## Joosten, Sandy

From:	Ace Hoffman <rhoffman@animatedsoftware.com></rhoffman@animatedsoftware.com>	
Sent:	Friday, August 01, 2014 1:23 AM	
Subject:	CPUC Releases Secret Report on San Onofre's steam generator	failure

Dear Readers,

Robert J. Budnitz is a fraud -- or at least, for what we (the ratepayer) paid (almost \$5,000 of a \$150,000 contract), we (and the CPUC) got exactly nothing. According to Budnitz's report, Budnitz successfully figured out that the new RSG design was different from the old one, and also different from Diablo Canyon's steam generator design. He therefore concluded the SanO design must have been flawed. Brilliant? I think not!

In fact, I wonder if Dr. Budnitz has learned anything about the futility of safely storing nuclear waste since he was on the science advisory board of the EPA on High Level Radioactive Waste Disposal in 1983-1984, i.e., 30+ years... Then he was on Yucca Mountain's team... then WIPP... and along the way, investigated Three Mile Island and many other nuclear fiascoes... as far as I can tell, Budnitz has accomplished nothing all his life, and everything he touches turns to... whatever the opposite of the Midas touch is. Spent fuel.

Robert J. Budnitz has been apologizing for the nuclear industry for decades. It's unlikely he would have changed his tune over the steam generator failures. Here's a few things SCE did wrong along the way. I don't know how many of them Budnitz would have identified even if he had been given a million dollars to investigate the steam generator failure at San Onofre:

1) Prior to the replacement, SCE appears to have intentionally chosen to run the reactors in such a way that they would produce extra steam (aka: an uprate) while at the same time, accelerate the wear so that the need to replace the steam generators would not fall at the same time as the relicensing hearings that were coming up around 2022-2024. Perhaps if they had cut back power, instead of increasing power, the old SGs would even have lasted another decade or two.

2) Prior to replacement, SCE intentionally included numerous additional repairs that needed to be done to continue to operate the plant. These repairs were removed from the "\$670 million dollar" figure that has been cited as the total cost of the repairs. In fact, the total expenses that accompanied the repair but were not properly assigned to the task totalled well over a billion dollars. My guess is that's been paid for by the ratepayers in other ways, but at any rate, it was spent needlessly. (CPUC had hired one of those fraud companies much like Budnitz (called the Aspen Group or something like that, I think) to produce a report showing that indeed the steam generator replacement project would be worthwhile for the citizens of California because it would save us money. The possibilities of ANY failure were literally completely ignored from any sort of financial perspective. It was ASSUMED the money would cause the reactors to operate for another 20, 30 or more years. Such an assumption was invalid for numerous reasons, of course, what happened being only one of them.

3) Prior to replacement, SCE (and the nuclear industry) made a big deal about the new alloy being more corrosion-resistant. But I'd be hard-pressed to find ONE instance where SCE admitted that it was 10% less heat-conductive and would therefor absolutely, without question, require numerous changes in design to get not just the same steam output, but in fact, they were hoping for (and sort of got) more steam, for their replacement turbine blades.

4) Prior to replacement, design changes were considered "like for like" even under the following conditions: Problem: An increase in the diameter of a pipe causes an increase in risk because more steam can escape into the containment building within the NRC-regulated time period. Solution: Increase the quality of the valves used to isolate that portion of the system so that the chance of that accident happening would be lower, thus the overall risk calculation would remain the same. I'm not saying such calculations are not valid engineering behavior. I'm just saying you need a permit, and it needs to be approved, because it's NOT "like-for-like" and more importantly, the CPUC knew this stuff was going on and let it happen. The CPUC, during the original SG replacement hearings, had every opportunity to figure out this replacement project had all sorts of fraud involved in it. No reasonable citizen paying attention wanted it to happen.

5) Prior to the accident, a more careful inspection of Unit 2's steam generators would have revealed extensive damage, if not Fluid Elastic Instability (i.e., coordinated tube-to-tube wear from whole rows of tubes swaying to and fro in the in-plane direction). Unit 3 could have been shut down in December, 2011 because the problems with Unit 2 were so severe, and the tube-to-tube wear could have been discovered. For a \$670 million dollar replacement project with 4 main parts, one would think the first chance to take a close look at those parts would have been taken. But it wasn't. That was negligent (as are many of these other things I've mentioned, if not all of them).

6) During the SG replacement project, SCE refused to do a "hot test" which might have shown the wear problem without even irradiating the new 1/3 of the reactor cores, that were replaced and used only 11 months and 22 months, respectively, in Units 3 and 2. Now, those reactor cores are the most dangerous and difficult to deal with, because they have so much U-235 in them and so few "poisons."

7) On that fateful day, 1/31/2012, had the leak leaked just a little differently, the utility would have kept running Unit 3 until a cascade of tube failures occurred (other adjacent tubes were 99% worn). They've been lauded for their "quick" response but in fact, they waited about 18 minutes to do anything after the radiation alarms went off, waiting to figure out how fast the leak was leaking. If it had been a little lower, it might have allowed them to simply keep operating with the leak -- until there were multiple-tube failures, which would be a beyond-design-basis accident.

8) After the accident, SCE had every opportunity to realize that Unit 2 was damaged beyond reasonable repair, that replacement SGs were not a reasonable option, and the plant was never going to operate again. They kept a lot of very expensive workers around for a long time for no reason. Economically, they should have realized the plant was a white elephant when the original steam generators started to fail -- if not sooner.

9) Throughout this time, SCE insisted that the spent fuel waste problem was solved by -- and I quote: "Yucca Mountain." It was never a good solution and every reasonable person who reviewed it, knew it. But more importantly, the Yucca Mountain team of scientists themselves were free to suggest any other better solution, if they could find one, except the same thing (geologic repository) in another location, because siting the damned thing appears to be just as impossible as doing it safely is. They could consider rocketing the waste into space (too risky, everyone knows that, and also too expensive). They could consider deep sea disposal (illegal by treaty, and even without that problem, the plans were so iffy no one could take them seriously (dropping huge weights from large ships in order to pierce holes deep into the bottom seabed muck, for instance)). There were no better solutions then and there aren't now, either (I'm not recommending Yucca Mountain, just pointing out it already was a last resort).

10) The CPUC's main duty now is for they themselves to learn from what has happened, and to use that knowledge to close Diablo Canyon. It's far more important than figuring out who was to blame for San Onofre's failures, though they certainly should see that through to the end, too. But the whole place was a hazard and a threat. If it hadn't been this, it could have been something else: Giant pipes carrying primary coolant were rusting out, one of them might have failed (that's even a design basis accident). Diesel backup generators were cross-wired improperly, and wouldn't start, and hadn't been tested, and on and on and on. Records were falsified and workers who complained about the hazards were intimidated and/or let go.

San Onofre Nuclear (Waste) Generating Station was an accident waiting to happen and so is Diablo Canyon, Indian Point, Palo Verde (which SCE owns 20% of) and all the others. Just another day in the nuclear industry.

Ace Hoffman Carlsbad, CA

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Ace Hoffman, computer programmer, author, The Code Killers: An Expose of the Nuclear Industry Free download: acehoffman.org Blog: acehoffman.blogspot.com YouTube: youtube.com/user/AceHoffman Phone: (760) 720-7261 Address: PO Box 1936, Carlsbad, CA 92018 Subscribe to my free newsletter today! Email: ace [at] acehoffman.org To unsubscribe: Send "Unsubscribe" in subject line.

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