

Rancho Seco

Operation, decommissioning,
and the interim storage of spent nuclear fuel.



Aerial view of Rancho Seco in 2006, including the Independent Fuel Storage Facility (ISFSI) in upper right corner. (www.nabityphotos.com)

The Rancho Seco Nuclear Station was built on 2,100 acres in Herald, California, located in southeastern Sacramento County. The 913 megawatt pressurized water reactor began operation in September 1974 and entered commercial operation in April 1975.



Rancho Seco in 2009.

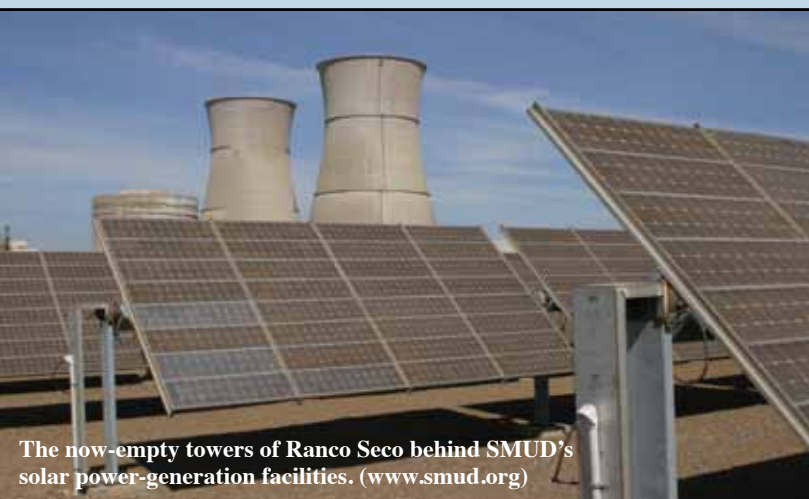
The plant, owned by the Sacramento Municipal Utility District (SMUD), permanently shut down on June 7, 1989, due to public referendum. The nuclear reactor was defueled later that year and physical decommissioning began in January of 1997. By mid-2000 work was underway to dismantle the reactor building equipment and spent fuel pool, and construction began on a new 500-megawatt gas-fired plant on Rancho Seco property. Physical decommissioning was completed in December 2008.



Aerial view of Rancho Seco in July 2007.

Fuel transfer from the pool to the ISFSI was completed in August 2002. Over a period of 16 months, the spent fuel was loaded into 21 dry storage canisters and transported to the ISFSI. On August 22, 2006, the canister containing Greater than Class C waste (GTCC), irradiated steel removed from the reactor vessel, was loaded into the twenty-second Horizontal Storage Module and transferred to the ISFSI. A total of 493 spent fuel assemblies were placed at the ISFSI, including 13 damaged assemblies. SMUD was the first utility in the world to load damaged fuel assemblies in dry storage containers.

The annual operating cost of the ISFSI is \$5-\$6 million per year.



The now-empty towers of Rancho Seco behind SMUD's solar power-generation facilities. (www.smud.org)

In 1984 the Sacramento Municipal Utility began building photovoltaic solar panels on the site. Today, Rancho Seco possesses one of the largest photovoltaic arrays in the world. Additionally, approximately 400 acres of the plant grounds have been converted into a public park.

In September 2009, the Nuclear Regulatory Commission certified the successful completion of decommissioning when it released the majority of the site for unrestricted public use. Eleven acres of land including a storage building for low-level radioactive waste and a dry-cask spent fuel storage facility remain under NRC licenses.

The approximate gross cost of Rancho Seco's decommissioning was \$498.8 million, which included all dismantlement and decontamination costs, as well as the cost of construction of the ISFSI, and transfer of used nuclear fuel and GTCC waste into the ISFSI for storage.



Red - Part 72 License Area (used fuel storage)
Blue - Part 50 License Area (low-level radioactive waste storage).

Rancho Seco uses the NUHOLMS storage system to house its SNF and GTCC waste. The system is licensed by the NRC for storage and transport. Each canister holds 24 fuel assemblies. An additional container holds GTCC waste.

Low-level radioactive waste continues to be stored under the Part 50 license pending availability of a suitable disposal facility. Rancho Seco's spent fuel and GTCC waste is safely stored under the Part 72 license, and ready for transport from the site, pending DOE actions to implement contractual obligations. SMUD remains responsible for the security and protection of the licensed land and the facilities on it until all radioactive material is finally removed from the site.