STATEMENT OF BRUCE A. WATSON, CHP CHIEF, REACTOR DECOMMISSIONING BRANCH OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

U.S. NUCLEAR REGULATORY COMMISSION

BEFORE THE

DIABLO CANYON INDEPENDENT SAFETY COMMITTEE Dr. Robert J. Budnitz, PhD Dr. Per F. Peterson, PhD Dr. Peter Lam, PhD

OCTOBER 24, 2018

Good afternoon Chairman Budnitz, and distinguished Members of the Committee, I appreciate the opportunity to speak this afternoon and provide you information on how the U.S. Nuclear Regulatory Commission (NRC) accomplishes its safety and security mission by ensuring the safe decommissioning of nuclear power plants, including the management of spent nuclear fuel generated by the plants.

As you may know, the NRC is an independent federal agency established to license and regulate the civilian use of radioactive materials in the United States to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment. I will discuss the regulatory process for nuclear power plant decommissioning, including our role and the engagement of stakeholders, such as individual citizens, state and local government officials, industry, and non-government organizations.

WHAT IS DECOMMISSIONING?

When a power company decides to close a nuclear power plant permanently, the facility must be decommissioned by safely removing it from service and reducing residual radioactivity to a level that permits release of the property and termination of the operating license. The NRC has strict rules governing nuclear power plant decommissioning, involving cleanup of radioactively contaminated plant systems and structures, and removal of the radioactive fuel.

These requirements protect workers and the public during the entire decommissioning process and the public after the license is terminated. Under the Atomic Energy Act of 1954, as amended, the NRC is authorized to regulate the radiological decommissioning. The cleanup of non-radiological hazardous materials is regulated by of the Environmental Protection Agency or by a State Agency. Site restoration and reutilization is the responsibility of the property owner and State to determine.

DECOMMISSIONING PROCESS

The decommissioning process for nuclear power plants begins with the formal, written notifications to the NRC by the licensee that nuclear operations have permanently ceased and that the fuel has been removed from the reactor. These notifications are publicly available, so any individual can remain informed as decommissioning proceeds.

Within two years of permanent shutdown, the NRC requires licensees to submit a report called the Post Shutdown Decommissioning Activities Report, or PSDAR for short. No major decommissioning activities described in the PSDAR can begin until 90 days after the agency receives this report and confirms that the licensee has provided the following three elements:

- 1. A description and schedule for the planned decommissioning;
- 2. An estimate of the expected costs of decommissioning; and
- 3. An evaluation of the potential environmental impacts of decommissioning.

The NRC reviews the report and may request that the licensee provide supplemental information to ensure that it meets our requirements. During our review, the NRC holds a public meeting in the vicinity of the shutdown nuclear power plant to receive public comments on this report.

There are two primary approaches that licensees can use to accomplish decommissioning in accordance with NRC regulations: immediate dismantlement, or DECON; and deferred dismantlement, or SAFSTOR. Licensees make decisions on which of these approaches to pursue by taking a variety of factors into consideration, including: ensuring plant

safety, potential dose to workers, availability of decommissioning funds, access to low-level waste disposal facilities, potential future uses of the site, and stakeholder input. Decommissioning must be completed within 60 years of the plant ceasing operations. A time beyond that would be considered only when necessary to protect the public health and safety in accordance with NRC regulations.

NRC OVERSIGHT

Throughout the decommissioning process, the NRC continues to oversee the safety, security, and compliance of activities conducted by the licensee. The goals of the oversight program at nuclear plants undergoing decommissioning are to:

- determine, through direct observation and verification, if decommissioning activities are being conducted safely, if the spent nuclear fuel is being stored safely, and if activities at the site are being conducted in accordance with all applicable regulations and commitments;
- determine if the administrative controls that the licensee has in place are adequate and comply with regulatory requirements, (the controls include self-assessment, audits and corrective actions, design control, safety review, maintenance and surveillance, radiation protection, and effluent controls); and
- identify any significant declining performance trends and verify that the licensee has taken actions to reverse any trend.

The principal method for oversight is onsite inspections. These inspections are supplemented by observations of site characterization and, before license termination, a radiological survey to confirm that radiation levels have been suitably reduced. At least one NRC resident inspector remains onsite during the initial phases of the decommissioning process until the complexity and risk associated with site operations are reduced. Eventually, resident inspectors are no longer necessary onsite on a daily basis, and the NRC's oversight shifts to specialist inspectors from the regional offices or headquarters. The NRC will continue to adjust

the level of oversight to ensure the site remains safe and secure, and in response to the licensee's performance, as warranted. NRC oversight continues until the spent fuel is removed from the site and the license is terminated.

PUBLIC INVOLVEMENT

The public has several opportunities to participate in the decommissioning process. As stated previously, a public meeting is held in the vicinity of the facility after submittal of a PSDAR to the NRC. Another public meeting is held when the NRC receives the license termination plan. An opportunity for a public hearing is provided prior to issuance of a license amendment approving the plan or any other license amendment request. In addition, when the NRC holds a meeting with the licensee, members of the public may observe the meeting (except when the discussion involves proprietary, sensitive, safeguards, or classified information).

DECOMMISSIONING FUNDS

Before a nuclear power plant begins operations, the licensee must establish or obtain a financial mechanism – such as a trust fund or a guarantee from its parent company – to ensure there will be sufficient money to pay for the ultimate decommissioning of the facility.

Each nuclear power plant licensee must report to the NRC every two years the status of its decommissioning funding for each reactor or share of a reactor that it owns. The report must estimate the minimum amount needed for decommissioning by using the formulas found in NRC regulations. Although there are many factors that affect reactor decommissioning costs, generally they range from \$280 million to \$612 million. The NRC staff performs an independent analysis of each of these reports to determine whether licensees are providing reasonable "decommissioning funding assurance" for radiological decommissioning of the reactor at the permanent termination of operation.

The latest decommissioning funding status report to the NRC for Diablo Canyon Generating Stations 1 and 2 was submitted by Pacific Gas and Electric in March 2017 and is publicly available on the NRC's website (ML17102B069). At the end of 2016, the Diablo Canyon Unit 1 decommissioning fund was \$1.20 Billion and the Diablo Canyon Unit 2 decommissioning fund was \$1.57 Billion.

CLOSING

In closing, I welcome the Committee's interest in the NRC's performance of our important regulatory mission as it pertains to the decommissioning of nuclear power plants. For your information, I have included the slides I will be presenting to the Diablo Canyon Decommissioning Engagement Panel this evening. The presentation describes our extensive decommissioning experience, proven regulations and inspection program, and the rulemaking in progress to make the transitioning of power plants from operation to decommissioning more efficient.

Chairman and distinguished Members of the Committee, this concludes my formal discussion. I thank you for the opportunity to appear before you and would be pleased to respond to your questions.