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Committee on Energy, Utilities and Communications

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Introduction

Good Morning Chairperson Padilla and members of the Energy, Utilities, and Communications Committee. I'm honored to appear before you today on behalf of the U.S. Nuclear Regulatory Commission to address the safe operation of the nuclear power plants in California.

In my opening statement I plan to provide a brief overview of the NRC's inspection program, describe our recent assessment of performance at San Onofre and Diablo Canyon, explain in general terms the license renewal process, and inform you of the ongoing NRC activities following the Fukushima event.

Inspection Program

The Nuclear Regulatory Commission is an independent federal agency created by Congress. We have approximately 4000 staff, with a mission to license and regulate the Nation's civilian use of radioactive materials in order to protect the American people.

Between the NRC resident inspectors, who work at and live near the reactors, and the region-based specialists, who visit the plants regularly to assess emergency planning, security, maintenance, or engineering, there are over 200 people in NRC's Region IV office in Arlington, Texas. We are absolutely dedicated to making sure that the four operating power reactors in California as well as the two non-operating reactor sites with their associated spent nuclear fuel installations are safe.

Twice a year, the NRC assesses plant performance and develops a schedule of future inspections. We use plant trends to ensure inspection resources are focused on areas of concern and plants with declining performance. If plant performance declines, we increase oversight by conducting more inspections. Special inspections are conducted following plant events or when a better understanding of plant issues are needed.

The NRC inspections focus on activities that most significantly affect plant safety. The inspections typically start by observing work activities. We look at the quality of work records, talk to workers, and examine the physical condition of the plant looking for tell-tale signs of problems such as fluid leaks or unusual noises. We also look at quality verification, training adequacy, and procedural controls. Performance concerns will lead the inspector into evaluating root causes and potential programmatic problems.

The NRC uses a philosophy of Defense-in-Depth, which recognizes that the nuclear industry requires the highest standards of design, construction, oversight, and operation. Even with these high standards, the NRC does not rely on any one level of protection for maintaining public health and safety. So, every single reactor in this country, after accounting for site-specific threats –such as

earthquakes, tornadoes, hurricanes, floods, or tsunamis— also has multiple physical barriers to prevent fission-product release. On top of this, there are both diverse and redundant safety systems.

Should a very unlikely significant event occur, each plant has emergency preparedness plans, developed with the NRC, FEMA, and State and local officials, to appropriately respond.

The NRC reviews operating experience to evaluate and amend our requirements when necessary. The most significant nuclear event in this country was the Three Mile Island accident in 1979. As a result of those lessons learned, the NRC made significant changes to our regulations, including enhanced emergency planning and emergency operating procedures, hydrogen control requirements to prevent explosions inside containment, and creating the Resident Inspector Program. There are at least two full-time NRC inspectors at each plant with full access to the facility day or night.

Following the events of 9-11, the NRC required additional mitigation strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in case of a large explosion or fire. These enhancements and strategies are directly applicable to the type of significant event that occurred in Japan.

San Onofre and Diablo Canyon Overview

During 2010, the NRC devoted 13,700 hours of inspection effort at San Onofre and 8,200 hours at Diablo Canyon. These efforts determined that San Onofre and Diablo Canyon are operated safely.

San Onofre is currently receiving the NRC's rigorous baseline inspection program because all current findings and performance indicators have been of very low safety significance. The NRC is reviewing corrective actions in response to some workers having a reluctance to raise safety concerns. Inspections completed in January 2011, determined that significant actions have been implemented to address these concerns, including management changes, procedure changes, and training of plant personnel. The NRC completed several inspection activities to fully assess improvements in the corrective action program and determined that a low threshold for identifying issues existed and items are being thoroughly evaluated. Thirty findings had an underlying cause associated with human performance. An appropriate set of action plans has been developed by San Onofre and we will be conducting inspections later this year to independently verify the adequacy of actions involving decision making, procedure quality, error prevention techniques, procedure compliance, and management oversight of activities.

San Onofre is designed to withstand a ground motion of .67g from a magnitude 7.0 earthquake from nearby faults. The NRC recognizes that some seismic studies, which do not have widespread agreement within the geologic community, indicate a larger 7.1 to 7.6 magnitude earthquake could occur. Even with the larger earthquake estimate we believe San Onofre would be maintained in a safe shutdown condition.

San Onofre is protected from tsunami by a 30 foot seawall. The maximum expected tsunami at high tide is 15.6 feet. With the maximum expected storm surge the combined wave height is 27 feet.

Diablo Canyon is currently receiving the NRC's rigorous baseline inspection program because all findings and performance indicators are of very low safety significance. The NRC has identified that the depth of problem evaluation is lacking in some instances. We believe Diablo Canyon's completion of a licensing basis verification project will improve their ability to perform problem evaluations and we are planning several additional inspections to verify the adequacy of this project.

Diablo Canyon is located in a seismically active area. Diablo Canyon's operating license requires the plant to maintain a Long-Term Seismic Program to reevaluate the seismic design bases against insights and knowledge gained with each seismic event. The plant is evaluated for the 7.5 magnitude earthquake originating in the Hosgri fault. The evaluation ensures the plant can be safely shut down if the expected maximum ground motion were to occur.

Following its discovery in 2008, Pacific Gas and Electric (PG&E) performed a detailed review of the Shoreline Fault and submitted a report to the NRC in January 2011. PG&E concluded that Diablo Canyon remains within its current licensing basis. The NRC is in the process of performing a review to assess PG&E's data, verify their conclusions, and verify that the site's current design and licensing basis remains valid. The review was originally scheduled to be completed in August 2011; however this date may be extended because NRC staff responsible for the review are also involved with the response to the earthquake in Japan.

Diablo Canyon is designed to withstand a tsunami wave height of 45.4 feet. The maximum expected wave height is 34.6 feet.

License Renewal Process

Before I continue I want to let the Committee know that as part of the Diablo Canyon license renewal process, four contentions were accepted by the atomic safety licensing board. The admitted contentions are: (1) the failure to demonstrate adequacy of implementing the program for management of aging equipment; (2) the failure of environmental analyses to include complete information about potential environmental impacts of earthquakes; (3) the failure of severe accident mitigation alternatives analyses to address environmental impacts of spent fuel pool accidents; and (4) the failure to address environmental impacts of an attack on the Diablo Canyon reactor. Because of the NRC's potential participation in the legal proceedings, I can only address general license renewal topics during this forum today.

According to NRC regulations, licensees may submit an application for license renewal 20 years before expiration of the current license. Licensees are expected to submit an application at least 5 years before expiration of the license. The NRC's review process takes 22-30 months depending on the need for a hearing and the duration of the hearing process. Many licensees begin the process early because of the time needed to obtain approvals, design and construct new major electricity generating stations. If the application is submitted more than 5 years before expiration, the license will not be deemed to be expired until a final determination on the license renewal application is made. If the license is not renewed then the license is deemed to expire at the end of the current license and the facility must cease power operations and begin decommissioning.

Following receipt and acceptance of the application the NRC will implement an environmental review and a safety review. The results of these reviews are presented to an advisory committee to the NRC Commission and that advisory committee provides a recommendation to the Commission. Members of the public are provided multiple opportunities to participate in the process, including a request for a hearing with a judicial authority called the Atomic Safety Licensing Board.

The safety review ensures that the licensee has implemented effective plans and programs to ensure the effects of aging will not adversely affect any systems, structures, or components. If a safety concern is identified then the issue is addressed as part of the NRC's ongoing oversight program and ensures that an acceptable level of safety is maintained. Put simply, the NRC will not wait until the end of the initial license period to address a safety issue.

Diablo Canyon submitted an application for license renewal in November 2009. The NRC has performed audits and inspections of the aging management program and presented the results of this effort in a public meeting on January 27, 2011. On April 10, 2011, PG&E submitted a letter to the NRC requesting that we delay final processing of the license renewal application until additional seismic studies are completed. The NRC's current schedule is to document the completion of our existing safety review in a safety evaluation report by June 2011. We currently plan to issue a draft environmental report by June 2011. The public will have an opportunity to comment on the draft report and the NRC will hold an additional public meeting before issuance of a final environmental report. The staff is currently assessing the potential impacts this information may have on the license renewal process and schedule. Following PG&E's completion of the seismic studies, the NRC will evaluate the need to update the environmental report and the safety evaluation report with any new information related to the license renewal application. As mentioned earlier, four contentions were accepted by the atomic safety licensing board. The hearing process begins after the NRC staff completes their reviews.

Learning from Fukushima

Since March 11, the NRC's headquarters' operations center has been substantially augmented in order to monitor and analyze events unfolding at the nuclear power plants in Japan. At the request of the Japanese government, the NRC sent a team of technical experts to provide on-the-ground support. Within the United States, the NRC has been working closely with other Federal agencies as part of our government's response to the situation. The NRC has already initiated additional inspections to verify the readiness of reactor licensees to deal with both the design basis accidents and the beyond-design basis accidents. The information that we gather from these near-term inspections will be used to evaluate the industry's readiness for similar events, and aid in our understanding of whether additional regulatory actions need to be taken in the near term.

A senior level agency task force has been established to conduct a methodical and systematic review of NRC processes and regulations to evaluate enhancements to our regulatory system and make recommendations to the Commission for policy direction. The near term objectives include: (1) evaluating currently available technical and operational information from the events that have occurred in Japan to identify immediate operational or regulatory issues; and (2) developing recommendations for potential changes to inspection procedures and licensing review guidance, and whether generic communications, orders, or other regulatory requirements are needed. The task force is expected to gather information from stakeholders that are independent of industry efforts. The task force will develop a publicly available report.

The task force's longer term review will begin after the NRC has sufficient technical information from the events in Japan. This effort would include specific information on the sequence of events and the status of equipment during the duration of the event. The task force is expected to evaluate: (1) all technical and policy issues related to the event to identify potential research, generic issues, changes to the reactor oversight process, rulemakings, and adjustments to the regulatory framework that should be conducted by NRC; (2) potential interagency issues such as emergency preparedness; and (3) applicability of the lessons learned to non-operating reactor and non-reactor facilities. The task force will interact with key stakeholders and provide a report to the Commission within six months from the start of the evaluation.

In conclusion, there are a number of immediate, short-term, and long-term evaluations that we are embarking upon with an aim to refine and enhance the safety of U.S. facilities. The NRC has full confidence that the current fleet of reactors, including those in California, are operated in a manner that protects public health and safety.