November 27, 2013

VIA E-MAIL & U.S. MAIL

Jonathan Bishop, Chief Deputy Director
State Water Resources Control Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812-2815
jsbishop@waterboards.ca.gov

RE: Report on Reduced Cooling Water Intake Flows at San Onofre Nuclear Generating Station (SONGS)

Dear Jonathan,

On June 19, 2013, we met to discuss Southern California Edison Company's (SCE) continued efforts to comply with the Once-Through Cooling (OTC) Policy[1] at SONGS. Specifically at issue are Section 2.C.(1) (regarding installation of large organism exclusion devices [LOED]) and Section 3.D. (regarding special studies). As we discussed, as a result of the permanent retirement of SONGS, changed circumstances warrant reconsideration of the requirements contained in Sections 2.C.(1) and 3.D. as they relate to SONGS.

As a follow up to our in-person meeting, by letter dated July 17, 2013, you requested that SCE provide a report detailing its plans for ocean cooling water at SONGS (Report). Accordingly, SCE respectfully submits this Report, which supports SCE's request for further review of the LOED requirement and an exemption from the special studies requirement. As discussed in greater detail below, following cessation of normal operations at SONGS, there has been a significant (approximately 96%) reduction in the intake flow rate, as well as a corresponding reduction in the through-screen intake velocity (to approximately 0.1 feet per second).[2] These reductions meet the requirements for Track 1 compliance contained in Section 2.A. (2) of the OTC Policy.

[1] Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling, October 1, 2010, Page 4.
[2] Calculated velocity is 0.12 feet per second using a simple proportional relationship with flow rate reduced and all other factors, such as intake diameter, remaining constant.

Background on SONGS Units 2 and 3 Intake Flows

The SONGS Units 2 and 3 cooling water system is comprised of a total of eight circulating water pumps (four per unit) and eight salt water cooling (SWC) pumps (four per unit). During normal operations, as shown in Figure 1, the circulating water pumps each draw 207,500 gallons per minute (gpm) and the SWC pumps each draw 17,000 gpm. As a result, normal operating flows are 1,200 million gallons per day (mgd) per unit. The through-screen intake velocity during normal operations is 3.0 fps.

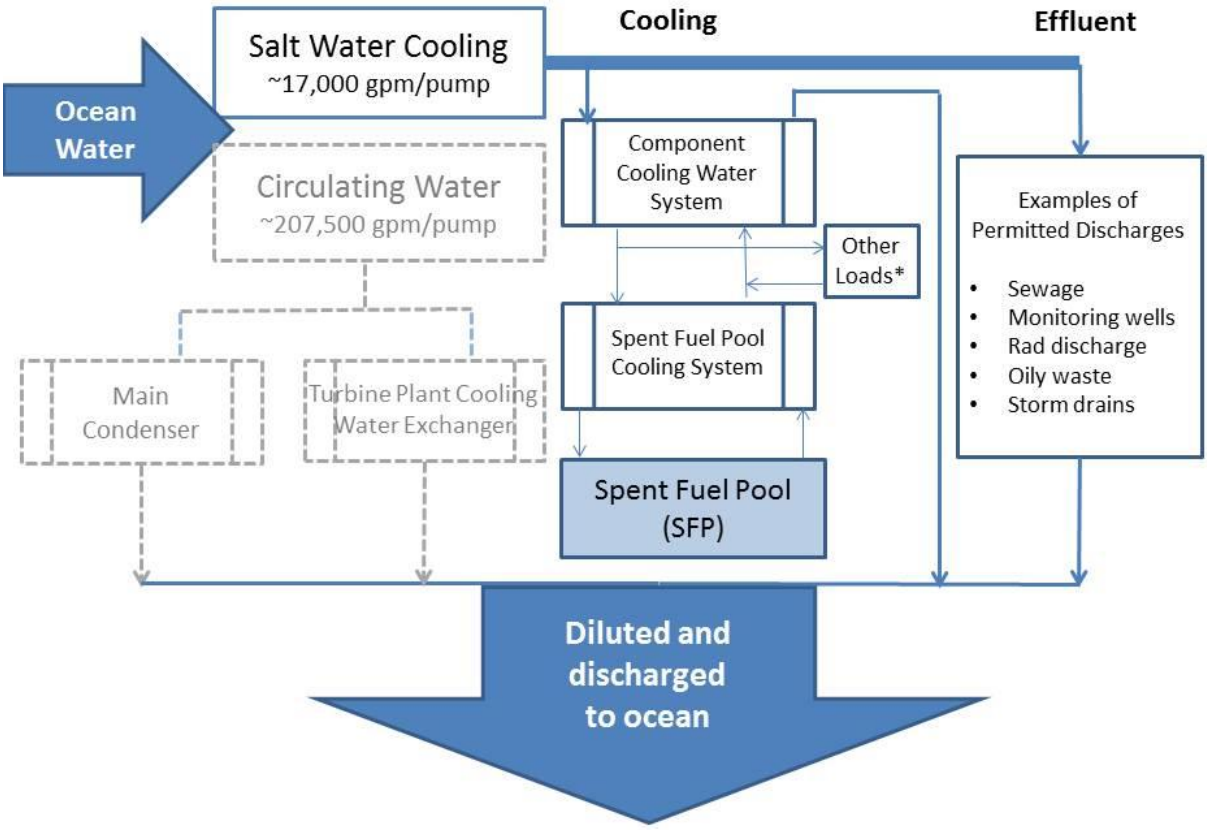

Figure 1 Schematic of SONGS' ocean water use for its salt water cooling and circulating water systems. The circulating water system (shown in gray, broken boxes) pumps have been secured and are no longer operating. * Other loads include essential heating, ventilation, and air conditioning (HVAC) to the switchgear room.

On January 9, 2012, SONGS Unit 2 was taken offline for a regularly scheduled refueling outage. As shown in Figure 2, at that time, the normal operating flow for Unit 2 was reduced by approximately 35%. Shortly thereafter, on January 31, 2012, a steam generator tube leak resulted in an unscheduled shut down of SONGS Unit 3. This resulted in a 35% reduction from normal operating flows for Unit 3. Flow rates for both Unit 2 and Unit 3 remained at these levels until the decision was made on June 7, 2013 to retire both SONGS units. SCE is now in the early stages of decommissioning planning activities.

Following the announcement to retire SONGS 2 and 3, SCE began a process for ceasing operation of all eight of the circulating water pumps. On July 11, 2013, the Unit 3 circulating

water pumps were shut down and circulation water flows ceased for Unit 3. On October 1, 2013, the Unit 2 circulating water pumps were shut down and circulation water flows also ceased for Unit 2. At that point, only two SWC pumps continued to operate for the spent fuel pools and the intake flow rate was reduced to approximately 49 mgd, representing a decrease of approximately 96% from normal operating flows.[3] These reductions will be documented in upcoming Discharge Monitoring Reports (DMRs) to the San Diego Regional Water Quality Control Board for compliance with SONGS' existing National Pollutant Discharge Elimination System (NPDES) permits.

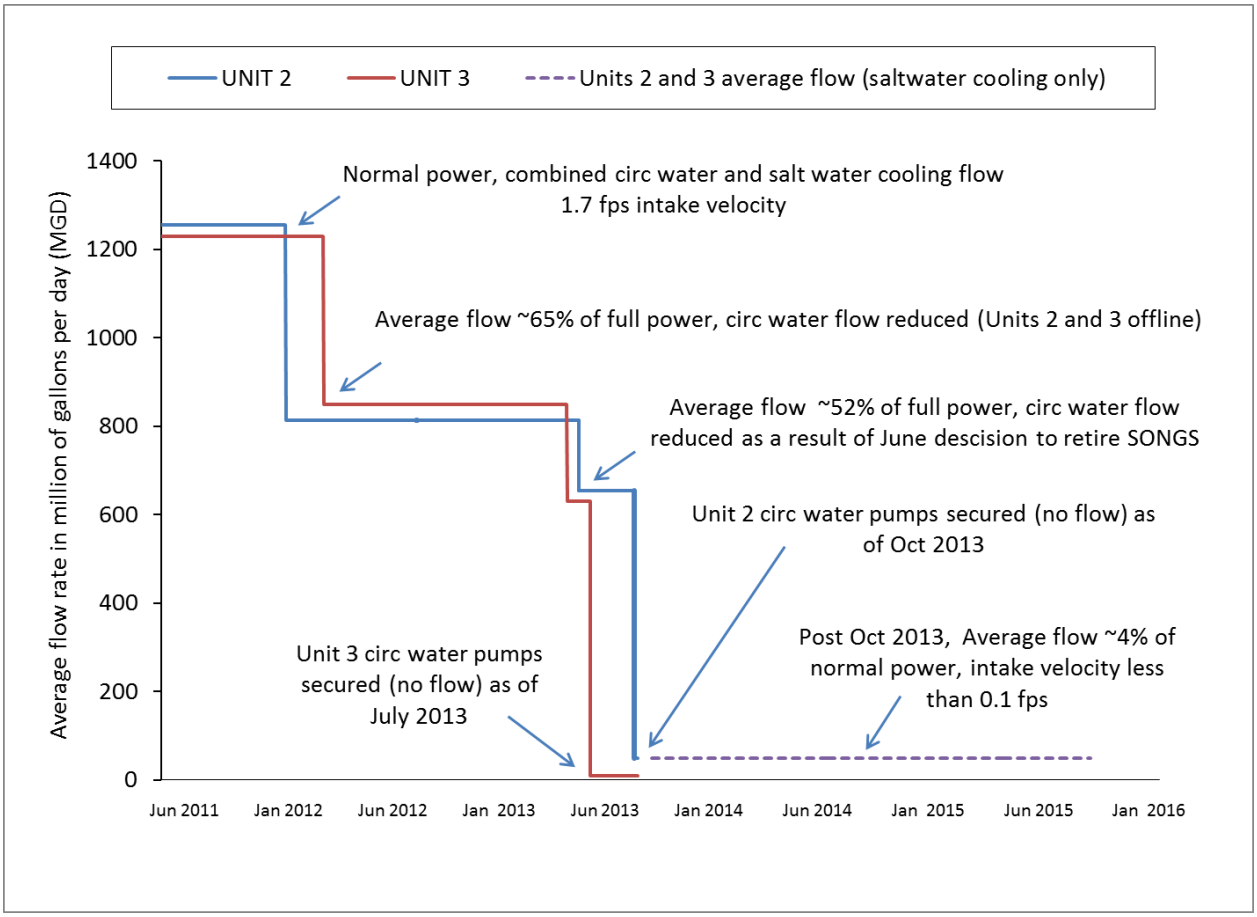

Figure 2. SONGS ocean water use and flow rate reduction from June 2011 and projected future flows. Intake flow velocity (at the offshore intake structures) is measured in feet per second (fps).

[3] Decommissioning may necessitate the operation of additional SWC pumps; however, the flow rate will continue to meet the minimum 93% reduction in intake flow rate and 0.5 fps through-screen intake velocity required for Track 1 compliance.

Current Use of Ocean Water at SONGS

The current use of ocean water is required by SONGS for two important reasons. First, ocean water cooling is a critical safety requirement for the operation of the on-site spent nuclear fuel pools. Second, ocean water is necessary for compliance with SONGS' current NPDES permits for effluent discharges, primarily sewage.

SONGS will continue to utilize ocean water during the decommissioning process. The exact duration of this use is not known at this time. SCE is currently preparing a Post-Shutdown Decommissioning Activities Report (PSDAR), which is required to be submitted to the Nuclear Regulatory Commission (NRC) within two years of filing a Permanent Cessation of Power Operations letter with the NRC (SCE filed the cessation letter on June 12, 2013). Details on further reduction of ocean water cooling use will be reflected in SCE's PSDAR. Although the use of ocean water will likely be required during the decommissioning process, the intake flows and the through-screen intake velocity will continue to comply with the limits established in Track 1 of the OTC Policy.[4]

Marine Mammal Impingement

As permitted in the SWRCB's July 17, 2013 letter to SCE, SCE has suspended all work on the large organism exclusion device (LOED) for SONGS and focused on efforts to minimize the use of ocean water at SONGS. SONGS has successfully reduced flows well below the through-screen intake velocity limit established in Track 1 of the OTC Policy (0.5 fps). The current velocity flow at SONGS (~0.1 fps) has resulted in a noticeable reduction in adult and juvenile fish in the forebays.[5]

Data reported to the National Marine Fisheries Service (NMFS) indicate that as intake flow rates have been reduced, a decrease in the entrainment (i.e., "takes") of large marine organisms has occurred. Figure 3 shows a graphical representation of the SONGS intake flow rates overlaid on the marine mammal and turtle entrainment data from 2011 to present. As documented in the Final Substitute Environmental Document for the OTC Policy[6], SONGS historically averaged approximately 20 California sea lion and 15 Pacific harbor seal takes annually under full operating conditions. However, since the cessation of normal operations at SONGS in June 2013, only one marine mammal has been taken; a harbor seal in the Unit 3 intake. After being removed from the intake structure on August 2, 2013, this harbor seal was released unharmed back to the ocean[7].

[4] SCE has begun a preliminary assessment of an alternative referred to as a spent fuel pool "island." This would be a stand-alone system that would operate in self-containment and independent of ocean water use.
[5] SONGS operational staff visually inspects forebays two times per month.
[6] Final Substitute Environmental Document, Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling, State Water Resources Control Board, May 4, 2010, page 81.
[7] San Onofre Nuclear Generating Station Fire Department Log, June 2013.

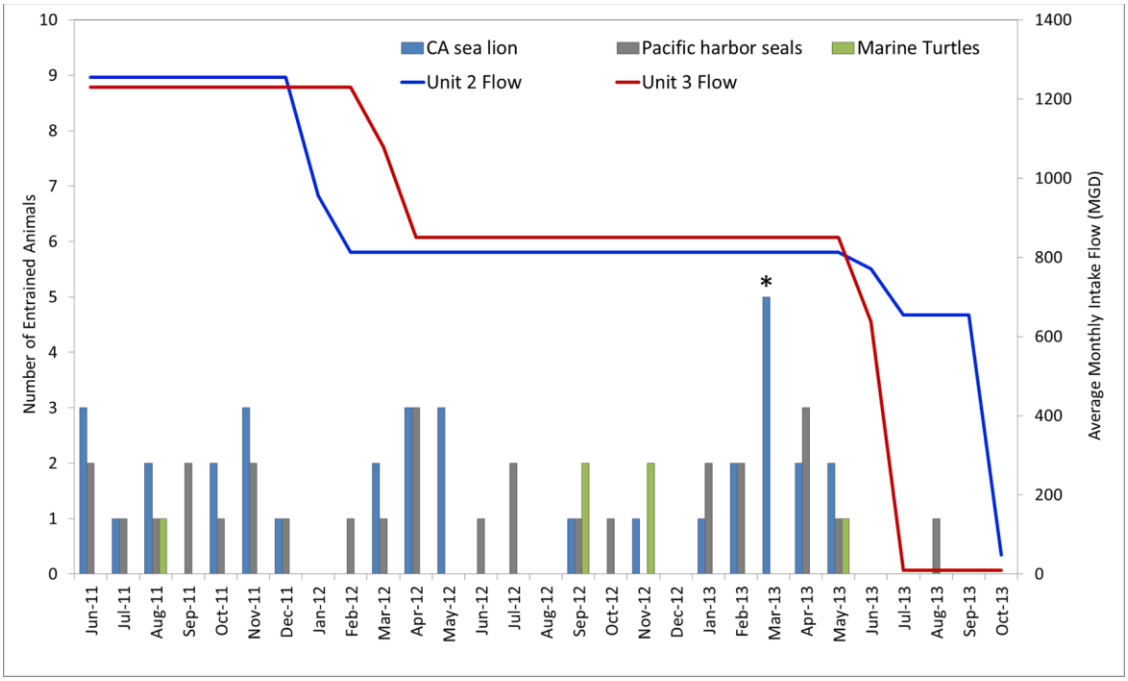

Figure 3. Marine mammals (California sea lions, Pacific harbor seals) and marine turtles that have been entrained into SONGS between January 2011 and October 2013. Blue and red lines depict the monthly average intake flow rates for SONGS Units 2 and 3, respectively. The Unit 3 circulating water pumps were shutdown in July 2013; Unit 2 circulating water pumps were shutdown in October 2013. *Note: The CA sea lion data for March 2013 is likely an artifact of an anomalous number of sea lion strandings that occurred along the California coast.[8]

SCE seeks permission to continue the SWRCB granted suspension of the LOED requirement while SCE gathers data for an additional 12 months in order to evaluate the combined effect of reduced intake flow rates, a reduced food source, and reduced through-screen intake velocity on the entrainment of large marine organisms. Following this 12 month period, SCE proposes to submit a Marine Mammal and Turtle Entrainment Report to the SWRCB. Depending upon the results of this report, SCE may petition the SWRCB for a waiver of the LOED requirement.

Conclusions

As of October 1, 2013, only two SWC pumps continue to operate at SONGS in order to provide ocean water for cooling of the spent fuel pools and compliance for NPDES effluent discharge requirements. The intake flow rate at SONGS has been reduced to approximately 96% of normal operating intake flows. Furthermore, the through-screen intake screen velocity at SONGS has been reduced to approximately 0.1 fps. As a result, SONGS now meets the Track 1 compliance requirement for existing power plants as provided for in the SWRCB's OTC Policy[9]. Therefore, there is no need to continue with the special studies, which are intended to investigate compliance alternatives. For these reasons, SCE seeks an exemption from the requirements of Section 3.D.

[8]Under the Marine Mammal Protection Act of 1972 (as amended), an Unusual Mortality Event (UME) was declared for California sea lions in California from January 2013 through May 2013 Source: National Marine Fisheries Service (http://www.nmfs.noaa.gov/pr/health/mmume/californiasealions2013.htm)

[9] Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling, October 1, 2010, Attachment 1, Page 4.

Further, SCE seeks permission to continue the SWRCB suspension of the LOED requirement in order to monitor the intake of marine mammals for an additional 12 months, a time scheduled to end in December 2014. This proposal will allow the SWRCB and SCE to consider the combined effect of reduced intake flow rates, a reduced food source, and reduced through-screen intake velocity on the entrainment of large marine organisms. Following a 12-month period of reduced flows, SCE proposes to submit a brief Marine Mammal and Turtle Entrainment Report to the SWRCB. Based on the results of that report, SCE may petition for a waiver or request an amendment of the LOED requirement for SONGS.

If you have any questions regarding this submittal, please do not hesitate to contact me at (626) 302-9732 or Brandon Blevins at (626) 302-9465.

Sincerely,

R. David Asti
Principal, Corporate Environmental Policy

Cc (electronic): Felicia Marcus, SWRCB Chair
Frances Spivy-Weber, SWRCB Vice Chair
Dorene D'Adamo, SWRCB Member
Tam Doduc, SWRCB Member
Steven Moore, SWRCB Member
Tom Howard, SWRCB Executive Director
Michael A.M. Lauffer, SWRCB Chief Counsel
Marleigh Wood, SWRCB Senior Staff Counsel
David Barker, San Diego Regional Water Quality Control Board
Shuka Rastegarpour, SWRCB Environmental Scientist
Caroline Choi, SCE Vice President Integrated Planning & Environmental Affairs
Colin Lennard, SCE Director and Managing Attorney
Linda Anabtawi, SCE Senior Attorney
Caroline McAndrews, SCE, Director of Preferred Resources Project
Tom Palmisano, SCE, Vice President of Nuclear Engineering
Robert Sholler, SCE, Director of Shutdown Plant Manager
Ed Avella, SCE, Director of Decommissioning Initial Activities