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San Onofre Nuclear Generating Station Independent Spent Nuclear Fuel Storage Installation

Report period: November 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

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

Other

On November 13 from approximately 9:00P.M. to 11:30 P.M., there was a power outage to the site that lasted approximately 2 1/2 hours. During this time the equipment that collects data from the IRMS was unavailable and no data from the radiation monitors was collected.

On November 16 at approximately 2:30 P.M., the network used to transmit data collected by the IRMS went down. The IRMS radiation monitors and server continued to function, however, the data was not viewable by the off-site agencies.

On November 17 the network was restored on a temporary basis. The network was available from 6:00 A.M. to 5:00 P.M. until a permanent solution was implemented. During this time the data was viewable by the off-site agencies.

On November 18 at approximately 3:00 P.M., the network was permanently restored.

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

Day	Average Dose Rate	Maximum Dose Rate	Minimum Dose Rate
1-Nov	0.024	0.030	0.019
2-Nov	0.024	0.033	0.018
3-Nov	0.024	0.030	0.017
4-Nov	0.024	0.031	0.017
5-Nov	0.024	0.032	0.018
6-Nov	0.024	0.031	0.018
7-Nov	0.023	0.032	0.018
8-Nov	0.023	0.031	0.019
9-Nov	0.024	0.030	0.018
10-Nov	0.024	0.032	0.018
11-Nov	0.024	0.031	0.018
12-Nov	0.024	0.033	0.018
13-Nov	0.024	0.031	0.017
14-Nov	0.024	0.031	0.017
15-Nov	0.023	0.031	0.017
16-Nov	0.024	0.032	0.019
17-Nov	0.023	0.032	0.017
18-Nov	0.024	0.032	0.018
19-Nov	0.023	0.031	0.018
20-Nov	0.024	0.029	0.018
21-Nov	0.024	0.031	0.018
22-Nov	0.024	0.032	0.018
23-Nov	0.024	0.033	0.018
24-Nov	0.024	0.034	0.018
25-Nov	0.023	0.031	0.018
26-Nov	0.024	0.031	0.018
27-Nov	0.023	0.032	0.017
28-Nov	0.024	0.031	0.018
29-Nov	0.024	0.033	0.018
30-Nov	0.024	0.030	0.018

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

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

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

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

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

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