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OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

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Washington DC 20555-0001  
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**Re: Comment on Docket ID NRC –2010-0267**  
**“Draft Regulatory Basis for a Potential Rulemaking On spent Nuclear Fuel Reprocessing Facilities”**

Recommendations:

Create a new Waste Management Organization – not necessarily DOE – whose responsibility is public health and safety and environmental protection not the advancement of nuclear technology or support for nuclear development.

1. Create/Build/ HOSS – Hardened on-site Storage  
All spent fuel that is 5 years out of the reactor should be removed to hardened on-site storage (HOSS). Presently 65,000 metric tons of spent fuel sits in fuel pools that is about 4 times more than the design capacity of pools. Structures are not steel lined but ordinary industrial structures that will not withstand impact. The possibility of fire in a pool and large amount of radioactive releases and the risk of a terrorist attack is real. It's a public safety priority of the highest degree. (R Alvarez, nirs.org 7/2011).
2. Congress should pass a “take title” bill that would have the Dept of Energy hold title to the fuel in the HOSS facility. This would increase the safety of the stored fuel. Casks can be supplied by DOE and storage and monitoring done by DOE (J. Treichel, Nevada). Cost of this operation have been calculated by R. Alvarez to be 3.5-7 \$ billion and could be allocated from US\$18.1 of unexpended funds already collected from CONSUMERS of nuclear-generated electricity. This was calculated to be 0.4 cents per kilowatt-hour.
3. DO NOT REPROCESS  
Reprocessing leads to numerous hard-to-manage waste streams including high-level-waste, Greater-than-Class C waste, low-level-waste, noble gases, contaminated uranium and weapons-usable plutonium. This process is besieged by dangerous radioactive releases, worker contamination, and huge problems of e.g. disposal of millions of gallons of intensely corrosive acidic liquid waste namely nitric acid.  
An MIT study estimated that the cost of a closed-fuel-cycle is 4.5 times higher than an open, no-processing cycle.
4. The world possesses about 2000 tons of plutonium and this amount is growing because every commercial nuclear power facility produces about 200 kg of it every year; it is a byproduct of Generation I and II nuclear power reactors. There is NO USE FOR IT except for bombs. Commercial NPP are skittish about its use.  
There is no established national policy to use plutonium fuel in commercial reactors. West Valley NY is a point in abject failure. The Dept of Energy's MOX program has not resulted in a usable pathway and one can assume it is still in the testing phase after years of trying. DOE has not identified a single reactor that is using MOX fuel.  
The question than arises why would the nation spend money on the complicated business of rule making estimated to take several years. Funding was called tight. Taxpayers should be paying attention whether foreign interests like Areva would benefit from rule making, because they claim to have experience with reprocessing.  
Rule making should be suspended.
5. Sabotage and Radiological Terrorism  
The data presented here have been excerpted from” Radiological Terrorism: Sabotage of Spent Fuel Pools” by Hui Zhang of the Belfer Center, Harvard.  
Everyone in the commercial nuclear power business and at NRC realizes that Spent Fuel Pools (SFP) could become a tempting target for terrorists. Whether puncturing a fuel pool or using a fuel-laden jet liner or guided-missiles, truck bombs and boat attacks - the possibilities for the terrorist who does not value his own life are endless. ---  
Wet pools in reprocessing plants are holding significant amounts of Cesium-137. A 2000t 10-year old SNF holds about 170 Mega Curie; a 3% release, 5 Mega Curie of Cs-137 would be 2x more then Chernobyl. A calculation of an accident at LaHague, France, in the smallest pool filled to half the capacity could release Cs-137 with an impact of 67x the Chernobyl accident! A study by the Brookhaven National Lab reveals that 100% of the fuels Cs-137 would be released. If terrorists would pour fuel into the pool and start a fire it would start ignition of the Zircaloy and release massive amounts of radioactive Cesium.

This requires physical protection of nuclear power plants and reprocessing plants.

France has installed anti-aircraft missiles at LaHague's SFP. The UK has aircraft capable of intercepting hijacked airplanes.

6. Plutonium – the Black Market

With sophisticated technology one can make a bomb using 1-3 kg of plutonium. Generally it is accepted that you need 5kg of weapons-grade plutonium or 8 kg of reactor-grade plutonium. Russia and the United States each have about 34t of plutonium accrued from dismantling nuclear weapons. But the real threat to all of us comes from the theft of nuclear material in the Caucasus and Pakistan. There have been 20 documented thefts mostly in that region, 19 of those from insiders. (Number of unreported thefts?)

7. The issues with MOX Fuel

MOX fuel burns hotter and requires design modification to be used in Boiling Water Reactors (BWR). Retrofit might NOT be possible. The accelerated corrosion (with increased heat) of metal pipes, fittings, valves etc will hasten the end of that commercial reactor and the profitability of it. Operators of commercial nuclear facilities and investors hate it! Records show that a third of the 104 reactors in the USA have leaking pipes (not all leaks have been detected), a problem difficult and costly to remedy.

The USA has a fleet of aging reactors, many are operating with an extended license, the operators are loath to add MOX fuel to the fuel assembly, because it adds the risk of explosion or failure to their already existing safety concerns.

(Fukushima, Japan, reactor # 3 with MOX fuel)

Journalist David Rosenfeld, Natural Resources News Service, DC 5/9/11 reported that Duke Energy in 2006 was the first to test weapons grade plutonium in one of its reactors. Four test assemblies of MOX fuel were run in its Catawba reactor for two cycles of 18 month (3 cycles are normal). There was expansion in the fuel assembly. Not a good sign! The project was abandoned. Quite possibly the zirconium cladding could not tolerate the excessive heat and deteriorated beyond the normal corrosion and pitting. The spent fuel is being tested at Oakridge National Laboratories but scientists have not seen a report.

Another significant concern is the fact that spent MOX fuel is going to make spent fuel pools run hotter and such pools have to be managed differently. Those spent fuel rods need longer cooling time and more back-up power is needed for cooling. That raises safety concerns and cost.

8. Transport of nuclear waste, particularly HI-Level Waste is vigorously opposed by many communities include.

BREDL of North Carolina who fear accidents, contamination and unprepared local response teams.

9. The true cost of the MOX program to ratepayers

Figures provided by Global Security Newswire, 7/15/11 tell me that

\$10.6 billion will go to maintaining the country's atomic stockpiles and conduct nonproliferation operations around the world, \$7.6 billions for NNSA "weapons activities", \$31 billion for the Dept of Energy, Nuclear Regulatory Commission, the "Reactor Conversion Initiative" etc.

The cost of the plant at the Savannah River Site (calculated to be \$5B) does not include the cost of isolating the massive amount of radioactive waste that is associated with reprocessing plutonium. The United States taxpayer is left completely in the dark about the enormity of the cost of reprocessing nuclear fuel.

But for me who has worked in health care all of my life the most distressing worry is about the increased risk of cancer in the workers of reprocessing plants and in the population of the surrounding area. It is impossible to calculate the emotional cost and cost of health care for this generation and generations to come.

10. The Non-Proliferation Treaty between the USA and Russia does not mandate a pathway on how to make weapons-grade plutonium useless in the hands of bomb-makers and terrorists. Tom Clements of Friends of the Earth says the most expensive, most dangerous and most proliferation-prone option is MOX. – Robert Alvarez recommends down-blending the weapons-grade plutonium and isolating it from the public in hardened casks (HOSS).

11. Nuclear Security System - quoting THE BELFER CENTER, HARVARD

"There is an urgent priority to enhance the current nuclear security system worldwide." The upgrades should reflect the threat as perceived after September 11. Measures recommended are physical barriers, delay mechanisms to prevent truck bombs and boat attacks, no-fly zones, the two-person-rule, a well-trained security force and significantly: cyber-security. Spent-Fuel pools should have stronger walls and stronger pool floors as well.

I would like to conclude with thoughts by Amory Lovins in regard to the dangers of nuclear energy:

*"Nuclear power is the only energy source where mishap or malice can kill so many people so far away – the only one whose ingredients can help make and hide nuclear bombs; the only "climate solution" that substitutes proliferation, accident and high-level radioactive waste dangers. Indeed nuclear plants are so slow and costly to build that they reduce and retard climate protection."*

It is my conviction – and 170 organizations across the USA agree with me, that reprocessing weapons-grade plutonium is the wrong path to take. This can not be called RECYCLING – A GREEN-WASH- it is the most proliferation-prone route to take and I oppose it.

## Rulemaking Comments

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**From:** Fabian Dagmar [fabuada@yahoo.com]  
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comments attached.  
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