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San Onofre Nuclear Generating Station Independent Spent Nuclear Fuel Storage Installation

Report period: December 2020

This report provides radiation data at the San Onofre Nuclear Generating Station (SONGS) Independent Spent Fuel Storage Installation (ISFSI). The information was gathered according to an agreement between SONGS and the California Department of Public Health Radiologic Health Branch (RHB).

Dry Storage at SONGS

The first used fuel assemblies were transferred from wet (pool) storage to the dry cask storage units in the TN-NUHOMS system in October 2003. In total, 1,187 fuel assemblies are stored in the NUHOMS system in 50 canisters. The Holtec HI-STORM UMAX dry storage system was constructed between April 2016 and the end of 2017, with the transferring of fuel assemblies taking place from January 2018 to August 2020. The Holtec system houses 73 canisters of spent nuclear fuel.

Radiation Monitoring

Radiation level measurements around the ISFSI were initiated before fuel was placed in the NUHOMS system to determine background levels. Radiation measurements using sensitive Thermoluminescent Dosimeters (TLDs) have been made at locations around the ISFSI since then and reported to the Nuclear Regulatory Commission in SONGS Annual Radiological Environmental Operating Reports. These reports (through 2015) are available at [U.S. NRC Radioactive Effluent and Environmental Reports](#), or in the NRC public Document System (ADAMS). Reports beginning in 2016 are available at [SONGS Environmental Monitoring](#).

Additional TLDs were placed around the Holtec ISFSI in 2016 as it was constructed and before operation and have been in place since the first fuel canister was placed in 2018. Gamma-sensitive radiation monitors were added in 2019 at three locations in the ISFSI area and one additional monitor in a control location. The data are summarized in tables with daily averages, maxima, and minima. Those data tables are attached, one for each of the four locations.

More information on radiation monitoring is available at [SONGS Dry Fuel Storage Radiation Monitoring](#).

Locations

There are three radiation monitors in the ISFSI at locations depicted on the image below:



A fourth radiation monitor, at a control location, is located at the edge of the parking lot north of the ISFSI such that it measures background radiation in an unaffected reference area similar to the ISFSI.



Low-Level Waste Shipments Offsite as Part of SONGS Dismantlement

SONGS is in the process of dismantlement with rail shipments of low-level radioactive waste periodically leaving the site for disposal.

There were no low-level waste shipments offsite that impacted radiation measurements by the ISFSI Radiation Monitoring system during December 2020.

Other

There were no other relevant activities (i.e. temporary power outage, radiation monitor maintenance, etc.) during December 2020.

Table 1: Daily Results for December 2020 (in millirem per hour) for Location #1

Day	Average Dose Rate	Maximum Dose Rate	Minimum Dose Rate
1-Dec	0.024	0.030	0.018
2-Dec	0.024	0.031	0.018
3-Dec	0.024	0.032	0.018
4-Dec	0.024	0.031	0.018
5-Dec	0.024	0.033	0.018
6-Dec	0.024	0.030	0.019
7-Dec	0.024	0.032	0.018
8-Dec	0.023	0.033	0.018
9-Dec	0.024	0.030	0.018
10-Dec	0.024	0.032	0.018
11-Dec	0.023	0.031	0.018
12-Dec	0.024	0.030	0.017
13-Dec	0.024	0.031	0.017
14-Dec	0.023	0.031	0.017
15-Dec	0.023	0.029	0.018
16-Dec	0.024	0.031	0.018
17-Dec	0.024	0.031	0.018
18-Dec	0.024	0.033	0.018
19-Dec	0.024	0.031	0.018
20-Dec	0.024	0.032	0.018
21-Dec	0.024	0.032	0.018
22-Dec	0.024	0.033	0.018
23-Dec	0.023	0.030	0.017
24-Dec	0.024	0.031	0.018
25-Dec	0.023	0.030	0.018
26-Dec	0.024	0.031	0.018
27-Dec	0.024	0.032	0.018
28-Dec	0.024	0.032	0.015
29-Dec	0.024	0.032	0.018
30-Dec	0.023	0.031	0.018
31-Dec	0.024	0.031	0.017

Table 2: Daily Results for December 2020 (in millirem per hour) for Location #2

Day	Average Dose Rate	Maximum Dose Rate	Minimum Dose Rate
1-Dec	0.009	0.013	0.007
2-Dec	0.009	0.012	0.006
3-Dec	0.009	0.012	0.006
4-Dec	0.009	0.012	0.006
5-Dec	0.009	0.012	0.006
6-Dec	0.009	0.012	0.006
7-Dec	0.009	0.013	0.006
8-Dec	0.009	0.012	0.006
9-Dec	0.009	0.014	0.006
10-Dec	0.009	0.012	0.006
11-Dec	0.009	0.014	0.006
12-Dec	0.009	0.013	0.006
13-Dec	0.009	0.013	0.005
14-Dec	0.009	0.013	0.006
15-Dec	0.009	0.013	0.006
16-Dec	0.009	0.013	0.005
17-Dec	0.009	0.013	0.006
18-Dec	0.009	0.013	0.006
19-Dec	0.009	0.013	0.006
20-Dec	0.009	0.013	0.006
21-Dec	0.009	0.013	0.006
22-Dec	0.009	0.013	0.006
23-Dec	0.009	0.013	0.005
24-Dec	0.009	0.014	0.006
25-Dec	0.009	0.013	0.006
26-Dec	0.009	0.013	0.006
27-Dec	0.009	0.012	0.006
28-Dec	0.009	0.013	0.006
29-Dec	0.009	0.012	0.006
30-Dec	0.009	0.012	0.006
31-Dec	0.009	0.014	0.006

Table 3: Daily Results for December 2020 (in millirem per hour) for Location #3

Day	Average Dose Rate	Maximum Dose Rate	Minimum Dose Rate
1-Dec	0.015	0.021	0.011
2-Dec	0.015	0.023	0.011
3-Dec	0.015	0.020	0.011
4-Dec	0.015	0.020	0.011
5-Dec	0.015	0.021	0.011
6-Dec	0.015	0.020	0.010
7-Dec	0.015	0.020	0.011
8-Dec	0.015	0.022	0.011
9-Dec	0.015	0.021	0.011
10-Dec	0.015	0.021	0.011
11-Dec	0.015	0.021	0.011
12-Dec	0.015	0.021	0.010
13-Dec	0.015	0.019	0.011
14-Dec	0.015	0.021	0.011
15-Dec	0.015	0.020	0.012
16-Dec	0.015	0.020	0.011
17-Dec	0.015	0.021	0.011
18-Dec	0.015	0.020	0.010
19-Dec	0.015	0.019	0.011
20-Dec	0.015	0.020	0.010
21-Dec	0.015	0.020	0.011
22-Dec	0.015	0.020	0.011
23-Dec	0.015	0.020	0.012
24-Dec	0.015	0.020	0.011
25-Dec	0.015	0.020	0.011
26-Dec	0.015	0.020	0.010
27-Dec	0.015	0.019	0.011
28-Dec	0.015	0.021	0.011
29-Dec	0.015	0.020	0.011
30-Dec	0.015	0.020	0.011
31-Dec	0.015	0.023	0.011

Table 4: Daily Results for December 2020 (in millirem per hour) for Location #4 (Control)

Day	Average Dose Rate	Maximum Dose Rate	Minimum Dose Rate
1-Dec	0.007	0.011	0.004
2-Dec	0.007	0.011	0.005
3-Dec	0.007	0.009	0.004
4-Dec	0.007	0.010	0.005
5-Dec	0.007	0.010	0.004
6-Dec	0.007	0.011	0.004
7-Dec	0.007	0.011	0.004
8-Dec	0.007	0.010	0.005
9-Dec	0.007	0.010	0.004
10-Dec	0.007	0.010	0.004
11-Dec	0.007	0.010	0.004
12-Dec	0.007	0.011	0.004
13-Dec	0.007	0.010	0.005
14-Dec	0.007	0.011	0.004
15-Dec	0.007	0.010	0.004
16-Dec	0.007	0.010	0.004
17-Dec	0.007	0.010	0.004
18-Dec	0.007	0.010	0.005
19-Dec	0.007	0.010	0.005
20-Dec	0.007	0.011	0.004
21-Dec	0.007	0.010	0.005
22-Dec	0.007	0.010	0.005
23-Dec	0.006	0.010	0.004
24-Dec	0.006	0.010	0.004
25-Dec	0.006	0.010	0.004
26-Dec	0.006	0.010	0.003
27-Dec	0.006	0.009	0.004
28-Dec	0.006	0.009	0.004
29-Dec	0.006	0.009	0.004
30-Dec	0.006	0.009	0.004
31-Dec	0.007	0.011	0.004