

Rulemaking1CEm Resource

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Subject: FW: Nuclear waste: Get rid of it! But where? How? When? And who's gonna pay for it?

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-----Original Message-----

From: Ace Hoffman [mailto:rhoffman@animatedsoftware.com]

Sent: Tuesday, December 17, 2013 10:24 AM

Subject: Nuclear waste: Get rid of it! But where? How? When? And who's gonna pay for it?

December 17th, 2013

Dear Readers,

Hearings on the Nuclear Regulatory Commission's proposed Generic Environment Impact Statement (GEIS) for nuclear waste were held nationally over the past few months and attended by more than 1400 people. The comment period (for written comments) for "NRC NUREG-2157" ends December 20th.

In California, about 150 people attended a hearing in Carlsbad, and over 200 attended the San Luis Obispo meeting.

Tonight in San Clemente, citizens will ask their city council to request an extension of the comment period. Concerned citizens hope to be able to get additional requests from other local communities, to force the federal government to remove nuclear waste from the now-closed San Onofre Nuclear (Waste) Generating Station, or at least, to give us hardened on-site storage, which neither the current dry casks nor the spent fuel pools provide.

"Hardened" might mean underground, behind earthen berms, separated from each other, moved away from rail, ship, aerial and truck bomb access points, fewer assemblies in each cask, etc. etc.. These are standard anti-terrorism procedures which are NOT being done at our ISFSIs (Independent Spent Fuel Storage Installations, the current acronym for "semi-permanent nuclear waste dump and blight on the land.")

Yesterday Donna Gilmore and I were suddenly interviewed by Fox 5 San Diego about Southern California Edison's shipment of Unit II's original reactor pressure vessel head to Clive, Utah. It's a dome-shaped object approximately 14 feet across. Edison says it weighs 77 tons, and says that standing six feet away from it for an hour will give you about as much radiation as watching television for about a year. Do they mean modern OLED screens or old tube TVs? Do they mean the most modern types of dental x-ray equipment when they say it's equal to a dental x-ray, or do they mean older machines that give out nearly an order of magnitude more radiation? Or even older ones that were even worse?

Here's a link to the report based on the on-site interview with Donna Gilmore:

<http://fox5sandiego.com/2013/12/16/san-onofre-transport-nuclear-waste-out-of-state/#ixzz2nh3ycGur>

This report by 760KFMB gives additional information:

<http://www.760kfmb.com/story/24237142/77-ton-nuclear-component-on-the-road-from-san-onofre-to-utah>

Here's a link to my own animation of San Onofre's reactors, which shows the exact part they are moving (screen two (the two triangles at the top advance the screens)). Notice that the RPVH is a pretty small piece of the entire system:

<http://www.acehoffman.blogspot.com/2013/02/new-animation-shows-what-could-happen.html>

The RPVH is highly radioactive, although presumably it will be shipped facing down, so that most of the gamma emissions will be shielded by 8 inches of steel (with a lot of holes, which aim straight up, but presumably have been plugged with something). Underneath perhaps they will have a heavy metal plate several inches thick bolted to the bottom, and any gamma emissions that get through it will, presumably, mainly go into the ground beneath the vehicle as it travels down the road. Few will get through the eight inches of steel, few will get through the bottom plate and then bounce off the ground into where other vehicles with people might be, and so it is called "low level waste." The inner liner of the RPVH is made of the finest stainless steel available -- and millions of kid's braces could have been made with that steel, if it were not irradiated. Some of it might find its way into kid's braces some day by accident anyway.

Edison sent out a press release about moving the RPHV and assured the public it was safe. Certainly, it won't catch fire and spread radiation, thus contaminating the local population and the air, water and land. The spent fuel at San Onofre, that is NOT being removed, can certainly do that.

Each time Edison does a transfer to dry casks, that operation is about a million times more dangerous than this RPHV transfer, but there are no announcements warning about those operations. It just goes on daily, about one new cask per month, until the job is done and Edison can walk away, leaving southern Californians with a pile of waste which can destroy our paradise at any moment, for who-knows-how-many-generations.

Edison has NO plans for removing the nuclear waste, and neither does the NRC. Outrageous!

I have attended nearly every Nuclear Regulatory Commission hearing on San Onofre for nearly 20 years. For more than a decade we were told by Southern California Edison (with no objection from the NRC) that the waste problem was essentially solved because the waste would go to Yucca Mountain. But Yucca Mountain is an imperfect solution: Before the federal government stopped the project (or at least slowed it to a crawl), one of the last problems they could not be sure they had any good science about was "drip shields" which were to protect the fuel rods -- that were to be permanently entombed at the site -- from water dripping from above. The shape, material, thickness, and expected durability of the shields were all undecided, but my recollection is that the last design was an upside-down flattened out V shape made out of 4-inch thick titanium. And no one knew how long it would last, but 300 years was an outside estimate, or at least the hope. After that, good luck.

What the transport vehicles would look like, and whether they would use rail or roads or both, was all undecided when the project was stopped, despite 10s of billions of dollars having been spent.

Geologic storage, if we choose that route, will not be easy and will not be risk free. And we're nowhere near it at this point.

Instead, we've apparently chosen to practically randomly assign approximately 75 sites around the country to be nearly-permanent or virtually-permanent (100s of years, which only George Orwell and the NRC can call temporary) nuclear waste dumps. SanO is one of them.

I say "randomly" because the sites were never picked because they would be waste dumps at all, let alone appropriate ones: When the reactors were built, the public was told the waste would be removed within a few MONTHS after it is discharged from the reactor! Instead, virtually all of SanO's used reactor cores remain on site. (It should be noted that the used fuel is actually much easier to transport if its temperature is above about 800 degrees Fahrenheit, because the zirconium cladding is much more ductile above that temperature. However, when the fuel is naturally that hot thermally, the damage if an accident were to occur would be much greater, because the fuel is also radioactively much "hotter" a few months after discharge than it is, say, 20 years or 50 years afterwards.)

Is San Onofre a good location for a nuclear waste dump, permanent or not? Hardly! Earthquakes, tsunamis, sabotage, large surrounding population, poor egress, no radiation emergency supplies to speak of anywhere in the nearby counties to handle a spent fuel fire resulting from an airplane impact... and it's upwind from the entire United States, so everyone in the country will be contaminated if there is an accident at SanO.

Frankly, I can't think of many WORSE places to store nuclear waste than most of the places we are currently storing it nationally: Invariably near population centers, because that's where the energy was/is produced.

Diablo Canyon, 250 miles to the north of SanO, is even more dangerous than SanO: Its freshest spent fuel is dozens of times more radioactive than anything at San Onofre -- now that SanO has been shut for nearly 2 years. And the fuel that's still inside DC's reactors is thousands of times more radioactive than that!

At the very least, all the used reactor cores (aka "spent" or "used" fuel) in California should be consolidated into ONE protected location, the best one possible, wherever we decide that is -- with DC shut down, of course, so no more waste is being produced here. There is reason for California to wait for a national repository -- it could be centuries away. The fuel should be retrievable in case a permanent national repository does become available. Spent fuel should NOT be reprocessed. Reprocessing takes an enormous amount of energy and creates additional radioactive and chemical waste streams (no matter how many nuclear proponents claim otherwise).

Ace Hoffman
Carlsbad, CA

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A testimony by the wife of a former (27 years at the plant) San Onofre Nuclear Reactor Operator:
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This is a compelling view of the problems at San Onofre:

http://www.animatedsoftware.com/environment/no_nukes/2013/Flow-Accelerated-Corrosion.pdf

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