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Consideration of safe storage of nuclear waste in California at April 27 Meeting

Additional submitted attachment is included below.

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Subject: Consideration of safe storage of nuclear waste in California at your April 27 meeting

To the California Energy Commission:

I wish to enter comments with regard to the upcoming meeting on April 27, 2015 which will consider issues related to the storage and transfer of nuclear waste in California. This is one of the most important issues facing the state. It is also one of the most neglected issues. I hope your deliberations will start a process in motion for considering alternatives that California might initiate for the storage of nuclear waste.

The recent plan of the NRC to require storage of almost 2,000 tons of uranium and plutonium on site for the indefinite future boggles the mind. This has the radioactive equivalence of about 20,000 Hiroshima bombs. Deliberations should start with the conclusion that storing this amount of deadly material in the middle of two metropolitan areas for the indefinite future is unacceptable. Another given is that the current plan of hoping for a permanent national solution is also unacceptable. All thoughts should be directed at identifying and initiating a process by which nuclear waste in California can be moved to an interim site which may have to be located somewhere in the state.

A number of state and federal agencies (as well as numerous politicians) have to get on board with a better plan. I congratulated the CEC for being the first even to consider what would be required to move this waste out of metropolitan areas and into more safe and secure remote areas. There is no easy solution, but clearly the worst possible choice is for the State of California to continue doing nothing and to wait for a catastrophic accident.

The CEC has the authority to initiate discussions on this issue. The State of California has an obligation to its citizens to take action. No progress is being made at the federal level, and the chances of national permanent repository are close to zero probably for the rest of this century. The CEC and the state need to exercise leadership, and perhaps the rest of the country will follow suit. Below are some arguments in favor of moving this waste as soon as possible.

1. On August 26, 2014, the NRC issued a ruling that changed the name of nuclear waste storage from “waste confidence” to “continued storage of spent nuclear fuel.” They issued a GEIS report (Generic Environmental Impact Statement) which concludes that highly-radioactive nuclear waste will be stored on site at nuclear power plants rather than moved to a central permanent repository. This name change is not a solution but rther a recipe for disaster. This waste will be permitted to be stored in dry casks for 60 years plus hundreds of years after that if necessary. In short, the nation has no plan other than indefinite storage on site at nuclear power plants. Doing nothing is not a plan.

2. This “plan” is reckless, irresponsible, and completely unacceptable. All current casks are designed only for temporary storage (they are licensed for only 20 years), not long term storage. Nuclear power plants also were never designed to be waste dumps. The NRC plan effectively makes every NPP (nuclear power plant) a nuclear waste dump for the indefinite

future. If the public had known that building a NPP meant living with nuclear waste indefinitely, they never would have allowed any plant to be built. Communities across the country have been deceived and their very existence threatened by the failure of government and the failure of the nuclear industry to deal with the problem of highly-radioactive nuclear waste. Some of this waste will not decay to safe levels for hundreds of thousands of years and for some radionuclides it will be millions of years.

3. The nation has only two deep underground repositories and both have failed. Yucca Mountain failed for three reasons: 1. The people of Nevada were adamantly opposed; 2. Yucca Mt. is too small to handle all the nuclear waste; 3. Scientists concluded that there is no technology to seal the waste from underground water penetration. WIPP (Waste Isolation Pilot Plant in Carlsbad, NM) failed because of fires, explosions, and radiation leaks in Feb. of 2014. Waiting for another repository is not an option. This is an issue which must be dealt with, even if the resolution is only a safer interim site. It cannot wait for a permanent solution for the entire country that pleases the nuclear industry, federal agencies, state agencies, both houses of Congress, the President, and the DOD, NRC, DOE, DOT, DEP, etc. The federal government has failed us, the nuclear industry has failed us. Will state government fail as well?

4. The President's Blue Ribbon Commission recommended that no nuclear waste be forced on a community against its will. The people of Southern California strongly oppose the storage of nuclear waste in populated areas. It cannot be allowed to be forced upon the residents of Southern California simply because of an NRC ruling. It must be transported to an isolated location away from population centers. Storing it in the San Diego-Orange County-Los Angeles area is the worst possible location.

5. San Onofre is located in an earthquake fault zone and a tsunami inundation zone. Earthquake dangers have recently been revised upward. The waste must be stored in a more seismically safe area and one free from any possibility of a tsunami.

6. San Onofre is an extremely attractive target for terrorists because: 1. There is easy public access from the sea, the beach, from Old Pacific Highway, from I-5, and from the numerous parking and camping areas close to the plant. 2. San Onofre has no defenses against missiles, rockets, drones, attacks from the sea, and weapons using high explosives. (The NRC requires that it defend itself only against a few armed individuals.) Studies have shown that a medium-sized truck bomb on a public road outside the perimeter of the plant could cause significant damage. The truck bomb barriers at San Onofre are too close to the plant to be effective (mainly because its fuel storage is only a few hundred feet from public roads.) 4. A radiation plume could force the evacuation of Camp Pendleton along with the contamination of all its facilities and equipment thus rendering the camp useless. 3. Prevailing winds would blow any radioactive plume over the heavily populated areas of San Diego, Orange, Los Angeles, and Riverside Counties and beyond. The radioactive material is already there, thousands of tons. Terrorists would only have to use enough force to cause leaks in casks or fuel pools, or enough force to disable any of the complex and vulnerable network of equipment necessary to keep cooling water flowing in the pools. In short, all of Southern California is at risk as long as the waste is stored there. It would be better to store this waste in a secure and remote area off limits to the public and of little interest to terrorists. The National Academy of Sciences has studied the danger of terrorist attacks on fuel pools and dry cask storage (http://www.nap.edu/openbook.php?record_id=11263&page=R9). They conclude that NPP are indeed vulnerable to terrorist attacks.

7. There is considerable concern about cancer risks to the public (especially among women and children). The National Academy of Sciences has an ongoing epidemiological study in which San Onofre was picked as the only NPP west of the Mississippi River to be investigated. They will study the health records of those living within 31 miles of San Onofre. San Onofre has been emitting dozens of low-level radionuclides into the air and ocean for almost a half-century. The decommissioning plan calls for this to continue for many years. If research shows that living near a NPP is a public health hazard (accident or no accident), all fuel should be removed well outside any populated area. Please read: Cancer Risks Among Populations Living Near Nuclear Facilities http://www.nap.edu/catalog/18968/analysis-of-cancer-risks-in-populations-near-nuclear-facilities-phase

8. The entire nuclear industry was always based on the plan of moving all waste away from where it was generated. This is no surprise: it has always been the plan. This is no time to start saying that it can't be moved because the safe movement of nuclear waste was decided many decades ago. All storage casks are transportable either by rail or by truck. In the 1970s, radioactive waste from San Onofre Unit 1 was moved to Moline, Illinois. In 1998, nuclear fuel from South Korea was moved around the state with little opposition or notice. The military moves nuclear waste and weapons all over the country regularly. There is always a risk involved, but this risk is nothing compared to the risk of leaving it where it is. The oldest casks at San Onofre are 12 years old, still able to be moved. It will be considerably more dangerous in the coming decades when the canisters may be suffering from stress corrosion and cracking. Once there is evidence of this, they cannot be removed. The idea of moving them sometime in the distant future is reckless. When they become fragile with age, there is no known technology to repair them. Additionally, any repairs would have to be done under water but this will not be possible because the fuel pools are scheduled for demolition. An overpack (the Russian doll approach) may make them too heavy to move. Bottom line: They must be moved before it is too late.

9. It may be preferable to move the casks by rail. A rail line runs right past San Onofre. Some other potential sites such as Chocolate Mountain also have rail lines that run right past them.

10. Independent experts need to carefully investigate many potential sites in many locations. They should look at government property, private property, and military property. It may be that military sites (there are 32 in California) might be preferable because: 1. The logic of moving waste from one valuable and vulnerable military site (Camp Pendleton) to another military site less valuable and less vulnerable; 2. Military sites are more secure, often in no fly zones and with no public access; 3. The military has considerable experience in moving nuclear materials; 4. The military may be less constrained in what it is allowed to do.

11. The general criteria should be: 1. Move the waste to an isolated area the least possible distance; 2. The area should be away from population centers; 3. The area should be out of tsunami zones and in low-risk earthquake fault zones; 4. The

area should be situated so that prevailing winds will carry any radioactivity away from population areas rather than toward them; 5. The area should be secure with no public access and preferably a no-fly zone; 6. The area should very large; 7. The area should be near rail lines.

There are probably many such areas. One that comes to mind as fulfilling all of the above criteria is the Chocolate Mountain Gunnery Range, four times the size of Camp Pendleton and only 100 miles away. There are a number of gunnery ranges in the nation (and in California) and the nation can spare one less. A fuel pad requires only 4 acres, and Chocolate Mountain could easily spare 4, 40, 400, or 4000 acres (it is about 250,000 acres). Other sites should be examined as well. It may be that the military would relish the chance to get the nuclear waste out of Camp Pendleton.

What are the potential stumbling blocks for selecting a safer interim storage site? Many are merely political or administrative, not technical. There is a myriad of administrative procedures and regulations from many federal, state, county, and military jurisdictions. It is not an impossible task to sort these out. It is not an impossible task to outline an orderly procedure of what needs to be done.

Let's get started.

Sincerely,

Roger Johnson, PhD
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April 23, 2015