

SONGS Independent Spent Fuel Storage Installation
Inspection and Maintenance Program
For Approval at July Virtual Meeting of the California Coastal Commission

BACKGROUNDER

SCE's advanced Inspection and Maintenance Program for dry storage of spent nuclear fuel

SCE has developed an Inspection and Maintenance Program (IMP) for the Holtec multi-purpose canisters (MPCs) at SONGS in response to Special Condition 7 of the 2015 Independent Spent Fuel Storage Installation (ISFSI) Coastal Development Permit (CDP) issued by the California Coastal Commission (CCC). The IMP has been submitted to the CCC and is an attachment to the CCC staff report for a July virtual public meeting; these documents as well as a report on the IMP by an independent consultant all are available [here](#).

Safe onsite storage to facilitate offsite transportation

The IMP supports a goal shared by SCE, the CCC and the communities around San Onofre that the MPCs stored in the Holtec ISFSI remain in a physical condition sufficient for offsite transport.

The NRC licensing process establishes the requirements for the operation, inspection and maintenance of the ISFSI. Requirements for the initial license period include periodic monitoring of canister conditions (primarily cooling effectiveness) by monitoring air vents, as well as inspection and evaluation of accessible surfaces (normally concrete) of the ISFSI. The NRC does not require canister inspections during the initial license period of 20 years, since all degradation mechanisms that could affect canister integrity occur in a timeframe much longer than this initial 20-year period. (The NRC does require licensees to conduct canister inspections in *subsequent* license periods as part of an Aging Management Program (AMP).)

Going above and beyond

SCE has proactively gone above and beyond NRC requirements in the design and fabrication of the SONGS MPCs to ensure that they are robust and highly resistant to degradation. The IMP also exceeds NRC requirements for inspection and maintenance of MPCs during their first 20 years of service.

The IMP is modeled on NRC requirements for AMPs (which are part of the license renewal process to extend the license of a dry cask storage system beyond its 20-year initial license period) and guidance from the American Society of Mechanical Engineers, as well as research by the Electric Power Research Institute (EPRI) and the nuclear industry on MPC performance and potential degradation.

A potential challenge to the long-term service life of stainless steel spent fuel canisters is chloride-induced stress corrosion cracking (SCC) initiated on the outer surface of the canisters. Although this type of degradation is highly unlikely for SONGS MPCs, the IMP provides an effective program to monitor, detect, and mitigate any canister surface degradation.

Key elements of the program

The IMP consists of the following:

- a. Periodic canister inspections to detect potential canister degradation and monitor any indications of degradation over time. SCE has developed high resolution robotic monitoring capability to remotely inspect the exterior surface of an in-service MPC. This capability was used for MPC inspections conducted at SONGS in 2019. Eight MPCs were inspected in 2019 and two MPCs will be inspected every five years going forward to monitor MPCs. As necessary based on inspection results, additional inspections will be conducted. The next MPC inspections are scheduled for 2024.
- b. Implementation of a test canister program to allow SCE to better monitor the condition of the MPCs. The test canister does not contain spent fuel but otherwise is identical to the MPCs in the ISFSI including a simulated heat load to reproduce the same environmental conditions as an in-service MPC. The test canister serves as a leading indicator of MPC conditions, and also allows for the continued refinement of inspection and repair tooling. The test canister will be inspected every 2.5 years going forward, with the first inspection scheduled for 2022. The increased frequency of test canister inspections will provide early indication in the unlikely event of degradation.
- c. Other ongoing inspections, including inspections of the ISFSI system and radiation monitoring.
- d. Response and remediation plans to be implemented based on the results of the MPC inspections. As part of these plans, SCE has demonstrated the capability to repair canisters if needed. A short video of the repair method is available [here](#).
- e. Reporting requirements to provide periodic reports to the CCC which include inspection results, condition trends and any corrective action taken based on the results. These reports will be publicly available on the SONGS Community website.

Robust storage and advanced inspection and maintenance

In response to feedback from the SONGS Community Engagement Panel, members of the public and other interested stakeholders, SCE has taken actions that have resulted in more robust dry cask spent fuel storage at SONGS. This advanced IMP enhances on-site storage by bolstering confidence that the MPCs at SONGS will be ready for offsite transport.

CCC staff recommends approval, as does SCE

The CCC staff retained a specialty consultant, Lucius Pitkin Inc. (LPI), to review the IMP and LPI produced a report. The CCC staff report, the IMP, and the LPI report all are available [here](#).

The CCC staff report includes a recommendation that the Commissioners approve the IMP. The team at SCE agrees and, at the July virtual meeting, SCE will urge the Commissioners to approve the IMP to support what is one the industry's most advanced and comprehensive set of spent fuel management programs.

Prepared by SCE | June 12, 2020