Pacific Gas and Electric Company®

James R. Becker
Site Vice President

Diablo Canyon Power Plant
Mail Code 104/5/601
P. O. Box 56
Avila Beach, CA 93424

805.545.3462
Internal: 691.3462
Fax: 805.545.6445

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PG&E Letter DCL-11-022

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Pacific Gas and Electric Company Supplements a Response to Requests for Additional Information Related to the Diablo Canyon Nuclear Power Plant, Units 1 and 2, License Renewal Application

Dear Commissioners and Staff:

By Pacific Gas and Electric Company (PG&E) Letter DCL-09-079, "License Renewal Application," dated November 23, 2009, PG&E submitted an application to the U.S. Nuclear Regulatory Commission (NRC) for the renewal of Facility Operating Licenses DPR-80 and DPR-82, for Diablo Canyon Power Plant Units 1 and 2, respectively. The application included the Applicant's Environmental Report – Operating License Renewal Stage.

During preparation for the Advisory Committee on Reactor Safeguards (ACRS) subcommittee meeting, PG&E noted an error within the miscellaneous heating, ventilating, and air conditioning scoping. PG&E amends the License Renewal Application (LRA) Table 2.2-1 and Section 2.3.3.9 to correct this error as shown in Enclosure 2.

On January 21, 2011, PG&E Letter DCL-11-002, "Response to Telephone Conference Call Held on December 9, 2010, Between the U.S. Nuclear Regulatory Commission and Pacific Gas and Electric Company Concerning Responses to Requests for Additional Information Related to the Diablo Canyon Nuclear Power Plant, Units 1 and 2, License Renewal Application," was submitted to the NRC including supplemental information regarding RAI B2.1.18-2 (Follow-Up). In this letter a commitment was amended to provide the inspection frequency for the in-scope buried copper alloy makeup water valves.

On February 9, 2011, the ACRS subcommittee inquired about the composition of the copper alloy valves noted to be in the buried makeup water system.

This letter provides supplemental information and errata in Enclosure 1. PG&E amends a commitment in amended LRA Table A4-1, License Renewal Commitments, provided in Enclosure 2. LRA Amendment 40 is included in Enclosure 2 showing the changed pages with line-in/line-out annotations.

If you have any questions regarding this response, please contact Mr. Terence L. Grebel, License Renewal Project Manager, at (805) 545-4160.

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

Executed on March 14, 2011.

Sincerely,

James R. Becker
Site Vice President

TLG/50377553
Enclosures
cc: Diablo Distribution
cc/enc: Elmo E. Collins, NRC Region IV Regional Administrator
Nathanial B. Ferrer, NRC Project Manager, License Renewal
Kimberly J. Green, NRC Project Manager, License Renewal
Michael S. Peck, NRC Senior Resident Inspector
Alan B. Wang, NRC Licensing Project Manager

PG&E Supplements to a Response to Request for Additional Information (RAI) Submitted to the NRC in a Letter Dated January 21, 2011, Regarding RAI B2.1.18-2 (Follow-up)

PG&E Supplement to RAI B2.1.18-2 (Follow-up)

PG&E Letter DCL-11-002, "Response to Telephone Conference Call Held on December 9, 2010, Between the U.S. Nuclear Regulatory Commission and Pacific Gas and Electric Company Concerning Responses to Requests for Additional Information Related to the Diablo Canyon Nuclear Power Plant, Units 1 and 2, License Renewal Application," dated January 21, 2011, amended commitment No. 52, in license renewal application (LRA) Table A4-1 to provide the inspection frequency for the in-scope buried copper alloy makeup water valves. PG&E performed a field walkdown of these valves and reviewed applicable vendor drawings and has concluded that the valve body materials are cast iron, not copper alloy as previously stated. The copper alloy components are internal to the valves and are not required to perform the intended function of the pressure boundary. As a result of this material change, there are no in-scope copper alloy components exposed to the buried environment of soil at the Diablo Canyon Nuclear Power Plant.

See amended LRA Sections A1.18 and B2.1.18, and amended Tables A4-1 and 3.3.2-5 in Enclosure 2.

DCPP LRA Changes
Reflected in the LRA Update Amendment 40

Affected LRA Section	Reason for Change
Table 2.2-1 Section 2.3.3.9	Subsequent review determined the radwaste storage building ventilation system should not have been listed as in scope in Table 2.2-1.
Table 3.3.2-5 Section A1.18 Section B2.1.18 Table A4-1	Corrected in-scope materials by removing copper alloy from the in-scope buried piping of the makeup water system.

LRA Amendment 40

LRA Section	RAI
Table 2.2-1	Errata
Section 2.3.3.9	Errata
Table 3.3.2-5	B2.1.18-2 (Follow-up)
Section A1.18	B2.1.18-2 (Follow-up)
Section B2.1.18	B2.1.18-2 (Follow-up)
Table A4-1	B2.1.18-2 (Follow-up)

Table 2.2-1 DCPP Scoping Results

System/Structure	In Scope	Section 2 Scoping Results
Auxiliary Systems		
Miscellaneous HVAC, includes: Turbine Building ASW Pump Room Ventilation ~~Radwaste Storage Building~~	Yes	2.3.3.9

2.3.3.9 Miscellaneous HVAC Systems

System Description

The miscellaneous HVAC systems consist of the following subsystems included within the scope of license renewal: Vital 4 kV switchgear rooms/cable spreading room ventilation, diesel generator rooms ventilation, ASW pump room ventilation, and Technical Support Center (TSC) HVAC.

The Vital 4 kV switchgear rooms/cable spreading room ventilation subsystem is Design Class I. The areas served are the switchgear and cable spreading rooms for the three trains of 4.16 kV switchgear. Each ventilation train consists of a supply fan, supply duct, and a vent stack to the turbine building operating floor. Outside air enters the ventilation equipment room through louvers on the north/south wall of the turbine building. Each fan draws air through a roughing filter integral with the fan and supplies the air through the supply duct to the associated cable spreading and switchgear rooms. The rooms exhaust to the turbine building operating floor without the use of exhaust fans.

The diesel generator ventilation subsystem is Design Class I. Ventilation of diesel generator compartments is accomplished through the use of the same engine-driven fans that provide cooling air to the diesel generator radiators. Each diesel generator is located in a separate compartment in the turbine building. Diesel engine cooling is provided by a closed loop jacket water system with a radiator and a direct engine-driven fan. The ventilation air flow passes through the compartment, cooling the generator and absorbing surface heat losses from the diesel engine. The ventilation air then passes through the radiator and is exhausted outside the compartment by the direct engine-driven fan.

The ASW pump room ventilation subsystem is Design Class I. The purpose of ASW pump ventilation system is to maintain the temperature of the ASW pump motors within acceptable limits during their operation. Each unit is provided with two 100 percent redundant ASW pumps, each of which is installed in a separate watertight compartment. Proper ventilation of these compartments is ensured by providing each supply and exhaust safeguard compartment with a separate ventilation system. Each system consists of a coaxial supply and exhaust safeguard (snorkel) duct and an exhaust fan. The outside air is drawn into the compartment through the outer space of the coaxial (snorkel) ducts. The air passes through the ASW pump motor area and is exhausted to the atmosphere by the in-line exhaust fan through the inner space of the coaxial exhaust (snorkel) duct. The intake and exhaust (snorkel) duct discharge points are located above the highest water level resulting from the combined effects of tsunami and storm wave runup. The outer steel tubular structure of the coaxial ASW pump room (snorkel) duct is evaluated in Section 2.4.10, Intake Structure and Intake Control Building.

The TSC HVAC subsystem is Design Class II. The TSC is provided with its own HVAC system. During normal operation, all the makeup air and recirculated air passes through a roughing filter and the air conditioning unit. Makeup air in the normal operation mode is supplied by a single makeup air fan. In the radiological accident mode of operation, pressurization air is introduced from a manually operated isolation damper. The pressurization air and a portion of the recirculated air are passed through HEPA and charcoal filters for cleanup purposes. In addition, pressurization air is passed through a duct heater prior to passing through HEPA and charcoal filters.

Other miscellaneous HVAC subsystems that have no license renewal intended functions are listed below:

- Turbine general area HVAC
- 12 kV switchgear rooms
- 480 V non-vital switchgear rooms
- Isolated phase bus area
- Main excitation switchgear
- Non-vital battery rooms
- Condensate polishing area
- Lube oil rooms
- *Radwaste storage facilities*

System Intended Functions

The miscellaneous HVAC systems remove heat from rooms containing safe shutdown equipment limiting the maximum ambient temperature. Therefore, the miscellaneous HVAC systems are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(1).

Portions of the miscellaneous HVAC systems are nonsafety-related structurally attached to safety-related components and are in scope of license renewal as nonsafety affecting safety-related components based on the criterion of 10 CFR 54.4(a)(2).

Portions of the miscellaneous HVAC systems support fire protection and SBO requirements and are within the scope of license renewal based on the criteria of 10 CFR 54.4(a)(3).

FSAR References

Additional details of the miscellaneous HVAC systems are included in FSAR Sections 9.4.6, 9.4.7, 9.4.8, and 9.4.11.

License Renewal Boundary Drawings

The license renewal boundary drawings for the miscellaneous HVAC systems are listed below:
LR-DCPP-23-106723-17
LR-DCPP-23-106723-18
LR-DCPP-23-106723-19
LR-DCPP-23-107723-17
LR-DCPP-23-107723-19

Component-Function Relationship Table

The component types subject to AMR are indicated in Table 2.3.3-9 - Miscellaneous HVAC Systems.

Table 3.3.2-5 Auxiliary Systems – Summary of Aging Management Evaluation – Makeup Water System

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
~~Valve~~	~~PB~~	~~Copper Alloy~~	~~Raw Water (Int)~~	~~Loss of material~~	~~Fire Water System (B2.1.13)~~	~~VII.G-24~~	~~3.3.1.68~~	~~B~~
~~Valve~~	~~PB~~	~~Copper Alloy~~	~~Buried (Ext)~~	~~Loss of Material~~	~~Buried Piping and Tanks Inspection (B2.1.18)~~	~~None~~	~~None~~	~~G~~
Valve	*PB*	*Cast Iron*	*Buried (Ext)*	*Loss of Material*	*Buried Piping and Tanks Inspection (B2.1.18)*	*VII.G-25*	*3.3.1.19*	*B*

A1.18 Buried Piping and Tanks Inspection

The Buried Piping and Tanks Inspection program manages cracking, loss of material, and change in surface conditions of buried components in the auxiliary saltwater system, diesel generator fuel transfer system, fire protection system, and the makeup water system. Visual inspections monitor the condition of protective coatings and wrappings found on steel components and directly assess the surface condition of stainless steel, ~~copper alloy,~~ and asbestos cement components with no protective coatings or wraps. Evidence of damaged wrapping or coating defects is an indicator of possible age-related degradation to the external surface of the components. The presence of discolorations, discontinuities in surface texture, cracking, crazing or loss of material of unwrapped stainless steel and asbestos cement components is an indicator of possible corrosion damage to the external surface of the components. The program includes opportunistic inspection of buried piping and tanks as they are excavated or on a planned basis if opportunistic inspections have not occurred.

The Buried Piping and Tanks Inspection program is a new program that will be implemented prior to the period of extended of operation. ~~Within the 10-year period prior to entering the period of extended operation, opportunistic or planned inspections will be performed. Upon entering the period of extended operation planned inspections within 10 years will be required unless opportunistic inspections have occurred within this 10-year period.~~*Inspections will be conducted during each 10-year period beginning 10 years prior to entering the period of extended operation. Examinations of buried piping and tanks will consist of visual inspections as well as non-destructive examinations (e.g. ultrasonic examination capable of measuring wall thickness) to perform an overall assessment of the condition of buried piping and tanks.*

B2.1.18 Buried Piping and Tanks Inspection

Program Description

The Buried Piping and Tanks Inspection program manages cracking, loss of material, and change in surface conditions of buried components in the auxiliary saltwater system, diesel generator fuel transfer system, fire protection system, and the makeup water system. Visual inspections monitor the condition of protective coatings and wrappings found on steel components and directly assess the surface condition of ~~copper alloy,~~ stainless steel and asbestos cement components with no protective coatings or wraps. Evidence of damaged wrapping or coating defects is an indicator of possible age-related degradation to the external surface of the components. The presence of discolorations, discontinuities in surface texture, cracking, crazing or loss of material of unwrapped stainless steel~~, copper alloy,~~ and asbestos cement components is an indicator of possible corrosion damage to the external surface of the components. Any inspection that indicates a potential degraded condition will result in the initiation of corrective actions for further engineering evaluation of the condition of any coating, wrapping and component surface condition in accordance with the DCPP Corrective Action Program. The engineering evaluation may specify additional inspection techniques to evaluate the degree and extent of degradation. The Buried Piping and Tanks Inspection program requires consideration of the results of previous inspections and those sections of piping with a prior history of aging related issues so that areas susceptible to age-related degradation will be properly identified for attention during future inspections. In addition, selective leaching, which is an applicable aging effect for buried gray cast iron components, is managed by the Selective Leaching of Materials program (B2.1.17).

The Buried Piping and Tanks Inspection program is a new program that will be implemented prior to the period of extended operation. ~~Within the 10-year period prior to entering the period of extended operation, an opportunistic or planned inspection will be performed. Upon entering the period of extended operation the DCPP Buried Piping and Tanks Inspection program will require a planned inspection within 10 years unless an opportunistic inspection has occurred within this 10-year period.~~ *Inspections will be conducted during each 10-year period beginning 10 years prior to entering the period of extended operation. Examinations of buried piping and tanks will consist of visual inspections as well as non-destructive examinations (e.g. ultrasonic examination capable of measuring wall thickness) to perform an overall assessment of the condition of buried piping and tanks.*

DCPP procedures will implement the DCPP Buried Piping and Tanks Inspection program. Under the DCPP Buried Piping and Tanks Inspection program, buried piping and tanks will be inspected opportunistically as they are excavated or on a planned basis if opportunistic inspections are not available.

NUREG-1801 Consistency

The Buried Piping and Tanks Inspection program is a new program that, when implemented, will be consistent with exception to NUREG-1801, Section XI.M34 Buried Piping and Tanks Inspection.

Exceptions to NUREG-1801

Program Elements Affected

Scope of Program - Element 1 and Parameters Monitored/Inspected - Element 3

NUREG-1801, Section XI.M34 program scope provides for management of buried steel piping and components. However, DCPP includes ~~copper alloy,~~ buried stainless, steel and asbestos cement piping in the scope of this aging management program because such components are physically present in the plant. This program uses visual inspection of external surfaces which is an effective aging management method.

Scope of Program - Element 1, Preventive Actions - Element 2, Parameters Monitored/Inspected - Element 3, Detection of Aging Effects - Element 4 and Acceptance Criteria - Element 6

NUREG-1801, Section XI.M34 program addresses coatings and wrappings on buried pipe and tanks. Buried piping that is not coated or wrapped will be visually inspected. Visual inspections on ~~copper alloy and~~ stainless steel piping that is not coated or wrapped will be performed to detect loss of material due to general, pitting, crevice, and microbiologically influenced corrosion. Also, visual inspections of buried asbestos cement piping that is not coated or wrapped will be performed to detect evidence of cracking, loss of material and material changes in surface condition. Visual inspection has proven to be an effective technique to identify cracking, loss of material and changes in surface conditions. Indications of changes in surface conditions include discoloration and visible changes in surface texture.

Enhancements

None

Operating Experience

The DCPP Buried Piping and Tanks Inspection program is a new program; therefore, plant-specific operating experience to verify the effectiveness of the program is not available. Industry operating experience that forms the basis for this program is included in the operating experience element of the corresponding NUREG-1801, Section XI.M34. The DCPP operating experience findings for this program identified no unique plant specific operating experience; therefore DCPP operating experience is consistent with NUREG-1801.

The original diesel fuel oil storage and transfer system (DFO) piping was replaced in 1993 and 1994 due to external corrosion. Inadequate application of a protective coal tar external coating and inadequate trench drainage were cited as the root causes. The piping was replaced with externally coated seamless carbon steel pipe. The majority of the new pipe was installed in a covered concrete pipeway (trench). Due to this method of construction, no portion of the new DFO transfer system piping is in contact with the soil, and is as such no longer subject to degradation methods associated with a soil environment. The DFO tanks were replaced in 1996 and 1997 to meet California State environmental regulations requiring at least double wall tanks. The new tanks are triple layered and incorporate an engineered fiberglass coating instead of traditional wrappings. The fuel oil tanks and associated piping are equipped with a leak detection system.

In April 1997 and January 1998, for Unit 1 and 2 respectively, a portion of the auxiliary saltwater (ASW) supply piping near the intake structure was replaced. The new ASW piping is routed such that it is supported by the soil and is generally buried at a shallower depth than the original piping. The replacement piping has an internal/external coating system that provides corrosion protection. The replacement piping also has a cathodic protection system that provides a back-up means against corrosion.

Periodic assessments of the effectiveness of the Maintenance Rule as it relate to the buried piping and tanks are performed per plant procedures. Available data on industry operating experience with regard to degradation of the buried piping and tanks are reviewed. The results of periodic assessments and industry experience reviews indicate that the DCPP buried piping and tanks are capable of performing their intended functions. Plant procedures have confirmed that the buried piping and tanks are capable of performing their intended functions.

DCPP Buried Piping and Tanks Inspection program will be effective at managing aging effects of passive components included in its scope through the period of extended operation. Identification of previous weaknesses, and subsequent corrective actions, in conjunction with recent assessments where no issues or findings were noted, provides reasonable assurance that the program will remain effective for managing aging effects in buried piping and tanks.

As additional industry and applicable plant-specific operating experience become available, the operating experience will be evaluated and incorporated into the program through the DCPP Corrective Action Program and Operating Experience Program. This ongoing review of operating experience will continue throughout the period of extended operation, and the results will be maintained on site. This process will confirm the effectiveness of this new program by incorporating applicable operating experience and performing self-assessments of the program.

Conclusion

The implementation of the Buried Piping and Tanks Inspection program will provide reasonable assurance that aging effects will be managed such that the systems and components within the scope of this program will continue to perform their intended functions within the current licensing basis for the period of extended operation.

Table A4-1 License Renewal Commitments

Item #	Commitment	LRA Section	Implementation Schedule
52	The Buried Piping and Tanks Inspection Program will be revised to include the following inspections that will be conducted during each 10-year period beginning 10 years prior to the entry in the period of extended operation. Examinations of buried piping and tanks will consist of visual inspections as well as non-destructive examination*s* (e.g. ultrasonic examination capable of measuring wall thickness) to perform an overall assessment of the condition of buried piping and tanks. Each inspection will examine either the entire length of a run of pipe or a minimum of 10 feet. If the number of inspections times the minimum inspection length (10 feet) exceeds 10 percent of the length of the piping under consideration, only 10 percent will need to be inspected. If the total length of the in-scope pipe constructed of a given material times the percentage to be inspected is less than 10 feet, either 10 feet or the total length of pipe present, whichever is less will be inspected. <u>Inspections of Buried Piping Based on Material and Environment Combinations</u> Fire mains will be subject to a periodic flow test in accordance with NFPA 25 section 7.3 at a frequency of at least one test in each one year period. These flow tests will be performed in lieu of excavating buried portions of Fire Water pipe for visual inspections. For cathodically-protected metallic piping, at least one excavation and visual inspection of steel piping will be conducted. Cathodically-protected steel piping within the scope of license renewal exists in the Auxiliary Salt Water (ASW) system intake lines. For non cathodically-protected buried metallic piping, at least four excavations and visual inspections of steel piping will be conducted. ~~At least one excavation and visual inspection of buried copper valves will be conducted.~~ Non Cathodically-protected steel piping within the scope of license renewal exists in the ASW system discharge. ~~Buried copper valves exist within the makeup water system.~~ For non metallic piping, at least one excavation and visual inspection each of polyvinyl chloride (PVC) and Asbestos Cement Pipe (ACP) will be conducted. PVC piping within the scope of license renewal exists in the Fire Water system. Asbestos cement piping within the scope of license renewal exists in the Fire Water system and Make-up Water system.	B2.1.18	*Within 10 Years* ~~P~~*p*rior to the period of extended operation