NRR-DRMAPEm Resource

From: Singal, Balwant
Sent: Tuesday, August 13, 2019 1:16 PM
To: Richardson, Michael
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Subject: License Amendment Request for Change to the Security Classification of Intake Structure - Request for Additional Information (EPID L-2019-LLA-0029)
Attachments: Diablo-Intake Structure-RAIs-Final.docx

By letter dated February 14, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19045A698), Pacific Gas and Electric Company (PG&E) submitted a License Amendment Request to revise the intake structure security classification in the Diablo Canyon Nuclear Power Plant, Units 1 and 2, Security Plan and Emergency Plan. The proposed change would reclassify the intake structure from a Vital Area to an Owner-Controlled Area. The U.S. Nuclear Regulatory Commission staff has identified the attached request for additional information (RAI) required to complete the review of the proposed change.

A draft copy of the RAI was provided to PG&E on August 1, 2019. RAI clarification was held on August 13, 2019. It was agreed that PG&E will provide the RAI response within 45 days of the date of this email.

Please treat this email as official transmittal of RAIs.

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REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST TO CHANGE THE SECURITY

CLASSIFICATION OF THE INTAKE STRUCTURE

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-275 AND 50-323

By letter dated February 14, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19045A698), Pacific Gas and Electric Company (PG&E, the licensee) submitted a License Amendment Request (LAR) to revise the intake structure security classification in the Diablo Canyon Nuclear Power Plant, Units 1 and 2 (Diablo Canyon) Security Plan and Emergency Plan. The proposed change would reclassify the intake structure from a Vital Area (VA) to an Owner-Controlled Area (OCA).

The U.S. Nuclear Regulatory Commission (NRC) staff has identified the following additional information required to complete the review of the proposed change.

Request for Additional Information (RAI)

Reactor Security Branch (RSB)

Regulatory basis

The regulations at Title 10 of the *Code of Federal Regulations* (10 CFR) Paragraph 73.55(b)(3)(ii) generally state that the physical protection program must provide defense-in-depth through the integration of systems, equipment, and procedures to ensure the effectiveness of the physical protection program.

The regulations at 10 CFR 73.55(b)(4) generally state that licensee shall analyze and identify site-specific conditions that affect the specific measures needed to implement and account for these conditions in the design of the physical protection program.

The regulations at 10 CFR 73.58(b) state that licensee shall assess and manage the potential for adverse effects on safety and security before implementing changes to plant configurations, facility conditions, or security.

The regulations at 10 CFR 73.55(i)(1) states, the licensee shall establish and maintain intrusion detection and assessment systems that satisfy the design requirements of § 73.55(b) and provide, at all times, the capability to detect and assess unauthorized persons and facilitate the effective implementation of the licensee's protective strategy.

The regulations at 10 CFR 73.55(o)(1) states, the licensee shall identify criteria and measures to compensate for degraded or inoperable equipment, systems, and components to meet the requirements of this section. 10 CFR 73.55(o)(2) states the compensatory measures must

provide a level of protection that is equivalent to the protection that was provided by the degraded or inoperable, equipment, system, or components. 10 CFR 73.55(o)(3) states the compensatory measures must be implemented within specific time frames necessary to meet the requirements stated in paragraph (b) of this section and described in the security plans.

The regulations in Appendix B to Part 73 VI.(1) states, the licensee shall ensure that all individuals who are assigned duties and responsibilities required to prevent significant core damage and spent fuel sabotage, implement the Commission-approved security plans, licensee response strategy, and implementing procedures, meet minimum training and qualification requirements to ensure each individual possesses the knowledge, skills, and abilities required to effectively perform the assigned duties and responsibilities.

The staff reviewed the information provided in the LAR, particularly discussions in Reference 6, “WECTEC Technical Report, "Doc. No. 140781-MR-001-0, Loss of Auxiliary Saltwater System [ASW]," dated December 2018” and Reference 10, “PG&E Letter DCL-95-046, "Response to 10 CFR 73.55, 'Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage," dated February 28, 1995.” These documents discuss reactor heat removal capability during various operational modes and associated emergency operating procedures.

RCB RAI-1:

For each operational mode (e.g., Modes 1 through 6, including the most limiting refueling condition where maintaining reactor volumetric cooling is important), please discuss:

a) plant designed systems, features uniquely to Diablo Canyon, equipment, and cooling sources and volumetric capacities that provide maximum cooling time to ensure reactor shutdown and maintain at safe shutdown conditions (immediate and longer-term cooling as part of defense-in-depth beyond plant licensed basis).
b) actions taken by operators to mitigate a loss of ASW cooling (e.g., during and after termination of an adversary event).
c) how safety actions translate into safety and security considerations as part of plant protective strategy (e.g., protection of systems, equipment, cooling sources to ensure functional readiness, and expected communications with onsite and offsite personnel) to eliminate and/or mitigate an adversary event.
d) security protections and actions that ensure a successful completion of safety actions through safety-security interface that maintain effectiveness of plant protective strategy.

RCB RAI-2:

LAR Section 2.1.4 “Compensatory Measures” states that during certain circumstances an underground pathway could be created. It also states that the Diablo Canyon Physical Security Plan and implementing procedures provide instructions to establish equivalent levels of protection. In accordance with 10 CFR 73.55(o), “Compensatory measures,” and 10 CFR 73.55(i), “Detection and assessment systems,” describe the compensatory measures and detection and assessment for the intake structure tunnel during low water levels; and to include the intake structure hatches and any other component that could potentially become a traversable pathway.

RCB RAI-3:

Please describe the future defense-in-depth of existing security posts/bullet resistant enclosures to be changed to include overlapping fields-of-fire, and training in accordance with Appendix B to Part 73 VI, “Nuclear Power Reactor Training and Qualification Plan for Personnel Performing Security Program Duties.”

RCB RAI-4:

Please provide a roadmap of correspondent letters utilized by the licensee (e.g., Reference No. 11, NRC Letter to PG&E, “Response to DCL-95-046,” dated April 23, 1996), and to summarize the NRC staff conclusion in the letter that support the DCPP position that NRC reviewed the devitalizing of the ASW structure and found it acceptable.

Containment and Plant Systems Branch (SCPB)

Applicable Regulatory Guidelines and Requirements

Regulatory Guide 5.76, "Physical Protection Programs at Nuclear Power Reactors," [Safeguards Information - not publicly available] provides an unclassified statement that vital areas, in part, relate to "equipment required to perform the functions of reactivity control, decay heat removal and process monitoring for the purpose of achieving and maintaining hot shutdown for a minimum of 8 hours from the time of the reactor trip (i.e. piping, water sources, power supplies, controls, and instrumentation)."

As described in Section 3.1.1, “Achieving and Maintaining Safe Shutdown with Loss of Auxiliary Saltwater,” of the Enclosure to the LAR, the Diablo Canyon Updated Final Safety Analysis Report (UFSAR) (ADAMS Accession No. ML17206A046), identifies the following functions as necessary to achieve and maintain safe shutdown:

- reactor coolant system (RCS) pressure control
- decay heat removal
- RCS inventory control via charging flow (boration)

Sections 9.3.4.2.1, “Reactivity Control,” and 9.3.4.2.2, “Regulation of Reactor Coolant Inventory,” of the UFSAR describe that the chemical and volume control (CVCS) system regulates the concentration of chemical neutron absorber in the reactor coolant and maintains the proper RCS inventory in all normal modes of operation, including shutdown conditions. The CVCS system additions to the RCS rely on the three Centrifugal Charging Pumps (CCPs) for each unit.

Section 9.3.4.3.29, “Generic Letter 88-17, October 1988 – Loss of Decay Heat Removal,” of the UFSAR described that makeup to the RCS could be provided by a CCP, gravity feed from the reactor water storage tank (RWST), or a safety injection (SI) pump and be quickly put in service should residual heat removal (RHR) be lost. Each of these backup sources can provide enough water for decay heat removal in addition to continued core coverage. The licensee updated procedures to ensure these pumps are available prior to entering RHR mid-loop operation.

Thus, equipment necessary for maintaining hot shutdown conditions reasonably provides for essential safety functions in the cold shutdown and refueling modes of operation.

Pursuant to the requirements of 10 CFR 73.58(b), the licensee shall assess and manage the potential for adverse effects on safety and security, including the site emergency plan, before implementing changes to plant configurations, facility conditions, or security. Where potential conflicts are identified, the licensee shall take compensatory and/or mitigative actions to maintain safety and security.

Issue

The proposed security reclassification of the intake structure to an OCA affects the set of vital systems and components that can support the essential safety functions of decay heat removal and RCS inventory control. Section 6.3.2.4.3.3, "Safety Injection Pumps," of the UFSAR states that each pump has lubrication and mechanical seal systems that are cooled by component cooling water (CCW), which is in turn cooled by the ASW system. Similarly, UFSAR Section 6.3.2.4.3.2, "Centrifugal Charging Pumps (CCP1 and CCP2)," states that the pumps (CCP1 and CCP2) have a self-contained lubrication system cooled by CCW, which is in turn cooled by the ASW system. The attachment to the LAR dated February 14, 2019, describes a third CCP (CCP3) that is air-cooled and not reliant on ASW system cooling. The CCPs and, under certain conditions, the SI pumps perform the RCS inventory control and reactivity control safety functions. In addition, the normal means of decay heat removal when the steam generators are not available is through the RHR, CCW, and ASW systems. Thus, systems identified in the UFSAR to perform the essential functions of RCS inventory control, decay heat removal, and reactivity control in all normal operational modes have a dependence on the ASW system, except for the air-cooled CCP3. However, CCP3 would not be continuously available due to maintenance and equipment failures, and the proposed security plan change would increase the potential for degradation or loss of the ASW system during security events.

SCPB RAI-1

To satisfy the requirements of 10 CFR 73.58(b), please describe how the availability of vital equipment would be controlled to prevent significant adverse effects on safety from changes in the security classification of the ASW system. Specifically address the degree of dependence that CCP1, CCP2, and the SI pumps have on ASW cooling to perform the essential functions of RCS inventory control in the hot shutdown operating mode and the decay heat removal function in operating modes where the steam generators are not available. Also, provide justification that the air cooled CCP overall reliability (i.e., operating experience, test performance, and administrative controls on its availability) is commensurate with the degree of dependence of other vital equipment (i.e., CCP1, CCP2, and SI pumps) on ASW cooling to ensure a significant adverse effect on safety would not result from the change in security classification of the ASW system.