

10 CONDUCT OF OPERATIONS EVALUATION

10.1 Conduct of Review

Chapter 9, "Conduct of Operations," of the Safety Analysis Report (SAR) (Pacific Gas and Electric Company, 2004a), describes the organization for the design, fabrication, construction testing, operation, modification, and decommissioning of the Humboldt Bay ISFSI, including the organizational structure, personnel responsibilities and qualifications, and the corporate interface with contractors and other outside organizations. The chapter includes discussions of the management and administrative control system, personnel qualifications, plans for preoperational and startup testing and operations, operational readiness review, training, and emergency planning. Chapter 9 also includes descriptions of the responsibilities of key personnel, the training program, standards and procedures that govern daily operations, and records generated as a result of those operations. The purpose of this review is to ensure that the infrastructure to manage, test, and operate the Humboldt Bay ISFSI, including provisions for effective training, is acceptable.

The staff evaluated the proposed conduct of operations by reviewing Chapter 9 of the SAR, documents cited in the SAR, and other supporting documents. The staff also considered information related to the conduct of operations that was submitted by the applicant in response to the staff's request for additional information (Pacific Gas and Electric Company, 2004b). The applicant has requested an exemption from the record keeping requirements of 10 CFR §72.72(d), which requires that spent nuclear fuel (SNF) and high-level waste records be stored in duplicate at a separate, sufficiently remote location to ensure that a single event will not destroy both sets of records. The applicant requested NRC approval to apply the same record keeping procedures used for records at the Humboldt Bay Power Plant (HBPP) to the Humboldt Bay ISFSI records. The HBPP record keeping program satisfies the criteria of 10 CFR Part 50, Appendix B. The staff reviewed this exemption request and considered it acceptable. The proposed record keeping program for the Humboldt Bay ISFSI was found acceptable because it (i) provides for a record keeping system equivalent to the requirements of 10 CFR §72.72(d) and (ii) avoids a redundant and unnecessarily complex record keeping system. The exemption will be included as a condition of the 10 CFR Part 72 license and will be effective upon issuance of the license.

The review considered how the SAR and related documents address the regulatory requirements of 10 CFR §72.24(h–k), §72.24(o) §72.24(p), §72.28(a–d), §72.40(a)(4), §72.40(a)(9), §72.40(a)(13), §72.72(d), §72.180, §72.184(a–b), §72.190, §72.192, and §72.194. Complete citations of these regulations are provided in the Appendix of this Safety Evaluation Report (SER).

Some of these regulations reference requirements of 10 CFR Part 73 regarding physical protection, including 10 CFR Part 72, Subpart H; however, these requirements are not addressed in this SER. The staff's review of conforming changes to the Humboldt Bay site security plan will be addressed in separate correspondence.

10.1.1 Organizational Structure

Section 9.1 of the SAR describes the organizational structure that will be used to manage and operate the Humboldt Bay ISFSI.

10.1.1.1 Corporate Organization

Sections 9.1.1, 9.1.2, 9.1.3, 9.1.4, 9.1.5, and 9.1.6 of the SAR describe the corporate organization that will be used to manage and operate the Humboldt Bay ISFSI.

The Humboldt Bay ISFSI will be managed by the same corporate structure that manages the HBPP Unit 3. The HBPP Decommissioning Trust, approved by the California Public Utilities Commission (CPUC), will fund the construction, operation, and decommissioning of the Humboldt Bay ISFSI.

Following termination of the HBPP Unit 3 10 CFR Part 50 license, the corporate management of the Humboldt Bay ISFSI will change, depending on revisions to the Pacific Gas and Electric (PG&E) organizational structure that will take place at that time. The NRC will be notified of any proposed changes in the corporate management structure governing the Humboldt Bay ISFSI. The applicant commits to maintaining compliance with 10 CFR Part 72 during this transition.

The Vice President of Nuclear Services, who reports to the Senior Vice President, Generation and Chief Nuclear Officer, has corporate responsibility for overall Humboldt Bay ISFSI safety and is responsible for staff performance in designing, fabricating, constructing, testing, operating, modifying, decommissioning, and providing technical support to the ISFSI. This person interfaces with the CPUC.

The HBPP Director and Plant Manager is responsible for providing engineering and design services, safety assessments, and licensing services, and will be responsible for ISFSI operations. This person reports to the PG&E Director for Fossil Generation and Asset Management in carrying out these responsibilities.

The existing HBPP Plant Staff Review Committee reviews matters affecting the safe storage of SNF. The committee is chaired and directed by the HBPP Director and Plant Manager. The committee's functions and responsibilities will include both the HBPP and the Humboldt Bay ISFSI.

The corporate management for the Humboldt Bay ISFSI is the same as that for the HBPP. Programs used for the HBPP, such as radiation protection, environmental monitoring, emergency preparedness, quality assurance (QA), and training will be adopted, as necessary, and will be employed to ensure safe operation of the Humboldt Bay ISFSI. Legal support will be provided from PG&E headquarters, and technical and operational support will be available from the HBPP personnel and outside consultants for licensing, QA, engineering, radiation protection, maintenance, testing, emergency planning, security, and decommissioning. Construction, testing, and operation of the ISFSI will be conducted by the same organization responsible for the design, testing, maintenance, and operation of the HBPP.

Quality control functions will be performed by individuals independent of the Humboldt Bay ISFSI line organization. During the preoperations phase, results of QA audits and recommendations for improvement will be provided to the ISFSI Project Manager. During the operations phase, audit results and recommendations will be reported directly to the Director and Plant Manager. During both phases, they will be provided to the Vice President of Nuclear Services. The frequency and scope of the QA audits are addressed in the HBPP QA Program, which has been approved by NRC and will be applied to all ISFSI-related activities.

The Humboldt Bay ISFSI Project Manager manages the day-to-day activities during the preoperational phase and ensures that design, fabrication, construction, fuel loading, testing, and loading of casks into the ISFSI vault are safely completed. This person also is responsible for cost control for these activities. The ISFSI Project Manager develops the license application and is responsible for licensing coordination with federal and state officials. The Project Manager also reports to the Director and Plant Manager of HBPP, who has responsibility for overall safety of ISFSI activities during the preoperational phase.

All operations associated with the Humboldt Bay ISFSI, including those conducted by contractors and consultants, will be managed and approved by PG&E and will be conducted using approved procedures. Contractors and consultants may support various design and engineering activities for the ISFSI and its components. Tests performed by outside vendors will meet the requirements of a PG&E-approved QA program and will be approved by PG&E prior to use. PG&E personnel will witness the performance of preoperational tests performed by vendors. During operations, the onsite Director and Plant Manager is responsible for the oversight of consultant and contractor work.

The primary difference in the corporate management structure between the preoperational and operational phases is that during operations, day-to-day management of the Humboldt Bay ISFSI activities shifts from the ISFSI Project Manager to the onsite Director and Plant Manager.

The staff concludes that the corporate organizational structure meets the requirements of 10 CFR §72.24, §72.28, and §72.40(a). The corporate organization, technical qualifications, training, and experience of the applicant to conduct the proposed operations satisfy the requirements of 10 CFR §72.24(h) and (j). The technical qualifications, training and experience, operating organization, delegations of responsibility and authority, skills, and experience satisfy the requirements of 10 CFR §72.28(a) and §72.28(c). The applicant satisfies the requirement of 10 CFR §72.40(a)(4) to be qualified by reason of training and experience to conduct the operations covered by the regulations and the requirement of 10 CFR §72.40(a)(13) that the operations can be conducted without endangering the health and safety of the public.

10.1.1.2 Onsite Organization

Sections 9.1.3, 9.1.4, 9.1.5, and 9.1.6 of the SAR present the onsite organization for ISFSI activities, including responsibilities and reporting relationships.

The Humboldt Bay ISFSI will be constructed, tested, and operated by the same organization responsible for the testing and operation of the HBPP. The only difference is that after the preoperational phase, responsibility for day-to-day operations will shift from the ISFSI Project

Manager to the HBPP Director and Plant Manager. It is anticipated that approximately two full-time-equivalent personnel will be used to support the operation of the Humboldt Bay ISFSI. These personnel will come from the existing HBPP organization but will be specifically trained as required by 10 CFR Part 72, Subpart I, to support ISFSI operations. The authorities, responsibilities, and reporting relationships of these personnel are presented in the SAR and will be updated in organization charts, functional descriptions, and job descriptions, as required.

The Director and Plant Manager will be responsible for the overall safety of ISFSI operations and for training and qualification of operations, maintenance, radiation protection, and security personnel. The Director and Plant manager reports to the Vice President of Nuclear Services.

The Operations Supervisor reports to the Director and Plant Manager and is responsible for administering, coordinating, planning, and scheduling all Humboldt Bay ISFSI operating activities. The Operations Supervisor also provides operating procedures and ensures that operating personnel are familiar with them and use them.

The Maintenance Supervisor reports to the Director and Plant Manager. During the operational phase, the Maintenance Supervisor oversees Humboldt Bay ISFSI maintenance and work planning.

The HBPP personnel will conduct the day-to-day operations of the ISFSI including engineering, design, construction, QA, radiation protection, operations, and security. In conducting these activities, personnel will use license requirements, technical specifications, the physical security plan, plant procedures, and applicable regulations. The ISFSI specialists will report to either the Operations Supervisor or the Maintenance Supervisor, according to their discipline.

During both preoperational and operational phases, functions, such as engineering design, construction, QA, radiation protection, testing, operations, and security, will be performed by the HBPP personnel. The existing NRC-approved HBPP Plant Staff Review Committee will review and approve any issues affecting the safe storage of SNF. The Plant Staff Review Committee is chaired by the Director and Plant Manager. This committee reviews any procedures or procedure changes important to safety.

A formal order of succession and delegation of authority will be established to ensure continuity of operations and the ability to respond to off-normal events. The Director and Plant Manager will formally designate personnel qualified to act in his absence.

The staff concludes that the onsite organizational structure meets the requirements of 10 CFR §72.24, §72.28, and §72.40(a). The corporate organization, technical qualifications, training, and experience of the applicant to conduct the proposed operations satisfy the requirements of 10 CFR §72.24(h) and §72.24(j). The technical qualifications, training and experience, operating organization, delegations of responsibility and authority, skills, and experience of the applicant satisfy the requirements of 10 CFR §72.28(a) and §72.28(c). The applicant satisfies the requirement of 10 CFR §72.40(a)(4) to be qualified by reason of training and experience to conduct the operations covered by the regulations and the requirement of 10 CFR §72.40(a)(13) that the operations can be conducted without endangering the health and safety of the public.

10.1.1.3 Management and Administrative Controls

Sections 9.1.6, 9.2.1, 9.4.1, and 9.4.2 of the SAR describe management and administrative controls that will be employed for the Humboldt Bay ISFSI.

In general, the NRC-approved management and administrative controls that are in effect at the HBPP will also be applied to the ISFSI. QA audits conducted in accordance with the HBPP QA Program will be used to evaluate the adequacy of management and administrative controls, including procedures. The audit program will describe audit frequencies, methods for conducting and documenting audits, and resolution and implementation of corrective actions. The NRC-approved HBPP QA program has been found acceptable for defining audit frequencies, documenting and communicating results, resolving issues, and implementing corrective action.

Lines of authority, responsibility, and communication will be defined and documented for key personnel positions. The operations and security staff will operate the ISFSI in accordance with the requirements of the ISFSI license, technical specifications, the HBPP QA program, the physical security plan, written procedures, and applicable state and federal regulations. These requirements cover routine, emergency, and contingency operations. A formal order of succession and delegation will ensure continuity of operations and organizational responsiveness to off-normal situations.

In the SAR, PG&E has committed to conduct all activities important to safety for the Humboldt Bay ISFSI using detailed, written procedures. The procedures will be prepared, reviewed, and approved in accordance with the HBPP administrative program used for these purposes. PG&E also has committed to prepare these procedures, which qualified and trained personnel can implement without incident or abnormal event, in sufficient detail. Procedures will include preoperational and startup testing, operational startup testing, administration, radiation protection, maintenance and surveillance, operations, and quality assurance. The Plant Staff Review Committee reviews procedures important to safety.

Humboldt Bay ISFSI records will be maintained using established practices employed by the HBPP and the HBPP QA programs. The scope of the record keeping procedures includes the records retention period; QA requirements; operating records that document principal maintenance, alterations, and additions to components or facilities; records of off-normal occurrences and events associated with radioactive releases; records for decommissioning; and environmental surveys.

The staff concludes that the management and administrative controls committed to in the SAR satisfy the requirements of 10 CFR §72.24 and §72.28. The SAR includes a plan for conduct of operations, including the planned managerial and administrative controls system as required by 10 CFR §72.24(h). These administrative controls ensure that any structures, systems, and components (SSCs) important to safety, whose functional adequacy or reliability have not been previously demonstrated, will be properly tested and assessed as required by 10 CFR §72.24(i). The SAR includes a description of the applicant's operating organization, delegations of responsibility and authority, and minimum skills and experience as required by 10 CFR §72.28(c).

10.1.2 Preoperational Testing and Startup Operations

Section 9.2 of the SAR describes the preoperational and startup testing plans for storage systems and any associated equipment and facility testing. PG&E has committed to complete this testing before loading any SNF for placement in the ISFSI vault. This testing will verify that the system components and the overall storage system perform as described in the SAR.

PG&E also has committed to prepare, review, approve, and perform test procedures for the Humboldt Bay ISFSI in accordance with existing HBPP administrative controls and the NRC-approved HBPP QA program. This commitment includes requiring any test procedures to be examined to determine any negative affects on HBPP Unit 3 SSCs. Preoperational tests used by outside vendors will meet the requirements of the PG&E approved QA program. PG&E will approve any such procedures, and qualified personnel will witness their performance.

10.1.2.1 Preoperational Testing Plan

Sections 9.2.1, 9.2.2, and 9.2.3 of the SAR describe various aspects of the Preoperational Test Program.

Preoperational testing verifies that the individual components of the storage system, facilities, and equipment meet respective functional requirements as described in the SAR. Preoperational testing must be successfully completed prior to beginning startup testing.

Any discrepancies identified during preoperational testing will be resolved in accordance with the existing HBPP procedures and processes for discrepancy resolution.

The preoperational test plan will include testing of the davit crane, the transporter, and all storage system ancillaries (e.g., the welder and drying system). These tests will confirm operation in accordance with functional specifications and the requirements of the SAR. Typical aspects tested will be controls, hydraulic systems, brakes, instruments, and protective devices. Other testing that will be performed according to the preoperational test plan includes security system testing and construction-related testing. Control and calibration of measuring and test equipment will be conducted according to the existing HBPP QA program.

The staff concludes that the preoperational test plan satisfies requirements of 10 CFR §72.24 and §72.40. The planned managerial and control system meets the requirements of 10 CFR §72.24(h). The description of the testing plans in the SAR satisfies the requirements of 10 CFR §72.24(p). As required by 10 CFR §72.40(a)(13), these plans provide reasonable assurance that the proposed activities can be conducted without endangering the health and safety of the public.

10.1.2.2 Startup Plan

Sections 9.2.1, 9.2.2, 9.2.4, 9.2.5, and 9.2.6 of the SAR describe various aspects of the Startup Test Program.

An overall startup testing program procedure will be used for this testing. ISFSI operating procedures will be supplemented by individual startup test procedures. Startup testing will verify the performance of the storage system and ensure compliance with the requirements of the SAR. Startup testing also will use actual system components and one or more mock-up multi-purpose canisters (MPC) to verify successful lid closure welding, lid weld removal, moisture removal, helium filling, and canister cool down.

Operators conducting this testing will have completed ISFSI training program requirements. The applicant commits to completing startup testing prior to handling SNF.

Any discrepancies identified during startup testing will be resolved in accordance with the existing HBPP procedures and processed for discrepancy resolution.

Startup testing at the Humboldt Bay ISFSI will include the following:

- (1) Preparing the cask for movement into the spent fuel pool (SFP)
- (2) Moving the cask into the SFP and placing a dummy fuel assembly in the cask
- (3) Installing the MPC lid retention device and removing the cask from the SFP
- (4) Decontaminating the cask
- (5) Removing the MPC lid retention device, welding the MPC lid, removing moisture, filling the MPC with helium, cooling down the MPC, and removing the lid weld
- (6) Installing the transfer cask top lid
- (7) Loading the cask onto the rail dolly using the davit crane and removing it from the refueling building (RFB)
- (8) Transferring the loaded cask from the RFB to the storage vault using the transporter
- (9) Positioning and lowering the cask into the storage vault

Section 9.2.5 of the SAR provides for additional testing. The operational startup testing will be performed during the initial loading of an MPC. The applicant commits to limiting these tests to gathering information that is only available when SNF is loaded in an MPC or for final verification of data obtained during startup testing. The tests include a monitoring program for vault temperature to ensure that the temperature will remain within the design basis.

Section 9.2.6 of the SAR commits to execute an operational readiness review prior to initial MPC loading to verify that all appropriate actions have been completed. The operational readiness review will ensure, at a minimum, that:

- (1) Results from operational and startup testing are satisfactory, and all associated corrective actions or lessons learned have been properly incorporated in Humboldt Bay ISFSI procedures

- (2) Radiological procedures and controls are in place
- (3) Operational procedures are approved and in place for surveillance, security, and emergency response
- (4) All engineering issues related to the storage system have been resolved
- (5) Fire protection procedures are approved and in place
- (6) Maintenance procedures are approved and in place, and all required ISFSI systems and components are ready for use
- (7) The Cask Transportation Evaluation Program is in place

The staff concludes that the startup test plan, the plans for additional testing, and the commitment to complete an Operational Readiness Review satisfy the requirements of 10 CFR §72.24 and §72.40. The planned managerial and control system meets the requirements of 10 CFR §72.24(h). The startup test plan ensures that any SSCs important to safety will be properly tested and assessed as required by 10 CFR §72.24(l). The SAR description of the testing plans satisfies the requirements of 10 CFR §72.24(p). These plans provide reasonable assurance that the proposed activities can be conducted without endangering the health and safety of the public, as required by 10 CFR §72.40(a)(13).

10.1.3 Normal Operations

Sections 9.4.1 and 9.4.2 of the SAR describe administrative controls and the conduct of operations for activities important to safety. These sections also describe the management controls applied to maintaining records.

10.1.3.1 Procedures

Section 9.4.1 of the SAR states that activities important to safety will be conducted in accordance with detailed, written, approved procedures. In addition, the applicant has committed to have preoperational, normal operating, maintenance, and surveillance testing procedures in place prior to beginning fuel loading. All procedures and revisions will be prepared, reviewed, and approved using existing HBPP administrative programs. All procedures important to safety will be reviewed by the Plant Staff Review Committee. These procedures also will be in compliance with the NRC-approved HBPP QA program. All procedures will be sufficiently detailed to allow qualified and trained personnel to perform the actions without incident or abnormal event. Section 9.4.1 of the SAR addresses administrative, radiation protection, maintenance and surveillance testing, operating, and QA implementing procedures separately.

The Humboldt Bay ISFSI administrative procedures will provide operating personnel with a clear understanding of operating philosophy and management policies. The scope of these procedures will include personnel conduct; procedure preparation, review, approval, and revision; personnel safety; the working environment; and procurement. The objective of these

procedures is to ensure that these activities are completed with a high degree of readiness, quality, and safety.

Humboldt Bay ISFSI radiation protection procedures will implement a radiation protection program that demonstrates compliance with 10 CFR Part 20 requirements, including as low as is reasonably achievable principles. The scope of these procedures will include acquisition of data, use of equipment, and qualification and training of radiation protection personnel. Existing HBPP radiation protection procedures will be revised as necessary to address ISFSI operations. These existing procedures have proven adequate for monitoring exposure of employees, radiation surveys, maintenance monitoring, and radiation protection records maintenance. Revised ISFSI radiation protection procedures will specifically address the safety of personnel performing SNF loading, SNF transport, SNF unloading, surveillance testing, and maintenance. Any entrance to or work performed inside the ISFSI protected area will be controlled by a radiation work permit and appropriate security checks. The operation and use of radiation monitoring equipment and the use of measurement and sampling techniques will be covered by procedures.

Humboldt Bay ISFSI maintenance and surveillance testing procedures will be established for preventive and corrective maintenance and for surveillance testing of ISFSI equipment and instrumentation. An appropriate schedule will be established for preventive maintenance, surveillance testing, and calibrations to preclude degradation of systems, equipment, and components. Corrective maintenance to rectify unexpected system, equipment, or component failures will also be controlled using procedures and conducted as the need arises. Any SSCs important to safety that are commercial grade will be qualification tested prior to use. This testing will verify the functionality and the ability to carry a full-rated load, where appropriate. Subsequent to the qualification testing, standard preventive maintenance, surveillance testing, and corrective maintenance will be performed.

Humboldt Bay ISFSI operating procedures will include instructions for routine and projected off-normal operations. These operations include handling, loading, sealing, transferring, storing, unloading, and other operations important to safety.

Humboldt Bay ISFSI QA implementing procedures will be prepared for important-to-safety activities to ensure compliance with the HBPP QA program. Similarly, the requirements for qualification of personnel will be implemented through formal procedures, which will specify that responsibility for quality rests with each individual.

The staff concludes that the applicant's plans for normal operations satisfy the requirements of 10 CFR §72.24, §72.28, and §72.40(a). A plan for the conduct of operations has been provided as required by 10 CFR §72.24(h), and the applicant's technical qualifications to engage in the proposed activities have been described as required by 10 CFR §72.24(j). The SAR also includes a plan for initial operations as required by 10 CFR §72.24(p). The staff has reasonable assurance that the applicant is qualified by reason of training and experience to conduct the proposed operations, has an adequate training program, and can conduct the proposed operations without endangering the health and safety of the public as required by 10 CFR §72.40(a)(4), §72.40(9), and §72.40(13).

10.1.3.2 Records

Section 9.4.2 of the SAR specifies that records will be maintained in accordance with established PG&E policies. The records management program is a part of the NRC-approved HBPP QA program.

PG&E has requested an exemption from 10 CFR §72.72(d), which requires that SNF and high-level waste records be stored in duplicate at a separate, sufficiently remote location to ensure that a single event will not destroy both sets of records. Pursuant to 10 CFR §72.140(d), PG&E proposes to use an NRC-approved QA program that satisfies the criteria of 10 CFR Part 50, Appendix B for the Humboldt Bay ISFSI. The applicant states that an exemption from the records storage requirements of 10 CFR §72.72(d) would allow records of SNF storage to be maintained in the same manner that other important plant records are currently maintained, consistent with the HBPP QA program.

The staff concludes that the record keeping procedures committed to in Section 9.4.2 of the SAR satisfy the requirements of 10 CFR §72.24, §72.28, and §72.40. The planned record keeping managerial and administrative controls satisfy the requirements of 10 CFR §72.24(h). These controls and procedures also satisfy the requirements of 10 CFR §72.28(c) for an adequately defined operating organization. The staff finds that the granting of an exemption for the record keeping requirements in 10 CFR §72.72(d) is appropriate and acceptable.

10.1.4 Personnel Selection, Training, and Certification

Sections 9.1.7 and 9.3 of the SAR define the minimum qualification and training requirements for personnel involved in the operation of the Humboldt Bay ISFSI.

10.1.4.1 Personnel Organization

Section 9.3 of the SAR states that, pursuant to 10 CFR §72.190 and §72.192, the Humboldt Bay ISFSI personnel will receive training and indoctrination designed to provide and maintain a well-qualified work force for safe and effective operation. The existing HBPP general employee training program will be used as the ISFSI Operations Training Program because the General Employee Training portions are directly applicable to the Humboldt Bay ISFSI.

After training, the staff will be evaluated by written and practical examinations. Training records will be maintained consistent with the requirements for personnel involved in SNF handling operations. Training records will be maintained in accordance with the HBPP QA program. These records will include dates and hours of training, information on physical requirements, job performance criteria, copies of written examinations, and documentation of walk-throughs and retesting.

Supplemental training will be provided to the operations, maintenance, security, and emergency planning personnel who are assigned duties at the ISFSI. Supplemental training will be developed under the HBPP training program to provide a comprehensive, site-specific training, assessment, and qualification program for the ISFSI. This training program will include periodic requalification and retraining, record keeping, and medical requirements.

The staff concludes that the personnel organization satisfies the requirements of 10 CFR §72.24, §72.28, §72.40, §72.190, §72.192, and §72.194. The program satisfies the requirements of 10 CFR §72.24(h) for a program of personnel training and the requirements of 10 CFR §72.24(j) that the applicant be technically qualified to conduct the proposed activities. The application also meets the requirements of 10 CFR §72.28(a) to include the technical qualifications, training, and experience of the applicant; 10 CFR §72.28(b) that a description of the personnel training program required by 10 CFR Part 72, Subpart I be provided; 10 CFR §72.28(c) that a description of the operating organization, delegations of responsibility and authority, and skills and qualifications be included; and 10 CFR §72.28(d) that the applicant commit to an adequate complement of trained and certified personnel prior to the receipt of SNF for storage. The applicant also has committed that operation of equipment and controls important to safety will be limited to trained, certified, or properly supervised personnel, as required by 10 CFR §72.190. A program for training, proficiency testing, and certification of personnel that satisfies the requirements of 10 CFR §72.192, has been provided and this program will ensure that the general health and physical condition of the operators are considered when selecting personnel for activities that are important to safety, as required by 10 CFR §72.194.

10.1.4.2 Selection and Training of Operating Personnel

Section 9.1.7 of the SAR specifies that the HBPP personnel working at the Humboldt Bay ISFSI will meet or exceed the qualifications specified by NRC Regulatory Guide 1.8 (U.S. Nuclear Regulatory Commission, 1987), with specific exceptions as identified in the license application and consistent with the HBPP QA Program.

The Director and Plant Manager is required to have a minimum of 8 years of power plant experience, at least 3 years of which should be nuclear power plant experience. At most, 2 years of the remaining 5 years of power plant experience may be fulfilled by satisfactory completion of academic or related technical training on a one-for-one basis. The Director and Plant Manager must also be qualified in accordance with an NRC-approved training program that will be developed as committed to in Attachment D, Training Program, of the license application and Section 9.3.2 of the SAR.

The ISFSI operations personnel and security staff will have a high school diploma or have successfully completed the General Education Development test. The operations personnel must have at least 2 years of power plant experience, at least 1 year of which must be nuclear power plant experience. The operations personnel also will have received the required training for their specific assignments, as specified by Section 9.3.2 of the SAR.

The HBPP security staff who support the Humboldt Bay ISFSI will be trained and qualified in accordance with the HBPP Security Training and Qualifications Plan.

Humboldt Bay ISFSI fuel handling operations will be performed or supervised by personnel who have been trained and qualified through the Humboldt Bay ISFSI Operations Training Program and the HBPP certified fuel handler program. During operations, operation of equipment and controls that are important to safety will be limited to those personnel who have been qualified and trained through the Humboldt Bay Operations Training Program or personnel under the direct supervision of persons trained and qualified through the Humboldt Bay Operations

Training Program. Personnel who conduct SNF and cask handling operations will be evaluated to ensure that their physical condition and general health meet the requirements of 10 CFR §72.194.

All ISFSI personnel will be retrained at least every 2 years in accordance with Section 9.3.4 of the SAR. This training will incorporate appropriate topics from both general employee training and job-specific training.

The staff concludes that the program for selection, training and certification of personnel satisfies the requirements of 10 CFR §72.28(a) that the applicant has the technical qualifications, including training and experience, to engage in the proposed activities; 10 CFR §72.28(b) that the application include a description of the personnel training program; 10 CFR §72.28(c) that the personnel have the minimum skills and experience qualifications relevant to the various levels of responsibility and authority; and 10 CFR §72.28(d) that the applicant commits to have and maintain an adequate complement of trained and certified personnel.

The staff concludes that the program for selection, training, and certification of personnel meets the requirements of 10 CFR §72.40(a)(4) that the applicant be qualified by reason of training and experience to conduct the planned operations and 10 CFR §72.40(a)(9) that the personnel training program comply with the requirements of 10 CFR Part 72, Subpart I. The adequacy of the applicant's training program supports the staff finding of reasonable assurance that operations can be conducted without endangering public health and safety, as required by 10 CFR §72.40(a)(13).

The staff concludes that the program for selection, training, and certification of personnel satisfies the requirements of 10 CFR Part 72, Subpart I. Equipment and controls important to safety will be operated and supervised only by certified personnel, as required by 10 CFR §72.190. The applicant's program for training, proficiency testing, and certification of personnel has been submitted with the application and meets the requirements of 10 CFR §72.192. The program will ensure that the general health and physical condition of personnel certified for the operation of equipment and controls that are important to safety will be satisfactory, as required by 10 CFR §72.194.

10.1.4.3 Selection and Training of Security Guards

The results of the staff's review regarding the requirements for the ISFSI security organization will be provided in separate correspondence.

10.1.5 Emergency Planning

Section 9.5 of the SAR identifies that the existing emergency plan (EP) for the HBPP, required by 10 CFR Part 50, will be revised to incorporate the Humboldt Bay ISFSI and to meet the regulatory requirements in 10 CFR 72.32(a). The applicant has provided the revised EP as Attachment B to the license application. The revised EP provides a description of the organization, assessment actions, emergency action levels (EALs), notification procedures, emergency facilities and equipment, training requirements and recovery criteria.

Chapter 8 of the SAR contains the accident evaluation for the potential accident and off-normal conditions which could occur at the ISFSI. The EALs identified in the EP for the possible accident conditions have been developed based upon emergency planning guidance developed by the Nuclear Energy Institute in NEI 99-01, which has been endorsed by the NRC. The EALs listed for the various accident conditions are appropriate for an ISFSI.

Two accident classifications are identified in the EP, the Notification of Unusual Event (NOUE) and Alert. The Alert is the only accident classification required by 10 CFR 72.32(a). The NOUE is the lowest level accident classification of the four accident classifications required by 10 CFR Part 50.

The EP describes the Humboldt Bay ISFSI proposed emergency organization and the responsibilities of the emergency staff positions. Since the ISFSI staffing levels following plant decommissioning may be reduced from current levels, the applicant may need to revise the EP in the future to reflect the revised emergency organization.

The EP was provided to response agencies in the vicinity of the HBPP for comment as required by 10 CFR 72.32(a), and their comments have been submitted with the EP and license application. There were no comments indicating a significant problem with the revised plan.

Based upon the staff's review of the EP and the SAR Chapter 8 accident analysis, the staff finds that the EP meets the requirements in 10 CFR 72.32(a). The staff has reasonable assurance that the revised Humboldt Bay Emergency Plan will provide the appropriate guidance for ISFSI staff to adequately respond to potential accidents conditions.

10.1.6 Physical Security and Safeguards Contingency Plans

The NRC staff's findings regarding the revised Physical Security and Safeguards Contingency Plans are the subject of separate correspondence.

10.2 Evaluation Findings

Based on review of the information in the SAR and license application, the staff makes the following findings regarding the Conduct of Operations for the Humboldt Bay ISFSI:

- The SAR includes a plan for the conduct of operations, including the planned managerial and administrative controls system and the applicant's organization and program for training of personnel pursuant to Subpart I in compliance with 10 CFR §72.24(h).
- The proposed ISFSI incorporates no SSCs important to safety whose functional adequacy or reliability have not been demonstrated by prior use for that purpose or cannot be demonstrated by reference to performance data in related applications or to widely accepted engineering principles. The SAR, therefore, does not need to identify these SSCs along with a schedule showing how safety questions will be resolved prior to the initial receipt of SNF or high-level waste for storage. This satisfies the requirements of 10 CFR §72.24(l).

- The SAR includes the technical qualifications of the applicant to engage in the proposed activities, as required by 10 CFR §72.24(j).
- The SAR includes a description of the applicant's plans for coping with emergencies that satisfies the requirements of 10 CFR §72.24(k).
- The SAR includes a description of the program covering preoperational testing and initial operations that satisfies the requirements of 10 CFR §72.24(p).
- The application includes the technical qualifications, including training and experience, of the applicant to engage in the proposed activities, satisfying the requirements of 10 CFR §72.28(a).
- The application includes a description of the personnel training program required under Subpart I that satisfies the requirements of 10 CFR §72.28(b).
- The application includes a description of the applicant's operating organization, delegations of responsibility and authority, and the minimum skills and experience qualifications relevant to the various levels of responsibility and authority, as required by 10 CFR §72.28(c).
- The application contains a commitment to have and maintain an adequate complement of trained and certified installation personnel prior to the receipt of SNF or high level waste for storage, satisfying the requirements of 10 CFR §72.28(d).
- The applicant is qualified by reason of training and experience to conduct the operations covered by the regulations in this part, satisfying the requirements of 10 CFR §72.40(a)(4).
- The applicant's personnel training program complies with 10 CFR Part 72, Subpart I, satisfying the requirements of 10 CFR §72.40(a)(9).
- There is reasonable assurance that the activities proposed in the application can be conducted without endangering the health and safety of the public, as required by 10 CFR §72.40(a)(13).
- Operation of equipment and controls that have been identified as important to safety in the SAR will be limited to trained and certified personnel or to personnel under the direct visual supervision of an individual with training and certification in the operation. Supervisory personnel who personally direct the operations of equipment and controls that are important to safety will also be certified in such operations, as required by 10 CFR §72.190.
- An acceptable program for training, proficiency testing, and certification of ISFSI personnel has been provided, as required by 10 CFR §72.192.
- The physical condition and the general health of personnel certified for the operation of equipment and controls that are important to safety will be sufficient

to preclude operational errors that could endanger other plant personnel or the public health and safety. Conditions that might cause impaired judgment or motor coordination will be considered in the selection of personnel for activities important to safety, as required by 10 CFR §72.194.

- The staff is granting an exemption to the record keeping requirements of 10 CFR §72.72(d) because an acceptable record keeping system for equivalent records has already been established at the HBPP and granting the exemption would obviate the need for duplicate record keeping systems.

10.3 References

Pacific Gas and Electric Company. *Humboldt Bay Independent Spent Fuel Storage Installation Safety Analysis Report*. Amendment 1. Docket No. 72-27. Avila Beach, CA: Pacific Gas and Electric Company. 2004a.

Pacific Gas and Electric Company. *Response to NRC Request for Additional Information for the Humboldt Bay Independent Spent Fuel Storage Installation Application*. (TAC No. L23683). Letter (October 1). HIL-04-007, HIL-04-009. Avila Beach, CA: Pacific Gas and Electric Company. 2004b.

U.S. Nuclear Regulatory Commission. Regulatory Guide 8.8, *Information Relevant to Ensuring That Occupational Radiation Exposures at Nuclear Power Stations Will Be ALARA*. Rev. 3. Washington, DC: U.S. Nuclear Regulatory Commission. 1978.

U.S. Nuclear Regulatory Commission. Regulatory Guide 1.8, *Qualification and Training of Personnel for Nuclear Power Plants*. Rev. 2. Washington, DC: U.S. Nuclear Regulatory Commission. 1987.