and activities conform to applicable and documented instructions, procedures, and drawings. Acceptance/rejection criteria and mandatory quality control inspection hold points shall be identified, where applicable. Work shall not proceed beyond such hold points without the appropriate documented concurrence by Quality personnel or assigned and authorized personnel.

The inspection results, including acceptance/rejection criteria, shall be documented and evaluated. Unacceptable inspection results shall be evaluated and resolved in accordance with procedures. Where applicable, modifications, repairs and replacements; are re-inspected to the same standard or method to verify acceptability. Inspection records shall be maintained.

Inspections shall be performed by qualified individuals other than those who performed or directly supervised the activity being inspected.

## 11.0 TEST CONTROL

Test Control applies to the 10 CFR 72 SSCs designated as ITS in Appendix A.

A program of testing shall be conducted, as necessary, to demonstrate that SSCs 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 procedures that implement testing shall specify the appropriate prerequisites for the test (e.g. environmental conditions, specification of instrumentation, and completeness of tested item), sufficient instruction for the performance of the test, witness or hold points, acceptance/rejection criteria and limits, and the required test documentation. The procedures shall provide for evaluation and documentation of the test results; data; and their acceptability as determined by a qualified person or group. Test results that do not meet the acceptance criteria shall be documented and evaluated to determine the appropriate corrective action. Where applicable, modifications, repairs, and replacements; are re-tested to verify acceptability. Test records shall be maintained.

## 12.0 CONTROL OF MEASURING AND TEST EQUIPMENT

The Control of Measuring and Test Equipment applies to SSCs designated as ITS in Appendix A. Organizational responsibilities shall be delineated for establishing, implementing, and assuring the effectiveness of the calibration program for measuring and test equipment (M&TE).

M&TE, including reference standards, used to determine the acceptability of items or activities shall be maintained within prescribed accuracy limits, 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 pre-calibration checks) of the M&TE. The calibration procedures shall delineate special controls, where applicable, for usage, handling, and storage required for environmental conditions such as temperature, humidity, cleanliness, or radiation to maintain accuracy or operating characteristics of the M&TE.

Calibrations standards shall be based on nationally recognized standards or accepted values of natural physical constants. Where national standards do not exist, the basis for the calibration shall be documented. Special calibration and control measures are not required when normal commercial practices provide adequate accuracy

Instruments shall be calibrated prior to use. The calibration intervals, whether calendar- or usage-based, shall be predetermined and to the extent practical, consistent with the instrument manufacturer's guaranteed repeatability and/or the user's experience. Indication of expiration, if feasible, will be displayed on or with the M&TE. Special calibration shall be required whenever the accuracy of the equipment is suspect. M&TE or instrumentation found to be out of calibration shall be evaluated and documented.

Records of M&TE usage shall be maintained, such that measures may be taken to determine the validity of previous inspections performed and the acceptability of items inspected or tested since the previous calibration when the M&TE is suspect.

## 13.0 HANDLING, STORAGE, AND SHIPPING

Handling, Storage and Shipping requirements apply to SSCs designated as ITS in Appendix A. 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 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.

Markings or labeling shall be used to indicate the presence of special environments or the need for special controls. 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.

## 14.0 INSPECTION, TEST, AND OPERATING STATUS

Inspection, Test and Operating Status requirements apply to SSCs designated as ITS in Appendix A. 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; and acceptability is indicated; 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.

The operating status of nonconforming, inoperable or malfunctioning ITS SSCs shall be identified and documented to prevent inadvertent operation. 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.

## 15.0 CONTROL OF NONCONFORMING CONDITIONS

The Control of Nonconforming Conditions applies to SSCs designated as ITS in Appendix A. Items and activities that do not conform to requirements shall be controlled in a manner that will prevent their inadvertent use or installation. Nonconforming conditions are documented, reviewed and accepted, rejected, repaired or reworked in accordance with quality procedures. Organizations affected by nonconforming conditions shall be notified of such conditions.

Measures shall be established to identify, label and segregate nonconforming items to indicate their unacceptable status and to prevent inadvertent use or installation until the nonconformance is properly dispositioned. Labels associated with a nonconforming item shall only be removed by authorized personnel.

The acceptability of nonconforming items shall be verified and documented prior to use. Documentation shall include a description of the change, waiver, or deviation that has been accepted.

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 shall be processed as conditions adverse to quality in accordance with Section 16.0.

## 16.0 CORRECTIVE ACTION

Corrective Action applies to SSCs designated as ITS in Appendix A. Conditions adverse to quality shall be identified, controlled, reviewed, and evaluated to determine remedial action and corrective action and implement those actions as soon as practicable.

A systematic review and evaluation of 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 evaluation and corrective action taken should be based on safety significance.

Findings and actual or recommended corrective actions shall be reported to management for review and assessment. Corrective actions shall be accomplished in a timely manner commensurate with the safety significance.

Significant conditions adverse to quality shall be evaluated for reportability to the NRC. Significant conditions adverse to quality, the cause of the condition, and the corrective action taken to preclude recurrence shall be documented and reported to management. Follow-up reviews shall be conducted to verify that the corrective action was properly implemented and effective in correcting the identified condition.

## 17.0 QUALITY ASSURANCE RECORDS

The requirements for Quality Assurance Records apply to those SSCs that are designated as ITS described in Appendix A.

Sufficient records shall be maintained to furnish evidence of both the quality of items and activities affecting quality and to meet applicable code, standard, regulatory, and license requirements. The records include all documents referred to, or described in the HBQAP as records or required by quality procedures. At a minimum quality records include operating logs, maintenance and modification procedures, related inspection results, and reportable occurrences and other records as required by the applicable license, Technical Specifications and Code of Federal Regulations. Additionally, records required by the HBQAP, and furnished by vendors, suppliers, subcontractors, and contractors that perform or supply quality-related activities or SSCs that are ITS are also QA Records and shall 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.

Electronic QA records, including backup copies, are stored in two redundant electronic media storage systems at physically-independent electronic locations. QA records in electronic format (e.g., pdf format) may be filed and stored on the electronic media storage systems. Selected QA records on other media (e.g., paper hardcopies, microfilm, DVDs) are maintained in a Permanent Records Storage Facility.

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.

## 18.0 AUDITS

The requirements for Audits apply to SSCs designated as ITS in Appendix A. Measures shall establish a comprehensive system of planned and periodic audits. These assess, monitor and verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the HBQAP and implementing activities.

Internal and supplier audits are performed in accordance with written procedures and/or check lists. Audits are performed by qualified personnel not having direct responsibility in the areas audited. Auditors shall have experience, training or qualifications commensurate with the scope and complexity of their audit responsibility.

Scheduling, preparation, personnel selection, performance, reporting, response, follow-up action, and records management are performed in accordance with written procedures. Audit scopes and schedules are established to meet applicable regulatory requirements and are based on the status and safety significance of the activities to be audited.

Detailed audit schedules are documented in accordance with Quality procedures. At a minimum, the conformance of decommissioning activities and ISFSI operations to applicable regulatory requirements is audited at least once every 24 months or more frequently as performance dictates.

External audits of suppliers providing ITS materials, parts, equipment or services are scheduled and performed based on the importance of an SSC or activity to confirm implementation of their Quality Program requirements, but not less than every 3 years.

Audits that are not mandated by regulation have a grace period of up to 90 days, when the urgency of other priorities makes meeting the specified schedule dates impractical. For audit activities deferred using a grace period, the next scheduled due date shall be based on the originally scheduled due date, but may not exceed the original due date plus 90 days.

Audit reports shall be prepared, issued to and reviewed by responsible management of both the audited and auditing organizations. Audit records shall be generated and retained. Follow-up action, including re-audit of deficient areas, shall be taken, where applicable.

## APPENDIX A

## IMPORTANT-TO-SAFETY STRUCTURES, SYSTEMS AND COMPONENTS

The pertinent quality assurance requirements of 10 CFR 50 Appendix B, 10 CFR 71 Subpart H and 10 CFR 72 Subpart G will be applied, as a minimum, to quality activities affecting the ITS SSCs associated with spent fuel storage and transportation package that are listed below. The quality category is based on the guidance in NUREG/CR-6407. In addition, the HB ISFSI FSAR, Holtec International HI-STORM Safety Analysis Report (SAR), Holtec International HI-STAR SAR and associated specifications include additional classification information.

**NOTE**

There are no HBPP safety related SSCs remaining at the site.

The quality classification of NRC Licensed HB ISFSI Dry Fuel Storage Components and Transportation Packages is made by the NRC Certificate Holder. The Certificate Holder is responsible for design and licensing controls for these components under their NRC approved Quality Assurance Program. PG&E utilizes these types of components and packages under the provisions of a NRC General License for Radioactive Material Transportation Packages (10 CFR 71) and Spent Fuel and GTCC Storage (10 CFR 72).

### IMPORTANT TO SAFETY AS DEFINED BY 10 CFR 71 AND 10 CFR 72

**A. Dry Spent Fuel and GTCC Storage (10 CFR 72)**

| SSC | Quality Category | Design/License Responsible |
|---|---|---|
| Multi-Purpose Canister | A | PG&E |
| Fuel Basket and Basket Spacers | A | PG&E |
| Damaged Fuel Container | A | PG&E |
| Hi-Star 100 HB Overpack | A | PG&E |
| Transporter Lift Links | A | PG&E |
| GTCC Waste Container | A | PG&E |
| Hi-Star HB GTCC Overpack | A | PG&E |
| HB ISFSI Storage Vault | B | PG&E |
| HB ISFSI Storage Vault Lid and Plugs | B | PG&E |
| Fuel Spacers | B | PG&E |
| Transporter Connector Pins | B | PG&E |
| Helium Fill Gas | B | PG&E |
| Lid Retention Device | B | PG&E |
| Cask Transporter | B | PG&E |
| Process Waste Container | B | PG&E |

**B. Transport of Spent Fuel and GTCC Waste (10 CFR 71)**

| SSC | Quality Category | Design/License Responsible |
|---|---|---|
| Multi-Purpose Canister | A | Holtec International |
| Fuel Basket and Basket Spacers | A | Holtec International |
| Damaged Fuel Container | A | Holtec International |
| Hi-Star 100 HB Overpack | A | Holtec International |
| GTCC Waste Container | A | Holtec International |
| Hi-Star HB GTCC Overpack | A | Holtec International |
| Fuel Spacers | B | Holtec International |
| Helium Fill Gas | B | Holtec International |

# APPENDIX B

# ADMINISTRATIVE CONTROLS

## 1.0 PROGRAMS AND PROCEDURES

The program and procedures listed below shall be established and controlled to support HBPP Unit 3 and/or HB ISFSI.

### 1.1 HBPP Unit 3

a) Radiation Protection Program
b) Radiological Environmental Monitoring Program
c) Radioactive Effluent Control Program

### 1.2 HB ISFSI

a) Radiation Protection Program
b) Emergency Plan
c) Radiological Environmental Monitoring Program
d) Security Program (as defined in security license bases documents)

### 1.3 Management and Administrative Programs

The management and administrative programs quality requirements applicable to ITS SSCs in Appendix A are subject to the specific criterion in the HBQAP as described in administrative procedures. Applicable regulatory and quality requirements for the management and administrative programs in Appendix B are designated in administrative programs and procedures.

## 2.0 RADIOLOGICAL MONITORING

Administrative controls for radiological monitoring of gaseous effluents and the environment shall be controlled and implemented to ensure conformance with USNRC Regulatory Guide 4.15 (December 1977).

## 3.0 TECHNICAL SPECIFICATION ACTIVITIES

In addition to the applicable quality assurance requirements specified in the HBQAP, Technical Specification activities shall be controlled in accordance with the Limiting Conditions for Operations (LCO) and Surveillance Requirements (SR).

## 4.0 OFFSITE DOSE CALCULATION MANUAL

The Offsite Dose Calculation Manual (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, and conduct of the radiological environmental monitoring program. The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities and descriptions of the information that should be included in the Annual Radiological Environmental Monitoring Report, and Annual Radioactive Effluent Release Report.

Licensee initiated changes to the ODCM:

1. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:

    i) sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and

ii) a determination that the change(s) will maintain the level of radioactive effluent control required by 10CFR 20.1302, 40CFR Part 190, 10CFR 50.36a and Appendix I to 10CFR 50, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.

2. Shall become effective after review and approval of the HB Director; and

3. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

## 5.0 RADIOACTIVE EFFLUENT CONTROLS PROGRAM

This program conforms to 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable (ALARA). The program (1) shall be contained in the ODCM, (2) shall be implemented by written procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded.

## 6.0 REPORTING REQUIREMENTS

The following reports shall be submitted in accordance with 10 CFR 50.4.

### 6.1 Occupational Radiation Exposure Report

An annual report shall be made of personnel exposure, in accordance with the requirements of 10 CFR Part 20.2206. The report shall be submitted by April 30 of each year.

### 6.2 Annual Radiological Environmental Monitoring Report

The Annual Radiological Environmental Monitoring Report covering the operation of the unit during the previous calendar year shall be submitted by May 1 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the ODCM, and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Monitoring Report shall include the results of analyses of radiological environmental samples and of environmental radiation measurements taken during the period pursuant to the quality related locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in the next annual report.

### 6.3 Annual Radioactive Effluent Release Report

The Annual Radioactive Effluent Release Report covering the activities of the unit in the previous year shall be submitted prior to April 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.