

San Onofre Incidents, Accidents, and News

2001-current (May, 2005; vers. 5d)

Below is a list I have compiled of problems that have occurred at San Onofre over the past few years, with some related data. Despite anything some ivory-tower dreamer might claim, or anything some pro-nuker who has made a living off of other people's misery might say, nuclear power IS a crime against humanity -- nothing less.

The spent fuel at San Onofre is pushing -- or perhaps has already passed -- 4,000,000 pounds. One gram of that would be enough for a dandy "dirty bomb". Around the country, there are 80,000 tons of used reactors cores, with NO PLACE TO PUT THEM. Yucca Mountain is a boondoggle, sharply opposed by people in Nevada and along the transportation routes. This high level radioactive waste is EXTREMELY deadly, can catch fire spontaneously, and is kept OUTSIDE the containment domes at each reactor. If there is an accident, act of nature, or terrorist attack, it will cost society trillions of dollars and tens of thousands, if not hundreds of thousands, of lives.

Every part of San Onofre is aging rapidly. There is no reason to believe SCE's estimate that the steam generator upgrade will save \$1 billion dollars for their customers. I'm sure there are enormous accounting tricks to come up with any such figure and it is utter garbage. They won't show us the figures, of course, just their summation. In reality, SCE simply wants to keep the nuclear facility open at ANY cost, in the expectation that future generations of nuclear reactors will be more profitable for them -- in other words, to simply keep the SITE LICENSES GOING because Geo. Bush & Company has promised BILLIONS AND BILLIONS to restart America's nuclear program -- and SCE wants a BIG piece of that pie!

Every day we keep the facility open and refuse to switch to renewable energy solutions we are incurring an additional debt to society which future generations will curse us for. Steam generator leaks send poisonous "primary coolant" at 2200 PSI into the secondary coolant loop which is at a much lower pressure (about 900 PSI). From there, the radiation is released in dribs and drabs directly into the environment, as that coolant loop's chemical broth is changed over time. So this isn't just a matter of money or politics -- nuclear power releases deadly radiation all day, every day.

**Russell Hoffman
Concerned Citizen
Carlsbad, CA**

SCE is the second-largest investor-owned electric utility, a subsidiary of Edison International.

According to the IAEA, the "Annual Time On Line" for Unit 2 was:

2000: 89%
2001: 97.47%
2002: 86.96%
2003: 98.98%
2004: 82.68%

Since beginning operation in **1982**, Unit 2 has had 7 years with below **70%** ATOL (through **2004**, and not including **1982**), and 2 more years with identical **70.74%** ATOLs.

The ATOL for Unit 3 during the same period was:

2000: 100%
2001: 59.02%
2002: 98.84%
2003: 88.37%
2004: 72.22%

Since beginning operation in **1983**, Unit 3 has had three years below **60%** ATOL (including **1984** and **1985**, the first two years of what was supposed to be full operation), **4** below **70%**, and **10** years below **80%**.

February 3rd, 2001:

Just **12 hours** after going back "into service" after repairs, Unit 3 was shut down because of "a fire in an electrical switching room." A 20-year-old circuit breaker "failed to close, creating a 4000-volt arc and fire that cut power to coolant control systems, drowned emergency switching valves and shut down emergency oil pumps, destroying the [turbine] shaft. Currently, 150 identical breakers remain in service at the plant."

Here's the lead paragraph from an "early" SD U-T report. At this point one assumes they hadn't yet realized the turbine shaft was bent, so their estimate of the repair time is wildly optimistic:

February 6th, 2001:

"A small fire last weekend that triggered the shutdown of one of two reactors at the nuclear power plant in San Onofre will keep the reactor shut down for several weeks, a plant spokesman said."

This was no "small fire" and required professional help from the San Clemente Fire Department to put out (there was **an argument** about how to put it out, and the SCFD finally won).

There's a special name for a turbine shaft that runs off it's clamps and bearings and whatnot that's holding it, and gallops across the land, sort of like a steamroller gone mad. That almost happened at San Onofre. I believe one of the turbines would roll towards the control room area, and the other would head towards the puny little tsunami wall. but I'm not sure which turns which way.

May 30th, 2001:

Ray Golden, spokesperson for San Onofre Nuclear *WASTE* Generating Station, accuses the opposition of being "completely misinformed and they don't understand the laws of physics." That very day, San Onofre drops an **80,000 lb** load (a crane) when a strap breaks. This leads to a reported **\$5,000,000** expense in lift training, strap replacement, etc. etc.. The same month the crane incident is reported (**June, 2001**), the EPA approves a power up-rate for San Onofre Units 2 and 3.

June 6th, 2001:

Workers overfill a **300 gallon** steel bin with **hydrazine**, a toxic chemical used to purify water in the plant's cooling systems, spilling about **20 gallons** (SD U-T).

June 26th, 2001:

Flames and smoke shoot suddenly skyward, pieces of silvery material were fluttering through the air and drifting toward the freeway. Glass falls on the nearby railroad tracks and on the freeway. When the fireball occurred, traffic began speeding up. "Everybody sort of saw it and thought, 'Oh my God, have we just been irradiated or what?' " (SD U-T)

In fact, the explosion was a transformer in the switchyard, which is also old and poorly maintained, just like the rest of the plant. it was one of **54** similar "potential transformers" which "step down" the voltage to 115 for "sampling." Electricity normally goes out the transmission lines which cross I-5 (and thus are targets for terrorists!) at **238,000 volts**.

In **1994** the same thing happened. "Plant workers discovered that corrosion caused by ocean air rusted the transformer's carbon-steel casing, allowing water to enter and contaminate the insulation oil." After the **1994** incident, inspections led to 4 transformers being replaced, and 3 being repaired.

September 11th, 2001:

San Onofre and the nation's **101** other nuclear power plants are NOT shut down during the attack that day, despite planes on the loose being smashed into multiple buildings.

September 26th, 2001:

On the front page of the NC Times, Ray Golden, spokesperson for San Onofre Nuclear (Waste) Generating Station, says he, "had always been taught that we were designed specifically for large plane crashes...That was incorrect." In another paper, he is reported to have said, "The plant was never designed for the impact from a commercial airplane."

September 26th, 2001:

Breck Henderson of the NRC is quoted saying activists aren't facing reality. He claims the plants are safe against tsunamis, earthquakes, tornados and "other natural or man-made disasters" (NC Times).

Letter to NC Times following shutdown **October 2001** "for repairs:"

October 13th, 2001

Subject: San Onofre nuclear reactor, Unit II, shut down for approx. 20 days for repairs; x-rays should be done for circular cracks in the reactor vessel

To The Editor:

Yesterday it was reported that San Onofre Nuclear (Waste) Generating Station's Unit II reactor has been shut down for repairs lasting about three weeks.

Last August, San Onofre's operators, Southern California Edison, refused to shut their two operational reactors down in order to do x-rays of their reactor vessels for circular cracks around the approximately 100 nozzles which enter each vessel, choosing to wait, instead, until the regular repair schedule dictated a shutdown. Circular cracks have been identified as a potentially catastrophic, inherent design flaw in Pressurized Water Reactors. The problem has been found in French and Japanese PWRs, and last spring, in PWRs in two out of three reactors on the Oconee (South Carolina) generating station.

San Onofre's reactors are about 20% larger than the Oconee reactors (more heat, more liquid, more vibration, etc.).

I have previously described the circular cracking problem in detail in several essays and letters to the editor which I posted online here:

<http://www.animatedsoftware.com/environm/onofre/nct2001h.htm>

Now that the reactor is shut anyway, is San Onofre doing the x-rays? My guess is no, because I believe if they were, it would have been reported.

The decision not to shut the reactors down in August for an x-ray inspection was yet another flagrant violation of the spirit of safety which they claim to have at San Onofre. To not shut them down following the September 11th attacks is even crazier.

But in any event, if they don't x-ray the welds on the Unit II reactor vessel while the reactor is shut down right now anyway, it's definitely nothing less than criminal negligence.

Sincerely,

Russell D. Hoffman
Concerned Citizen
Carlsbad, CA

October 24th, 2001:

"...mock attack teams staged four assaults on the plant, and three were repelled. During the final drill, the attackers were closing in on a target when the exercise was suddenly called off. It is far from certain that plant managers have taken the necessary steps to ensure that a real attack would be less successful" (SD U-T).

Christmas Day, 2001:

A Cessna 172 crashes into the ocean just south of San Onofre Nuclear Generating Station. First reported to have crashed 3 miles south of the reactor and 1/2 mile out to sea, in fact it was probably less than 1/4 mile away.

January 8th, 2002:

San Juan Capistrano (CA) police arrest a man who had threatened to shoot up the San Onofre Nuclear Power Station and his former coworkers at the plant.

He had an arsenal of almost **300 weapons**, including **illegal assault rifles**, **5,000 rounds of ammunition**, **an antitank rocket launcher**, **four live hand grenades**, **tear gas**, **survivalist material**, etc. etc..

February 27th, 2002:

Unit 3 goes offline after a backup connection trips. One of the main electrical connections had been out of service for a week for "maintenance and repairs to key equipment" when the backup tripped. To prevent an uncontrollable blackout in the San Diego area, power was cut to over **200,000 SDG&E customers**.

June 21st – 27th, 2002:

"Five families of San Onofre workers who have died of rare forms of cancer have sued SCE for failing to disclose radiation leaks at the plant." About this time, the U.S. Government begins distributing Iodine (KI) pills within a pitiful **10-mile** radius around the plant (OC Weekly).

July 4th, 2002:

Unit 2 is returned to service, concluding a 43-day "routine" shutdown for "refueling and maintenance." Operators had intended to start several days earlier, but a malfunction of steam bypass valves automatically shut the reactor down shortly after operators had started it. During the outage, workers repaired **170 tubes** and plugged an additional **150** - "fewer than they expected." Edison had hired **1,400 contract workers** to supplement the **1,800 regular workers** at the plant (SD U-T).

September 27th, 2002:

It's reported in World Net Daily that an airplane flying a standard route (known as "Victor 23") can fly **DIRECTLY** over San Onofre at about **17,000 feet**. Jets on "V23" could descend at well over **5,000 feet per minute** in a "quick but normal descent" -- much faster if deliberately sent into a nosedive. Every jet departing San Diego on V23 is, in fact, heading for San Onofre.

V25 also runs very close, about 15 miles offshore. A jet traveling at **600 miles per hour** covers **15 miles** in less than **two minutes**.

February, 2003:

Plans to haul away Unit 1's **900-ton** reactor pressure vessel ("as heavy as two fully loaded Boeing 747s," as one article put it) get so close that a **192-wheel tractor-trailer** is expected to haul it away to a barge, which would then transport the reactor about 20,000 miles, including around Cape Horn, to Barnwell County, South Carolina. Cape Horn, the most deadly passage on Earth, is referred to as "the tip of South America" in one AP report, rather than being named explicitly. Rail shipment and the Panama Canal had both already been eliminated, the former because it would "disrupt regular shipping" and the latter because PC officials found it PC to "not accept" the cargo. They apparently have a "150 ton limit on radioactive cargo," perhaps not

understanding that it's Curie content that matters, not raw weight. In this case, both (the utility says it's equal to one dental x-ray per hour if you are right next to it). Travelling the long way around the globe has still not been ruled out as yet another alternative, but leaving it sitting on the beach seems to be the actual plan.

May, 2003:

Don May, the president of California Earth Corp, points out that there is a major fault line about two miles away from San Onofre that is "overdue for an earthquake." Mark Massara of the Sierra Club's coastal program describes San Onofre as: "an unequivocal environmental and economic disaster with no redeeming features whatsoever." It's reported in local media that several former employees of the plant who have developed cancer have sued plant owner Southern California Edison and its suppliers (such as Bechtel) for exposure to radiation.

September 26th - October 2nd, 2003:

San Onofre Nuclear Generating Station ranked **THIRD** among the U.S. facilities "most likely to suffer a meltdown" according to the Union of Concerned Scientists. The risk is in part due to design defects in the sump pump system, according to the group. There is potential for debris to clog the screen on the containment-vessel sump. Such a clog could prevent water from being pumped through the reactor core, causing the reactor's fuel rods to overheat and melt down. On **August 1st, 2003** the utility promised to have workers trained by **November 30th, 2003** to clean the drains. Scott Burnell, public affairs officer for the Nuclear Regulatory Commission (NRC), describes the containment sump-pump issue "a credible one" (OC Weekly).

December 31st, 2003:

SCE's favorable Incremental Cost Incentive Pricing (ICIP) structure ends (a "generation incentive mechanism").

January 29th, 2004:

Reactor (Unit ?) leaks **144 gallons** per day for "two or three days;" leak described as "tiny" by the reactor spokesperson.

The leak was in a **2-inch-diameter** steel pipe that was part of a system of pipes that "purifies and recycles" water. The "pinhole" leak was to have been repaired and the reactor brought on line that weekend, and fully operational by the next week.

The reactor spokesperson said the reactor was shut down at 8 p.m. Saturday, two or three days after operators first saw the leak.

Note that 3 days X 144 gallons per day = almost **500 gallons** of liquid! .That's no small leak!

March 6th, 2004:

According to an NRC report a month later, during the Unit 2 refueling outage, when operators were about to reload the core, the "B" train of the Post Accident Clean Up Filter System (which is meant to filter radioactive particles and gasses from the spent fuel pool during accidents, and helps control temperatures normally) wasn't functional due to "personal error" because the operators didn't review proper operating instructions.

March 31st, 2004:

NC Times: "Two failed water temperature sensors have forced operators to shut down San Onofre's Unit 2 reactor before it could reach full power after a 45-day refueling and maintenance outage, a plant spokesman said Wednesday."

Some facts about San Onofre from that article:

Each steam generator is **66 feet** tall, **25 feet** in diameter, weighs **750 tons** and contains **9,350 metal tubes**. All day every day, **560-degree** reactor coolant is pumped through the tubes under **2,250** pounds of pressure per square inch. San Onofre's steam generators were designed to last **40 years**. However, inspectors began detecting cracks in the thin coolant tubes only **10 years** after units 2 and 3 came into service in **1983** and **1984**.

Edison had to plug **1,899** of Unit 2's tubes and another **534** have been repaired by inserting protective metal sleeves. All told, **10%** of Unit 2's steam generator tubes are **out of service**.

Unit 3 has a total of **1,227** ---- or **6.5%** ---- of its tubes plugged.

April 3rd, 2004:

"Incident" at SONWGS Unit 2 (see below).

Monday, April 12th, 2004

A short circuit at the San Onofre Nuclear Generation station Saturday shut down the plant's Unit 2 reactor just as it was about to reach full power after a "routine 45-day refueling outage" (NC Times).

Routine? 45 days? Not either!

"Saturday's emergency shutdown was the second since Edison finished a biannual refueling process that was supposed to last only 45 days. The refueling outage was scheduled to last until Feb. 25, but operators detected two faulty coolant temperature sensors that forced a shutdown" (NC Times).

November 19th, 2004:

From an NC Times report **Nov. 23rd, 2004**: An aluminum plate called a "deionization plate" fell off due to unexpected amounts of vibration from the nearby turbine shaft (which rotates at **1,800 rpm**), caused Unit 2 to shut down at 8:07 PM Friday (**Nov. 19th, 2004**).

Unit 2 was running "without incident" since **April 4th, 2004**. Several of these aluminum plate had just been installed during the refueling outage.

Unit 3 was out of service at the time for refueling, so there was ZERO power being generated at the plant during the outage.

December 2nd, 2004:

At 2200 PSI, there is no such thing as a "tiny" crack: But here's a typical report, anyway:

Unit 3 to remain shut down through mid-January after tiny cracks are discovered in two of its water heaters.

Unit 3 was off line since **Sept. 26th, 2004** for a 55-day refueling when microscopic cracks were found in water heater sleeves attached to the pressurizers. The **30 heaters** "regulate the nuclear reactor's coolant to ensure the water inside the reactor's coil does not boil."

December 16th, 2004:

After this author and the Chief Executive Officer of Southern California Edison, Al Fohrer, went "toe-to-toe" in a pair of *Viewpoints* published in the North County Times **Sunday, December 12th, 2004**, a memo is sent by NUCLEAR SECURITY – SONGS to all employees of the plant (usually about **1,500 people**) accusing this author of "inaccurate and misleading remarks." Having obtained a copy, I posted it online with a detailed response to *each point* of the memo. Longer versions of Hoffman's original *Viewpoint* were also published locally by The Coast News (as a letter to the editor), and internationally by NIRS/WISE.

December 26th, 2004:

Tsunami devastates Indonesia, India, Sri Lanka, Thailand, Sumatra and other countries. In some areas, waves more than **60 feet** high are reported to crash into the shores. **300,000 people** killed.

San Onofre claims their **30 foot** (possibly **35 foot**) sea wall is adequate to contain all possible tsunamis. Tsunamis caused by-underwater earth slides have reached **1,800 feet!**

December 29th, 2004:

Tornado touches down **50 miles** from San Onofre. The plant is not properly protected against tornado strikes. Numerous vital portions of the plant are vulnerable to this and asteroid strikes as well, not to mention terrorists with Rocket-Propelled Grenades (RPGs).

February 3rd, 2005:

Unit 2 shut itself off for another electrical problem -- this time a "digital fault recorder" tripped. SCE could not decide if the **\$50,000 device** was working properly or not, so they replaced it. There are three such devices on site. (SD U-T)

February 7th, 2005:

According to AP, "The San Onofre Nuclear Generating Station could be forced to shut down as soon as 2009 unless regulators decide that energy customers should pay for \$829 million in repairs."

February 16th, 2005:

"For the third time in three months, a reactor at the San Onofre Nuclear Generating Station has shut down." (Unit 2)

This shutdown was initiated due to a "faulty water valve." The valve was **18 inches** in diameter and original equipment (**1982**). It fed "non-radiated" water to various pumps for cooling. There are many valves like it (and just as old) at SONWGS. In **July, 1997** another valve's failure to open properly during "startup testing" caused Unit 3 to remain shut down at least 5 days longer than originally planned. The "identical valve" in Unit 2 was tested and determined to ALSO need "repairs." My guess is that "repair" really means "replace."

March 10th, 2005:

Environmentalists object to the proposed renewal of a state permit that allows Southern California Edison to use **2.4 billion** gallons of seawater each day to cool the San Onofre nuclear power plant. (SD U-T)

From an ex-SONWGS worker's email to me:

Another event that could have been prevented was reported to the NRC by LER (I was the author) when a SONGS technician closed a breaker on an emergency bus, causing a direct ground through the switch yard. The ground caused the breaker supplying power to the emergency bus to open and resulted in a loss of power to the shutdown cooling pumps. The emergency diesel generators started but could not power the bus because the control power to the inadvertently closed breaker had been removed. Therefore, [the] breaker would not open (clearing the bus) during the emergency diesel sequencing. The reactor, shut down for refueling, was without cooling for a few minutes before the operators could align another pump. This event occurred because the technician did not fully understand the operation of the break he was sent to repair. Present at the time were the System Engineer and the Operations Supervisor and several other "lookers." I thought that it was significant that none of the people present realized the consequences of the technician's plans. Nor did any of them halt the work because they were not sure what would happen. Also, it was unrecognized by those planning the work that the temporary ground in the switch yard would prevent the emergency diesel generators from performing their intended safety function.

In another email to me, the same ex-San Onofre employee (who still believes in the dream of nuclear power, by the way), talking about a different LER (Licensee Event Report), stated:

"I believe the report contained statements that were designed to deliberately deceive the NRC. Two days after I raised that concern with the NSC [Nuclear Safety Concerns] office, I was reassigned to other projects . . . The work environment became so hostile, I retired in August 2003."

UNIT 1 was a failure, too:

And let's not let them forget about how things went with Unit 1, which was a losing proposition from DAY ONE and from which we now have enormous piles of deadly "spent fuel" radioactive reactor cores. Here's an actual quote from a scholarly report available online:

REACTORS;SEMIMETALS;SHUTDOWNS;THERMAL REACTORS;VAPOR
GENERATORS;WATER COOLED REACTORS;WATER MODERATED REACTORS
Description/Abstract: Few nuclear reactors have been shut down for periods on the order of several years - and then restarted. Those that have experienced this type of history are sources of a great deal of information concerning reactivity changes and in-core power redistributions due to nuclide decay. This paper discusses the core reactivity changes due to this nuclide decay and presents actual data illustrating the net effect of these changes on the critical boron concentration (CBC) rundown curve and the in-core power distribution at the San Onofre Nuclear Generating Station Unit 1 (SONGS-1).

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URLs for additional information by this author:

SHUT SAN ONOFRE!:

<http://www.animatedsoftware.com/environm/onofre/index.htm>

POISON FIRE USA:

An animated history of major U.S. nuclear activities, including at least:

1033 nuclear bomb blasts

21 subcritical tests

190 nuclear submarine launches

41 Boiling Water Reactors

83 Pressurized Water Reactors

28 Nuclear space launches

10 Nuclear Aircraft Carrier launches

9 Nuclear Cruiser launches

Numerous mines, processing facilities, waste dumps, etc:

www.animatedsoftware.com/poifu/poifu.swf

STOP CASSINI web site. NASA plans to launch approximately 135,000 Curies of Plutonium 238 in 2006 on board a space probe called NEW HORIZONS. STOP THEM!:

<http://www.animatedsoftware.com/cassini/index.htm>

NO NUKES IN SPACE (FLASH animation):

<http://www.animatedsoftware.com/mx/nasa/columbia/index.swf>

or try:

<http://www.animatedsoftware.com/mx/nasa/columbia/index.html>

Internet Glossary of Nuclear Terminology / "The Demon Hot Atom":

<http://www.animatedsoftware.com/hotwords/index.htm>

List of every nuclear power plant in America, with history, activist orgs, specs, etc.:

http://www.animatedsoftware.com/environm/no_nukes/nukelist.htm

List of ~300 books and videos about nuclear issues in my collection (donations welcome!):

http://www.animatedsoftware.com/environm/no_nukes/mybooks.htm

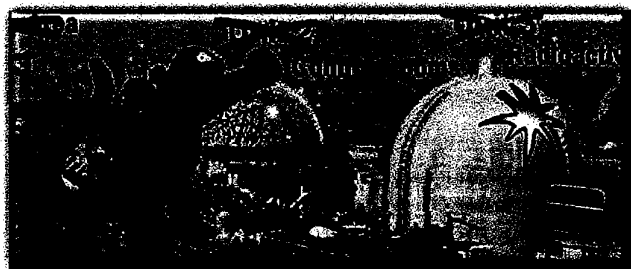
Learn about The Effects of Nuclear War here:

http://www.animatedsoftware.com/environm/no_nukes/tenw/nuke_war.htm

*Protecting California is EVERYONE's responsibility --
and it CAN be done!*

**The dangers discussed in
this document are very real.**

**But at least we are safe from
this threat:**



This document was written and prepared for the citizens of California by:

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www.animatedsoftware.com/environm/onofre/2005/ProtectingCalifornia/index.html

The author wishes to thank numerous technologies for making this document possible, and numerous people (who hopefully know who they are) for their aid in collecting and crosschecking the facts presented here. The author, however, assumes all responsibilities for errors. Please contact the author if you have any questions, suggestions, or corrections.

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Thank you!