San Onofre Nuclear Generating Station
Near Miss Load Drop of Spent Fuel Canister

A. Event Summary

August 3, 2018, San Onofre personnel were transferring a loaded spent fuel storage canister (canister) into the underground ISFSI storage vault (HI-STORM UMAX storage system). San Onofre personnel failed to observe: (1) misalignment of the canister; (2) that the canister had made contact with and was resting on the divider shell assembly; (3) that the important to safety lifting devices and equipment were no longer supporting the canister weight; (4) and that the failure of lifting equipment placed the canister in an unanalyzed condition with respect to a load drop event.

A radiation protection technician identified elevated radiation readings that were not consistent with a fully lowered canister and notified staff responsible for oversight of the evolution. Oversight staff then identified that the canister had not been lowered into the vault, that the important to safety rigging and lifting equipment no longer supported the load of the canister, and that the canister could have dropped 18 feet into the storage vault if the canister had slipped off the metal flange.

The accumulation of multiple performance deficiencies established the conditions for a plausible load drop accident, a Final Safety Analysis Report (FSAR) *unanalyzed condition.*

B. Immediate Corrective Actions

San Onofre personnel implemented appropriate immediate corrective actions. These included restoring the control of the load to the rigging and lifting devices, properly placing the canister in the storage vault, suspending all movement of spent fuel, and initiating an investigation of the event.

San Onofre informed NRC Region IV staff of the incident on Monday, August 6, 2018, when the licensee provided a courtesy notification and described it as a near-miss or near-hit event. San Onofre personnel did not report the event as required by regulations. Following prompting by NRC staff, San Onofre submitted the required 10 CFR 72.75(d)(1) report on September 14, 2018.

C. NRC Special Inspection

The NRC initiated the Special Inspection the week of September 10, 2018. The Charter for the inspection is available in ADAMS as ML18229A203. The Special Inspection team investigated the occurrence of the "near-miss" drop event, interviewed personnel involved, and observed equipment operation and preliminary corrective actions put in place to prevent recurrence of the event.

D. NRC Preliminary Observations from Special Inspection

As of October 7, 2018, the NRC had completed onsite reviews of the near miss event. NRC inspectors are continuing to review the licensee's calculations of potential damage to the canister and the fuel from the misalignment and from a potential drop if the cask had fallen.

The following observations are preliminary and are subject to change pending completion of the NRC inspection activities for the near-miss event.

i. The “near-miss” load drop event of a spent fuel canister at the San Onofre Nuclear Generating Station (SONGS) resulted from Southern California Edison's deficiencies involving training, equipment, procedures, oversight, and corrective actions.

ii. The canister made contact with the divider plate assembly, resulting in a condition where a load drop accident could occur. Load drop accidents are not analyzed conditions described in the Holtec HI-STORM UMAX Final Safety Analysis Report. Consequently, the spent fuel canister was placed in an unanalyzed condition.

iii. 10 CFR 72.150, “Instructions, procedures, and drawings,” requires that the licensee have procedures with appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. The NRC identified multiple procedural inadequacies.

iv. 10 CFR 72.75(d)(1) requires that a licensee notify the NRC within 24 hours when important-to-safety equipment is disabled or fails to function as designed, if the equipment is required by the Certificate of Compliance to be available and operable to mitigate the consequences of an accident, and no extra (redundant) equipment is available and operable to perform the required safety function. The event was reported to the NRC after a period of greater than 24 hours.

v. 10 CFR 72.190, "Operator requirements," requires that operation of equipment identified as important to safety be limited to trained and certified personnel, or under the direct supervision of a trained and certified individual. The NRC observed instances where personnel involved in important-to-safety tasks were not trained and certified or under direct supervision.

vi. 10 CFR 72.172, "Corrective action," requires that conditions adverse to quality be promptly identified and corrected. The NRC Special Inspection Team identified a prior occurrence of a closely related event that had not been entered into the licensee's corrective action program.