History of the Failed San Onofre Nuclear Generating Station (SONGS)

The San Onofre Nuclear Generating Station (SONGS) is a now-closed nuclear power plant located on the coast of Southern California, near the border of Orange and San Diego Counties. It is owned by Southern California Edison (SCE). The plant operated three pressurized water reactors (PWRs) capable of generating up to 2,200 megawatts of electricity. However, the plant was plagued by bad technical decisions, operational mishaps and safety concerns during its lifetime. This brief historical background on San Onofre illustrates why the plant shut down and remaining safety concerns since the site became a defacto nuclear waste dump.

One of the most significant safety problems at SONGS involved the plant's steam generators. In 2010 and 2011, SCE redesigned steam generators manufactured by Mitsubishi Heavy Industries and replaced them as part of a $670 million upgrade. SCE failed to disclose this to the public and to the NRC. Due to SCE's bad design, the faulty steam generators began to show signs of rapid wear and tear, when a radiation leak into the environment occurred in one of the reactors in January 2012. In response to the steam generator problems, SCE applied to the NRC for an amendment with a plan to restart reactor 3 at 70% reduced power. However, the NRC found that SCE had not provided sufficient evidence to support the safety of the restart plan, and ultimately denied the request.

The new steam generators were supposed to last 40-60 years. However, those installed in Unit 2 lasted two years while Unit 3 steam generators lasted only 11 months. SCE bought new turbines, necessitating a separate line-item cost, funded by the ratepayers via California Public Utility Commission processes. All in all, the steam generator debacle was a $billion boondoggle charged to the public, putting inhabitants' lives in Southern California at considerable risk. An NRC investigation revealed that the new steam generators were flawed and had not undergone adequate testing. However, this same investigation revealed that the NRC, by not requiring a license amendment nor conducting thorough inspections of the new steam generators, was deficient, too. (See NRC data on San Onofre Steam Generator Problems.)

The plant remained offline until SCE announced in June of 2013 that it would permanently retire both reactors.

The lack of transparency and disclosure by both SCE and the NRC regarding the safety problems at the San Onofre Nuclear plant has been widely criticized. See NRC safety allegation statistics, illustrating San Onofre as having the worst safety record in the U.S.

The San Onofre case highlights the importance of transparency and public disclosure in ensuring nuclear safety. It also underscores the need for rigorous review and oversight by outside, community-vetted independent experts, not funded by the industry or managing utilities. Public debate on safety concerns and inherent risks to nuclear facility communities is paramount to prevent technical problems and operational mishaps from escalating into serious

safety risks. Questions remain about the adequacy of SCE's safety procedures and its transparency with the public and regulators.

More recently, experts, engaged citizens and environmental groups have raised serious concerns about the safety of 3.6 million pounds of high-level nuclear waste stranded at San Onofre, 108 feet from the Pacific Ocean at sea level in thin-walled canisters designed for temporary storage. Not only have 73 Holtec manufactured canisters been scratched and gouged due to Southern California Edison's choice of faulty loading apparatus, all 123 canisters onsite remain vulnerable to corrosion from the wet, salty marine environment. The major concern with the marine environment plaguing San Onofre is Chloride Stress Corrosion Cracking of the 5/8 inch canister walls.

The San Onofre nuclear waste dump is situated between three major earthquake faults, rendering the site prone to tsunamis. Tsunamis of 300+ feet are documented to have devastated the San Onofre nuclear site and surrounding area in prior centuries. As climate change exhibits rising seas, more extreme weather events and bluff degradation, San Onofre has no onsite technology or equipment to prevent an emergency radiological release from breach of containment. Currently, the only two states home to the NRC's proposed Consolidated Interim Storage Facilities are Texas and New Mexico. Both states have banned receiving the nation's nuclear waste by way of legislation. Safety advocates note that neither the NRC, nor state regulators, nor SCE have provided risk assessments illustrating the safety of the current temporary canisters and their precarious configuration in the case of flooding/tsunami.

Nuclear experts contend that instead of transporting these vulnerable canisters on crumbling infrastructure (such as the failed train tracks going north of San Onofre, in San Clemente), the immediate solution lies first and foremost, in rendering the stranded waste at San Onofre to be stored as safely as possible. To that end, the waste must be repackaged into thick-walled transportable storage casks designed to be maintainable and prevent radioactive release from the ravages of climate change, rising seas, earthquakes, tsunami and other threats. To repackage the waste, the construction of an onsite dry transfer facility otherwise known as a hot cell is paramount to protecting the surrounding 8 million inhabitants within a 50 mile radius of San Onofre. (See the US Nuclear Waste Technical Review Board's comment on US spent fuel containment and recommendations for thick walled casks.)

At the present time, there is no plan for a hot cell onsite at San Onofre, nor is there a 'Plan B' in the case of a breach of containment caused by environmental disaster or other credible threat.