10 CONDUCT OF OPERATIONS EVALUATION

10.1 Conduct of Review

Chapter 9, "Conduct of Operations," of the Safety Analysis Report (SAR), describes the organization for the design, fabrication, construction testing, operation, modification, and decommissioning of the Diablo Canyon Independent Spent Fuel Storage Installation (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 for operations, operational readiness review, training, and emergency planning. The chapter 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 the review is to ensure that the infrastructure to manage, test, and operate the Diablo Canyon 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 relevant literature. 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 (U.S. Nuclear Regulatory Commission, 2002). The applicant has requested an exemption from the record keeping requirements of 10 CFR §72.72(d), which requires that spent nuclear fuel and high-level waste records be stored in duplicate at a separate location sufficiently remote that a single event would not destroy both sets. The applicant requested that the record keeping procedure used for records at the Diablo Canyon Power Plant (DCPP) be applied to the Diablo Canyon ISFSI records. The DCPP record keeping program satisfies the criteria of 10 CFR Part 50, Appendix B, and meets American National Standards Institute (ANSI) N45.2.9-1974. The staff reviewed this exemption request and considered it acceptable; the proposed record keeping program for the Diablo Canyon ISFSI was found acceptable because it: (1) provides for a record keeping system equivalent to the requirements of 10 CFR §72.72(d); and (2) 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.

The information in SAR Chapter 9 was reviewed with respect to the regulations in 10 CFR §72.24(h), §72.24(i), §72.24(j), and §72.24(k); §72.28; §72.40(a)(4), §72.40(a)(9), and §72.40(a)(13); §72.180; §72.184 and Subpart I. Some of these regulations reference requirements of 10 CFR Part 73 regarding physical protection; however, the staff's review of conforming changes to the Diablo Canyon security plan is addressed in separate correspondence. Where appropriate, findings of regulatory compliance are made for the 10 CFR Part 72 requirements that are fully addressed in Chapter 9 of the SAR. Findings of technical adequacy and acceptability, however, are made for each area discussed in Chapter 9 of the SAR, relative to the regulatory requirements.

10.1.1 Organizational Structure

Section 9.1, "Organizational Structure," of the SAR describes the organizational structure to be used to manage and operate the Diablo Canyon ISFSI. The staff's review considered how the information in the SAR addresses the following regulatory requirements:

- 10 CFR §72.28(a) requires that the application include the technical qualifications, including training and experience, of the applicant to engage in the proposed activities.

- 10 CFR §72.28(c) requires that the application include a description of the applicant's operating organization, delegations of responsibility and authority and minimum skills and experience qualifications relevant to the various levels of responsibility and authority.

- 10 CFR §72.40(a)(4) requires that the applicant is qualified by reason of training and experience to conduct the operations covered by 10 CFR Part 72.

10.1.1.1 Corporate Organization

Sections 9.1.1, "Corporate Organization;" 9.1.2, "Corporate Functions, Responsibilities, and Authorities;" and 9.1.3, "In-House Organization" of the SAR describe the corporate organization that will be used to manage and operate the Diablo Canyon ISFSI.

The Diablo Canyon ISFSI will be managed by the same corporate structure that manages the DCPP. While the DCPP units are operating, costs for construction and operation of the Diablo Canyon ISFSI will be funded from power plant operations. After both the DCPP power generating units are shut down, funding for any remaining construction, continued operation, and decommissioning of the ISFSI will be from the DCPP decommissioning funds, which include separate line items to provide for these costs. During the preoperational period, costs would be monitored and controlled by an ISFSI Program Manager. During operations, the Station Director would have this responsibility.

After the DCPP power generating units are decommissioned and the 10 CFR Part 50 operating licenses are terminated, the corporate management of the Diablo Canyon ISFSI may change, based on revisions to the current PG&E organizational structure. The NRC will be notified about any proposed changes in corporate management structure governing the Diablo Canyon ISFSI, and any regulatory approvals of such changes will be obtained in advance, as necessary.

The Senior Vice President, Generation and Chief Nuclear Officer, has overall corporate responsibility for Diablo Canyon ISFSI safety. This person's responsibilities include performance of the staff in designing, fabricating, constructing, testing, operating, modifying, decommissioning, and providing technical support to the ISFSI. This position reports to the President and Chief Executive Officer of PG&E.

Under the Senior Vice President, Generation and Chief Nuclear Officer, the Vice President, Nuclear Services is responsible for engineering and design services, safety assessments, and

licensing services for the Diablo Canyon ISFSI. This person interacts with the California Public Utilities Commission for ISFSI cost matters. The Vice President, Nuclear Services, is responsible for the design, fabrication, and testing of the first cask. The Engineering Director, who reports to the Vice President, Nuclear Services, will be responsible for the design, fabrication, and testing of all subsequent casks.

The Vice President, Diablo Canyon Operations, also at the corporate level, has responsibility for Diablo Canyon ISFSI operations and reports to the Senior Vice President, Generation and Chief Nuclear Officer.

A Nuclear Safety Oversight Committee reports to the Senior Vice President, Generation and Chief Nuclear Officer. This committee is chaired by the Vice President, Nuclear Services. The committee functions and responsibilities encompass both the DCPP and the Diablo Canyon ISFSI.

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

Quality control functions will be performed by individuals independent of the Diablo Canyon ISFSI line organization. Results of QA audits and recommendations for improvement will be provided to the Senior Vice President, Generation and Chief Nuclear Officer. Prior to operations, they will also be presented to the ISFSI Program Manager, and during operations they will be provided to the Station Director. The frequency and scope of QA audits is adequately addressed in the Diablo Canyon Power Plant QA Program, which has been approved by NRC and will be applied to all ISFSI-related activities.

The primary difference in the corporate management structure between the preoperational and operational phases is that during operations, day-to-day management of the Diablo Canyon ISFSI activities shifts from the ISFSI Program Manager to the on-site Station Director.

The Diablo Canyon ISFSI Program Manager manages the day-to-day activities during the preoperational phase and ensures that the design, fabrication, construction, fuel loading, testing, and initial operation of the first cask are safely completed. He is also responsible for cost control for these activities. The ISFSI Program Manager develops the license application and is responsible for licensing coordination with federal and state officials. He reports to the Director, Strategic Projects, and Assistant to the Vice President, Nuclear Services, who reports to the Vice President, Nuclear Services.

During the Diablo Canyon ISFSI preoperational phase, the Vice President, Nuclear Services, is responsible for the overall safety as well as industrial safety for the ISFSI.

The staff's review finds the corporate organizational structure acceptable because it defines the relationships between corporate organizations and delineates authority and responsibility. Responsibilities are clearly assigned to specific individuals and parts of the organization; for

example, the function of radiation protection is provided through organizationally separate lines of reporting from those responsible for Diablo Canyon ISFSI operations. The staff also determined that the Nuclear Safety Oversight Committee is properly organized and staffed and will review ISFSI-related activities, and is therefore acceptable. The Diablo Canyon ISFSI corporate management will be the same as that for the DCPP. This corporate management structure and functioning has been found acceptable by the NRC staff.

10.1.1.2 On-Site Organization

Sections 9.1.3, "In-House Organization;" and 9.1.6, "Operating Organization, Management, and Administrative Control System" of the SAR present the on-site organization, including responsibilities and reporting relationships for ISFSI activities.

The Diablo Canyon ISFSI will be constructed, tested, and operated by the same organization responsible for the testing and operation of the DCPP. The only difference is that after the preoperational phase, responsibility for day-to-day operations will shift from the ISFSI Program Manager to the on-site Station Director. It is anticipated that approximately 11 full-time-equivalent personnel will be used to support the operation of the Diablo Canyon ISFSI. These personnel will come from the existing DCPP organization but will be specifically trained as required 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.

During the Diablo Canyon ISFSI operational phase, the Station Director will be responsible for design, fabrication, construction, fuel loading, and testing of all casks after the first cask. He will also be responsible for the overall safety of ISFSI operations and for training and qualification of operations, maintenance, radiation protection, and security personnel. The Station Director reports to the Vice President, Diablo Canyon Operations.

The Manager, Operations, reports to the Station Director. The Manager, Operations, is responsible for administering, coordinating, planning, and scheduling all Diablo Canyon ISFSI operating activities. The Manager, Operations, provides operating procedures and ensures operating personnel are familiar with and use them.

The Director, Maintenance Services, reports to the Station Director. The Director, Maintenance Services, supervises Diablo Canyon ISFSI maintenance and work planning.

The Diablo Canyon ISFSI specialists and security staff will conduct the day-to-day operations of the ISFSI. In conducting these activities, they will use license requirements, technical specifications, the physical security plan, plant procedures, and applicable regulations. The ISFSI specialists will report to either the Manager, Operations, or the Director, Maintenance Services, according to their discipline.

All operations associated with the Diablo Canyon ISFSI will be managed and approved by PG&E. Contractors and consultants may support various design and engineering activities for the ISFSI and its components. During operations, the Station Director is responsible for oversight of consultant and contractor work.

During both preoperational and operational periods, functions, such as engineering design, construction, quality assurance, radiation protection, testing, operations, and security, will be performed by DCPP personnel. The existing DCPP Plant Staff Review Committee will review any issues affecting the safe storage of spent nuclear fuel. The Plant Staff Review Committee is chaired by the Station Director. The duties and responsibilities of this committee are adequately covered by the DCPP Final Safety Analysis Report.

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 Station Director will formally designate personnel qualified to act in his absence.

The staff review finds the on-site organizational structure acceptable because it defines relationships between on-site organizations and liaisons with outside organizations and delineates authority and responsibility. The position responsible for oversight of outside organizations that manufacture canisters is clearly defined. The functions of radiation protection and other safety oversight roles are provided through organizationally separate lines of reporting from those responsible for Diablo Canyon ISFSI operations. The staff also determined that a Plant Staff Review Committee exists and is properly organized and staffed and, therefore, is acceptable. The existing DCPP onsite organization will also be responsible for ISFSI-related activities, and will be augmented with additional staff and/or training, as necessary. the same as that used for the DCPP. This onsite management structure has been found acceptable by the NRC.

10.1.1.3 Management and Administrative Controls

Sections 9.1.6.3, “Administrative Control;” 9.4.1, “Procedures;” and 9.4.2, “Records” of the SAR describe management and administrative controls that will be employed for the Diablo Canyon ISFSI.

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

The change control program used by the DCPP will also be used for the Diablo Canyon ISFSI. The program will be revised, as appropriate, to address the provisions of 10 CFR 72.48 and other requirements that specifically relate to the ISFSI.

PG&E has committed to conduct all activities important to safety for the Diablo Canyon ISFSI using detailed, written procedures. In addition, preoperational, normal operating, maintenance, and surveillance testing procedures will be in effect prior to beginning loading operations. The associated procedures will be prepared, reviewed, and approved in accordance with the DCPP administrative program used for these purposes. PG&E has committed to prepare these procedures in sufficient detail that qualified and trained personnel can implement them without incident.

Diablo Canyon ISFSI records will be maintained using established practices employed by the DCPP and the DCPP QA Program. 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 finds that the management and administrative controls committed to in the SAR are adequate and will provide reasonable assurance that the operations at the site will be properly controlled and documented. The applicant has described an organizational system for preparing and controlling procedures, including changes to procedures, and for generating and maintaining adequate records. The staff finds this organizational system acceptable based on the descriptions and commitments given in the SAR.

10.1.2 Pre-operational Testing and Startup Operations

Section 9.2, "Preoperational and Startup Testing," of the SAR describes the startup testing plans for storage systems and any associated equipment and facility testing. PG&E has committed to completing this testing before initial movement of any spent nuclear fuel for placement on the ISFSI storage pad.

PG&E has also committed to prepare, review, approve, and perform test procedures for the Diablo Canyon ISFSI in accordance with existing DCPP administrative controls and the NRC-approved DCPP QA Program. This commitment includes requiring that any test procedures used by outside vendors will meet the requirements of PG&E's approved QA program, and that PG&E will approve any such procedures and witness their performance.

The staff's review considered how the information in the SAR addresses the following regulatory requirements:

- 10 CFR §72.24(p) requires that the application contains a description of the program covering preoperational testing and initial operations.
- 10 CFR §72.28 requires that the applicant's technical qualifications to conduct the proposed operations be adequately demonstrated.
- 10 CFR §72.40(a)(4) requires that the applicant is qualified by reason of training and experience to conduct the operation covered by 10 CFR Part 72.

10.1.2.1 Pre-Operational Testing Plan

Sections 9.2.1, "Administrative Procedures for Conducting Test Program;" 9.2.2, "Test Program Description;" and 9.2.3, "Preoperational Test Plan" 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 DCPP procedures and process for discrepancy resolution.

The preoperational test plan will include testing of the Cask Transfer Facility (CTF), the transporter, and storage system support systems such as welding equipment and dehydration equipment. 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. The existing DCPP Control of Heavy Loads Program will be used to conduct and manage load testing of components.

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 DCPP QA Program.

The staff's review found that the preoperational test plan includes the necessary tests and provides for proper evaluation, approval, and use of the test results. Appropriate administrative procedures will be developed to support the preoperational testing and startup programs, and PG&E will perform a review of operational readiness prior to operation.

10.1.2.2 Startup Plan

Sections 9.2.1, "Administrative Procedures for Conducting Test Program;" 9.2.2, "Test Program Description;" and 9.2.4, "Startup Test Plan" of the SAR describe various aspects of the Startup Test Program.

Startup testing will verify that the complete loading and unloading sequence using the storage system components, facilities, and equipment works together in accordance with the requirements of the SAR and the Diablo Canyon ISFSI Technical Specifications. The applicant commits to completing startup testing prior to handling spent nuclear fuel.

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

Startup testing will be controlled using an overall startup testing plan. According to this overall procedure, individual test procedures will be used to supplement Diablo Canyon ISFSI operational procedures.

Startup testing will be conducted using a multi-purpose canister (MPC) handling simulator that will mimic the dimensions and center of gravity of an actual MPC. The simulator will also be equipped with lifting and handling fixtures similar to those of an actual canister. Similar mockups will be used to test welding equipment including the actual welds, moisture removal, helium filling, and canister cool down.

The applicant states that the personnel conducting the startup testing will have completed the applicable training requirements.

Startup testing at the Diablo Canyon ISFSI will include the following:

(1) Preparing the transfer cask and MPC simulator for movement into the spent fuel pool;

(2) Moving the transfer cask into the FHB/AB, upending it, and placing it in the temporary seismic restraint structure;

(3) Placing the transfer cask into the spent fuel pool and simulating movement of fuel, using a dummy fuel assembly, into the MPC;

(4) Installing the MPC lid retention device, removing the transfer cask from the spent fuel pool, and moving it back to the cask wash down area and into the temporary seismic restraint structure;

(5) Decontaminating the transfer cask;

(6) Removing the MPC lid retention device, welding the MPC lid, removing moisture, filling the MPC with helium, and inspecting the lid weld;

(7) Installing the transfer cask top lid;

(8) Loading the transfer cask onto the cask transport frame using the FHB/AB crane and removing it from the building;

(9) Transporting the loaded transfer cask from the FHB/AB to the CTF using the transporter;

(10) Moving the MPC simulator from the transfer cask into a storage cask at the CTF;

(11) Placing the top lid on a loaded overpack and raising the storage cask in the CTF;

(12) Transporting a loaded overpack from the CTF to the ISFSI pad location;

(13) Positioning and fastening the loaded overpack to the ISFSI pad;

(14) Removing the loaded overpack from the ISFSI pad;

(15) Transporting the loaded overpack from the ISFSI pad to the CTF;

(16) Removing the top lid from a loaded overpack;

(17) Transferring the MPC simulator from the overpack back into the transfer cask; and

(18) Transporting the loaded transfer cask to the FHB/AB using the onsite transporter.

Section 9.2.5, “Operational Startup Testing” of the SAR provides for additional testing. The operational startup testing would be performed during the initial loading of an MPC. The

applicant commits to limiting these tests to gathering information that is only available when nuclear fuel is loaded in an MPC or for final verification of data obtained during startup testing.

Section 9.2.6, “Operational Readiness Review Plan” of the SAR commits to execution of an operational readiness review prior to beginning Diablo Canyon ISFSI operations for the first set of casks. The purpose of this readiness review will be to verify that all appropriate actions have been completed prior to initial MPC loading. 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 Diablo Canyon ISFSI procedures;

(2) Necessary radiological procedures and controls are in place;

(3) Required operational procedures are approved and in place for surveillance, operations, and emergency response;

(4) All engineering issues related to the storage system initial use have been resolved;

(5) Fire protection procedures are approved and in place;

(6) Maintenance procedures are approved and in place, and all required ISFSI components are ready for use;

(7) The Cask Transportation Evaluation Program is in place; and

(8) Procedures for planning are approved and are in place to ensure that the characteristics of fuel assemblies meet requirements of the SAR and the Diablo Canyon ISFSI Technical Specifications.

The staff review found that the startup test plan includes the necessary tests and provides for proper evaluation, approval, and use of the test results. Appropriate administrative procedures will be developed to support the startup test program, and a review of operational readiness will be performed prior to operation. ISFSI staff will be properly trained to conduct the proposed operations.

10.1.3 Normal Operations

Section 9.4, “Normal Operations” of the SAR includes Subsections 9.4.1, “Procedures;” and 9.4.2, “Records.” These sections describe administrative controls and the conduct of operations for activities important to safety. They also describe the management controls applied to maintaining records. The staff’s review considered how the information provided in the SAR addresses the following regulatory requirements:

- 10 CFR §72.24(p) requires that the application contain a description of the program covering preoperational testing and initial operations.

- 10 CFR §72.28 requires that the applicant's technical qualifications to conduct the proposed operations be adequately demonstrated.

- 10 CFR §72.40(a)(4) requires that the applicant is qualified by reason of training and experience to conduct the operations covered by 10 CFR Part 72.

- 10 CFR §72.72(d) requires that records of spent fuel and other special nuclear material must be kept in duplicate.

10.1.3.1 Procedures

Section 9.4.1, "Procedures" 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 to them, will be prepared, reviewed, and approved using existing DCPP administrative programs for procedure preparation, review, and approval. These procedures will also be compliant with the NRC-approved DCPP QA Program. All procedures will be sufficiently detailed that qualified and trained personnel would be able to perform the actions without incident. The SAR addresses administrative, radiation protection, maintenance and surveillance testing, operating, and QA-implementing procedures separately.

The Diablo Canyon 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 success.

Diablo Canyon ISFSI radiation protection procedures will implement a radiation protection program that demonstrates compliance with 10 CFR Part 20 requirements, including as low as reasonably achievable (ALARA) principles. The scope of these procedures will include acquisition of data, use of equipment, and qualification and training of radiation protection personnel. Existing DCPP 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. The revised radiation protection procedures will specifically address the safety of personnel performing fuel loading, fuel transport, fuel 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.

Diablo Canyon ISFSI maintenance and surveillance testing procedures will be established for preventative and corrective maintenance and for surveillance testing of ISFSI equipment and instrumentation. An appropriate periodicity will be established for preventive maintenance, surveillance testing, calibrations, and load testing to preclude degradation of systems, equipment, and components. Corrective maintenance to rectify unexpected system, equipment, or component failures will also be controlled using procedures. Any structures,

systems, or components 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 full-rated load, where appropriate.

Subsequent to the qualification testing, standard preventive maintenance, surveillance testing, and corrective maintenance will be performed.

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

Diablo Canyon ISFSI QA implementing procedures will be prepared for important-to-safety activities to ensure compliance with the DCPP 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's review found that the control of procedures, including procedure changes, described in the SAR was acceptable. Preparation of procedures and procedure changes will have the appropriate level of detail and safety review. Training and certification of personnel will be accomplished using formal, written procedures.

10.1.3.2 Records

Section 9.4.2, "Records" 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 DCPP QA Program.

PG&E has requested an exemption from 10 CFR §72.72(d), which requires that spent nuclear fuel and high-level waste records be stored in duplicate at a separate location sufficiently remote that a single event would not destroy both sets. 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 Diablo Canyon ISFSI. That program meets ANSI N45.2.9–1974. The applicant states that an exemption from the records storage requirements of 10 CFR §72.72(d) would allow records of spent nuclear fuel storage to be maintained in the same manner as with the DCPP QA Program.

The staff review found that the record keeping procedures committed to in the SAR are adequate to assure that records will be properly developed and maintained. The exemption from the requirements of 10 CFR §72.72(d) is appropriate, given that the record keeping program has been found acceptable for the DCPP, and it will provide a level of records management control equivalent to that of 10 CFR §72.72(d) and will avoid redundant and unnecessarily complex record keeping systems.

10.1.4 Personnel Selection, Training, and Certification

Sections 9.1.7, "Personnel Qualification Requirements;" and 9.3, "Training Program" of the SAR define the minimum qualification and training requirements for operation of the Diablo Canyon ISFSI.

The staff's review considered how the SAR addressed the following regulatory requirements:

- 10 CFR §72.40(a)(4) requires that the applicant is qualified by reason of training and experience to conduct the operation covered by 10 CFR Part 72.

- 10 CFR §72.40(a)(9) requires that the personnel training program comply with Subpart I of 10 CFR Part 72. Subpart I, Training and Certification of Personnel, consists of 10 CFR §72.190, §72.192 and §72.194, summarized below.

- 10 CFR §72.190 requires that operation of equipment and controls that have been identified as important to safety in the Safety Analysis Report and in the license must be limited to trained and certified personnel or be under the direct visual supervision of an individual with training and certification in the operation. Supervisory personnel who personally direct the operation of equipment and controls that are important to safety must also be certified.

- 10 CFR §72.192 requires that the applicant for a license under this part shall establish a program for training, proficiency testing, and certification of ISFSI personnel. This program must be submitted to the Commission for approval with the license application.

- 10 CFR §72.194 requires that the physical condition and general health of personnel certified for the operation of equipment and controls that are important to safety must not adversely affect safe operation of the Facility. For example, a condition that might cause impaired judgment or motor coordination must be considered in the selection of personnel. The physical condition and the general health of personnel certified for the operation of equipment and controls that are important to safety must not be such as might cause operational errors that could endanger other in-plant personnel or the public health and safety. Any condition that might cause impaired judgment or motor coordination must be considered in the selection of personnel for activities that are important to safety. These conditions need not categorically disqualify a person, if appropriate provisions are made to accommodate such defect.

10.1.4.1 Personnel Organization

Section 9.3, "Training Program" of the SAR states that, pursuant to 10 CFR §72.190 and §72.192, Diablo Canyon ISFSI personnel will receive training and indoctrination designed to provide and maintain a well-qualified work force for safe and effective operation. The existing DCPP training programs will be used. These programs are accredited by the Institute of Nuclear Power Operations, and the General Employee Training portions are directly applicable to the Diablo Canyon ISFSI. 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 PG&E training program, which uses a systematic approach to training 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's review found that the personnel organization and systematic approach to training are acceptable. The personnel organization identifies the position that has responsibility for the training program, including implementing the program and maintaining training records.

10.1.4.2 Selection and Training of Operating Personnel

Section 9.1.7 of the SAR specifies that DCPP personnel operating or working at the Diablo Canyon 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 consistent with the DCPP QA Program.

The Station Director is required to have a minimum of 8 years of power plant experience, at least 3 years of which shall 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 Station Director must also be qualified in accordance with the Diablo Canyon ISFSI Operations Training Program.

ISFSI specialists and security staff shall have a high school diploma or have successfully completed the General Education Development test. The ISFSI specialists must have at least 2 years of power plant experience, at least 1 year of which must be nuclear power plant experience. The ISFSI specialists also shall have the required training for their specific assignments required by the Diablo Canyon ISFSI Operations Training Program.

DCPP security staff who support the Diablo Canyon ISFSI will be trained and qualified in accordance with the DCPP Security Training and Qualifications Plan.

Diablo Canyon ISFSI fuel handling operations will be performed by, or supervised by, personnel trained and qualified through the Diablo Canyon ISFSI Operations Training Program. During operations, operation of equipment and controls that are important to safety will be limited to those personnel who are qualified and trained through the Diablo Canyon Operations Training Program or personnel under the direct supervision of persons trained and qualified through the Diablo Canyon Operations Training Program.

The staff determined that the SAR provides an acceptable level of detail with respect to operator experience, instruction and training courses, examination and testing requirements, and the criteria for qualifications or revocations. Qualifications for operators must include applicable training and experience, which may be at facilities other than dry storage facilities. The minimum personnel qualification requirements are comparable to similar positions at power reactor facilities described in Regulatory Guide 1.8 (U.S. Nuclear Regulatory Commission, 1987) and are generally equivalent to the qualification requirements that are in place at other ISFSIs. Applying the existing DCPP training program to ISFSI personnel, as supplemented by additional training specific to the ISFSI as described in Attachment D of the license application, is an acceptable approach.

In summary, the staff determined that the applicant has provided sufficient details concerning its personnel training and qualifications to provide reasonable assurance that its training and certification program will satisfy the requirements of 10 CFR Part 72, Subpart I. Certain operations will be performed only by trained and certified operators, and the physical condition

and general health of operators will be considered in the qualification of operators, as required by 10 CFR §72.192 and §72.194 of Subpart I.

The staff has further determined that the Diablo Canyon ISFSI training program, including the commitments made by the applicant, provides reasonable assurance of compliance with the standards in 10 CFR Part 72, Subpart I, and is consistent with the applicable regulatory guidance. This training program includes specific training in ALARA principles. Based on the description of its training program, the staff concludes that the training commitments are consistent with Regulatory Guide 8.8 (U.S. Nuclear Regulatory Commission, 1978), which provides guidance in training and instruction in ALARA principles for nuclear power plant personnel, and provides reasonable assurance that NRC requirements related to radiation protection training and ALARA principles will be satisfied.

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 are described in Section 10.1.6 of this SER.

10.1.5 Emergency Planning

Section 9.5 of the SAR, "Emergency Planning," identifies that the DCPP Emergency Plan, as revised, will be used for the Diablo Canyon ISFSI. The DCPP Emergency Plan describes the organization, assessment actions, conditions for activation of the emergency organization, notification procedures, emergency facilities and equipment, training, provisions for maintaining emergency preparedness, and recovery criteria used at the DCPP. The applicant has provided the revised DCPP Emergency Plan as Attachment B to the license application, reflecting the additional response actions and notifications appropriate for those radiological emergencies associated with the ISFSI.

The staff's review considered how the information in the SAR and the revised emergency plan address the following regulatory requirement:

- 10 CFR §72.32(c) specifies that for an ISFSI located on the site of a nuclear power reactor licensed for operation by the Commission, the emergency plan required by 10 CFR Part 50 shall satisfy the 10 CFR Part 72 regulations.

The DCPP Emergency Plan was reviewed and approved by the NRC as part of the 10 CFR Part 50 licensing process, and the Diablo Canyon ISFSI will be located on the DCPP site; therefore, the plan is deemed to satisfy the Part 72 regulations. PG&E is authorized to make changes to the approved emergency plan, provided the changes do not decrease the effectiveness of the plan, in accordance with 10 CFR §50.54(q). The staff reviewed the revised emergency plan to ensure that any events associated with the ISFSI were properly incorporated into the revised plan. The plan has been revised to include a description of the ISFSI, types of accidents associated with the ISFSI and its operation, and initiating events at the ISFSI which would trigger activation of the emergency plan.

The revised DCPP Emergency Plan assigns an Emergency Action Level of Notification of Unusual Event (NOUE) for ISFSI accidents or events. The emergency plan contains provisions to escalate to the higher accident classification levels if conditions deteriorate. The

staff considers this classification to be appropriate for the types of accidents postulated for ISFSIs.

The revised DCPP Emergency Plan describes the equipment and methods to be used to evaluate releases of radioactive material. The plan describes the responsibility of plant personnel in the event of an accident. The plan also describes the type of information to be communicated to State and local agencies and to the NRC. The training required for plant personnel is described, as well as the accident scenarios and drills to be held to demonstrate readiness. DCPP has memoranda of understanding with off-site responders such as fire, police, hospitals and ambulance services. In addition, there are emergency plan implementing procedures for the plant staff to follow in the event of an emergency.

Based upon the staff's review of the revised DCPP Emergency Plan, information concerning the ISFSI has been adequately incorporated into the plan. The staff finds that the revised DCPP Emergency Plan provides reasonable assurance that facility personnel will be able to respond appropriately to any emergency conditions associated with the Diablo Canyon ISFSI, and that the requirements of 10 CFR §72.32(c) have been met.

10.1.6 Physical Security and Safeguards Contingency Plans

Section 9.6 of the SAR, "Physical Security Plan," provides an overview of the security program to be applied to the ISFSI to protect the stored spent nuclear fuel. The security program for the Diablo Canyon ISFSI will be incorporated into the DCPP Physical Security Plan, the Safeguards Contingency Plan, and the Guard Training and Qualification Plan. The applicant submitted proposed revisions to these plans in April 2002 and January 2003 (Pacific Gas and Electric Company, 2002b, 2003) to address ISFSI activities. These plans contain safeguards information and are therefore withheld from public disclosure.

- 10 CFR Part 73 prescribes requirements for the establishment and maintenance of a physical protection system which will have capabilities for the protection of special nuclear material at fixed sites and in transit and of plants in which special nuclear material is used. 10 CFR 73.55(a) describes the general performance objective and requirements for physical protection of licensed activities in nuclear reactors. This objective specifies that the licensee shall establish and maintain an onsite physical protection system and security organization which will have as its objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

The general features of the security program for the Diablo Canyon ISFSI are as follows:

The DCPP security force will control access to the Diablo Canyon ISFSI protected area. This access will be limited to those who must enter for work-related activities. There will be a list of approved individuals, and identification badges will be required. Persons, vehicles, and hand-held items will be appropriately screened prior to entry to the protected area.

An intrusion detection system will be provided for the Diablo Canyon ISFSI protected area. Manned stations will be provided on the DCPP site to monitor intrusion detector system alarms,

coordinate security communications, and perform closed-circuit television surveillance and alarm assessment.

The DCPP Safeguards Contingency Plan addresses responses to potential threats and contains a responsibility matrix as guidance for security force actions as required by 10 CFR §72.184. The contingency planning includes detailed response procedures and means for obtaining assistance from local law enforcement agencies.

The DCPP Guard Training and Qualification Plan defines training and qualification requirements for the security force as required by 10 CFR §73.55. The plan includes crucial security tasks and identifies the positions that must be trained in these tasks. The plan also provides requirements for initial and recurring training and a program for screening the background, physical condition, and mental qualifications of security force members.

The revised DCPP Physical Security Plan, Safeguards Contingency Plan, and Guard Training and Qualification Plan will be implemented using written procedures, as required by 10 CFR §73.55(b)(3)(i), and adherence to these plans will be incorporated as a condition of the 10 CFR Part 72 license for the Diablo Canyon ISFSI.

In its review of PG&E's proposed changes to the DCPP Physical Security Plan, the Safeguards Contingency Plan, and the Guard Training and Qualification Plan (U. S. Nuclear Regulatory Commission, 2004), the staff determined that the revisions to those plans to address the interim storage of spent fuel in the proposed ISFSI comply with the requirements of 10 CFR Part 73 and are acceptable. The staff has further concluded that, with respect to the proposed revisions, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of these physical security plan changes will not be inimical to the common defense and security or to the health and safety of the public. In addition, the staff has determined that the proposed changes do not decrease the safeguards effectiveness of the plans with respect to the operating reactor units. Therefore, the staff finds that the revised DCPP Physical Security and Safeguards Contingency Plans will provide reasonable assurance that spent nuclear fuel at the Diablo Canyon ISFSI will be protected in accordance with requirements of 10 CFR Part 73.

10.2 Evaluation Findings

The staff reviewed the ISFSI SAR and has determined that the applicant has established an acceptable plan to conduct operations for the Diablo Canyon ISFSI. The staff has determined that:

- The conduct of operations described for the Diablo Canyon ISFSI meets the requirements of 10 CFR §72.40(a)(4) in that PG&E will be qualified by training and experience to conduct the operations included in the license.

- The conduct of operations described for the Diablo Canyon ISFSI meets the requirements of 10 CFR §72.24(h), §72.24(i), §72.24(j), and §72.24(k); §72.28; §72.40(a)(9), §72.40(a)(13); §72.180; §72.184; and Part 72, Subparts H and I, in that PG&E has provided a description of the procedures and policies that assure that operation of equipment and controls that are important to safety is limited to

trained and certified personnel; has provided an adequate operator training and certification program; has operator qualifications that assure that the physical condition and general health of operators will not cause operational errors that could endanger other workers or the health and safety of the public; and has an adequate physical security plan.

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

10.3 References

Pacific Gas and Electric Company. *Response to NRC Request for Additional Information for the Diablo Canyon Independent Spent Fuel Storage Installation Application (TAC No. L23399)*. Letter DIL–02–009, October 15, 2002. Avila Beach, CA: Pacific Gas and Electric Company. 2002a.

Pacific Gas and Electric Company. *Submittal of Proposed Changes to DCPP Physical Security Program.* Letter DCL–02–042, April 18, 2002. Avila Beach, CA: Pacific Gas and Electric Company. 2002b.

Pacific Gas and Electric Company. *Submittal of Proposed Changes to DCPP Physical Security Program.* Letter DCL–03–007, January 31, 2003. Avila Beach, CA: Pacific Gas and Electric Company. 2003.

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

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

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. U.S. Nuclear Regulatory Commission. *Diablo Canyon Independent Spent Fuel Storage Installation Application - Physical Security Program Changes*. Letter dated February 3, 2004, to L.F. Womack. Washington, DC: U.S. Nuclear Regulatory Commission. 2004.