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Docket: NRC-2012-0246
Consideration of Environmental Impacts on Temporary Storage of Spent Fuel After Cessation of Reactor Operation

Comment On: NRC-2012-0246-0456
Waste Confidence - Continued Storage of Spent Nuclear Fuel; Extension of Comment Period

Document: NRC-2012-0246-DRAFT-1257
Comment on FR Doc # 2013-26726

Submitter Information

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General Comment

To: Rulemaking.comments@nrc.gov.
REF: Docket ID No. NRC-2012-0246

Please extend the comment period for the "Waste Confidence Draft Generic Environmental Impact Statement (GEIS)", Docket ID No. NRC- 14 2012-0246."

This is a very serious issue and will need more time for the public to understand the impacts of any decisions.

The GEIS is not ready to be approved, and should not be approved.

There is not any viable solution for the Standard Spent Fuel and the
High Burnup Nuclear Fuel is much more dangerous.

No short-term storage or transport solutions
Docket ID No. NRC-2012-0246

HighBurnupExecutiveSummary2013-12-19.doc

The independent U.S. Nuclear Waste Technical Review Board
December 2010 report,
“Evaluation of Technical Basis for Extended Dry Storage and Transportation of Used Nuclear Fuel,”
15

states
“Argonne scientists reported high burn-up fuels
may result in fuel rods becoming more brittle over time.
” And “...insufficient information is available on high burnup fuels to allow
reliable predictions of degradation processes during extended dry
storage.”
It also states Only limited references were found on
the inspection and characterization of
fuel in dry storage, and they all were performed on low-burnup fuel after only
15 years or less of dry storage. Insufficient information is available on high-burnup fuels to allow reliable predictions of degradation processes during extended dry storage, and no information was found on inspections conducted
on high-burnup fuels to confirm the predictions that have been made. The introduction of new cladding materials
for use with high-burnup fuels has been studied primarily with respect to their reactor performance, and little information is available on the degradation of these materials that will occur during extended dry storage.
There is no technology to monitor conditions inside dry casks.16
According to
Argonne scientists, this requires sensors with (1) the ability to endure temperatures
above 200 degrees C, (2) the ability to endure radiation levels higher than 1000 rads per hour,
(3) a means of “harvesting” the energy inside the container, and (4) batteries
that will power the sensors for more than 10
years, and (5), a way to wirelessly transmit
the sensor data out of the cask.

RECOMMENDATIONS
The NRC should stop approving high burnup
fuel. The NRC should not approve the
Waste Confidence Generic Environmental Impa
ct Statement, since they do not have
sufficient data on extended storage of high
burnup to have confidence this waste can be
safely stored or transported.
The DOE and NRC should take a leadership role in finding both short and long term storage and transport solution for high burnup spent fuel, and not depend on the nuclear industry to put safety over profits.
This should take priority over research for
new reactors and nuclear waste reprocessing. Congress should provide adequate
funding to find a solution that puts safety above industry profits.

Attachments

COPS Comments On Waste Confidence DGEIS

highburnupexecutivesummary2013-12-19

Comments on Waste Confidence
Draft Generic Environmental Impact Statement

December 20, 2013

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REF: Docket ID No. NRC-2012-0246

I. INTRODUCTION

The following document provides written comments, suggestions, and questions, regarding the "Waste Confidence Draft Generic Environmental Impact Statement (GEIS)", Docket ID No. NRC-2012-0246. All page references are with respect to this document unless otherwise indicated.

Many of our members and concerned citizens also made comments at the NRC-sponsored meeting in Carlsbad, CA.

The GEIS is not ready to be approved, and should not be approved. There are many unresolved issues, despite the statement in the introduction that "all issues have been resolved." We are extremely disappointed that the NRC is proposing to process these changes using a NRC policy statement. You say it is not a licensing action, yet when combined with the policy statement, as you propose, it has the effect of granting indefinite approval to store nuclear waste at every operating nuclear plant without any time limit, and without any further processing, hearings, intervention, or critical site-specific review. You therefore propose circumventing all opportunities for the public an others to intervene in this process and request a hearing, which would normally be the case if each license were processed individually. By handling it as one big policy statement and a "Generic" EIS, then you circumvent the oversight that would otherwise occur. We find this attempt to avoid oversight by the public as a serious concern, given the obvious lack of oversight and poor choices by the industry, exemplified by the failures of the San Onofre Nuclear Generating Station (SONGS), and the disaster at Fukushima, which used similar "Probability Risk Assessment" approaches to conclude that a tsunami of that size would be

extremely improbable, and therefore inconsequential. PRA is a broken approach.

II. ABOUT US

Citizens Oversight, Inc., (Also known as Citizens Oversight Projects, "COPS") is a 501(c)3 Delaware Corporation, with offices in Southern California. Member organizations and individuals reside within the evacuation area of the San Onofre Nuclear Generating Station (SONGS), and in other areas.

COPS encourages increased engagement by the public in the operation of their local, state and federal government to reduce waste, fraud and abuse. COPS is distinctive with its localized, on-the-ground volunteer membership which affords ready consultation with local elected officials and community members regarding the varied impacts of the San Onofre Nuclear Power Plant, including those of decommissioning. Citizens Oversight DBA the "Coalition to Decommission San Onofre" (CDSO) is currently a party in the California Public Utilities Commission (CPUC) investigation into the outage at SONGS (I.12-10-013) and in the Nuclear Decommissioning Cost Triennial Proceeding (NDCTP -- A.12-12-012/013) which are both currently active. COPS also filed a petition to intervene in a license amendment request at SONGS in 2012.

III. STANDING & TIMELINESS

From our experience with our interaction with the NRC, we know that the questions of standing and timeliness can be used to block oversight and participation by the public. Although we believe these concerns are excessive, we nevertheless comply with a brief review of these to avoid any possible concern.

STANDING

The document says "Any interested party may submit comments on this report for consideration by the NRC." We take this to mean that "anyone" may submit comments, and we reject the notion that you have to have a specific "interest" by residing within 50 miles of a nuclear plant, or the notion that you have to suffer actual harm, and the notion that you have to be an official "party" to the proceeding. The NRC Staff and Nuclear Industry attorneys have carried their arguments to an extreme on this point. We would prefer that you discard this troublesome language, and simply say "anyone," and leave out the "interested" qualifier, as well as the notion of "party," which has legal connotations. Of course, if someone takes the time to comment, they must be interested. Using "interested" opens the door for the

industry to argue that the comments are coming from a party that is "not interested enough" because they do not have a financial interest that goes beyond being a ratepayer, or because they have not suffered actual -- not hypothetical -- harm and injury. We know this because these arguments were used by NRC Staff and industry attorneys who have a singleminded agenda to block any input from the public.

Please, if you really want participation, change "interested party" in your statement regarding standing to "anyone."

TIMELINESS

We understand that due to the federal government shutdown, the deadline for submitting comments has been extended to December 20, 2013. Since we are submitting our comments on this date, our comments are timely.

IV. COMMENTS

In the comments below, we refer to the Independent Spent Fuel Storage Installation (normally the ISFSI) and Spent Fuel Pool (if any), as well as support structures, security perimeter, and personnel to staff the operation as the "Nuclear Waste Operation" (NWO). These, when combined, represent on-going operations at nuclear plants after power operations have ceased. (In other submissions by COPS and the CDSO at the CPUC, we also use this terminology, so we are adopting it here to be consistent.)

1. Adopting this GEIS at any existing NWO should require a LICENSE AMENDMENT process, because the original license did not include the notion that the NWO may exist on the site for an indefinite period. It seems this GEIS is a sneaky way to expand the license term to an indefinite period. This circumvents the oversight process that is necessary to ensure appropriate actions by the industry and regulatory agencies.

2. There is not enough consideration for those site-specific issues which may be different at specific NWO sites. We expect explicit enumeration of issues that will need to be considered at each site to deal with site-specific issues. There is no section of this type, although throughout the document, you say that the situation may vary at each plant. All of these variances should be summarized in a list such that users of the GEIS will know exactly what areas they will likely need to resolve for their site-specific situation. For example, section 3.15 "Transportation" on page 3-37 says in Lines 12-16 that "Local and regional transportation networks in the vicinity of

nuclear power plant sites may vary considerably depending on the regional population density, location, and size of local communities, nature of economic development patterns, location of the region relative to interregional transportation corridors, and land surface features, such as mountains, rivers, and lakes." You go on to say that most have only one access road. We note that San Onofre has a 10-lane freeway going through the exclusion zone, however. Now, this is just one example where it is likely that the term "generic" does not encompass all situations, and the GEIS must be supplemented with a site-specific EIS to be complete.

For this document to be most useful to practitioners and so that the public will know what issues actually DO vary (outside of the term "generic") these should be enumerated explicitly.

3. Page 1-14, Line 19+, The assumption that institutional controls will be in place for an indefinite period of time is nonsense. Our country has only been in existence for a bit over 200 years. To assume that no changes will occur for an indeterminate time into the future is an assumption we believe you cannot make. Instead, these sites must not be contemplated for that extensive period of time, and should be limited to the decommissioning time period, as we describe with respect to other issues as well.

4. On page xxviii, you list assumptions, and you say that the GEIS includes the assumption that "analyses in the draft GEIS are based on current technology and regulations". This statement should not be an assumption, and it is not correct.

    1. The Dry Transfer Systems (DTS) are only conceptual, have never been built, and are NOT "current technology". Thus, the DGEIS is not based on current technology.

    2. This statement should NOT be an assumption. Either the analyses ARE or ARE NOT based on current technology and regulations. Since the draft GEIS is your product, you should be able to state whether it is or is not based on current technology. We assert that it is not. But it is just simply wrong to assume this, that is pretty ridiculous. It would be like saying that we assume that this document has 100 pages in it. You don't need to assume if it is your own document. So this statement should be DELETED from the assumptions section, and placed in another section that makes statements of FACT.

5. We disagree that you can make safety determinations using Probability Risk Assessment (PRA). First, you take a really small number, which is a wild guess as to the probability that some event will occur. Then you take another number, which is a wild guess as to the total consequences of

an accident. You multiply these together, making the uncertainty wild-guess-squared, or actually indeterminate. Then, you multiply this by a constant cost of $2000 or maybe $4000 per mREM of release, and compare that with an ever-changing and inflated cost for providing safety measures. At the end of all this, you predictably discover that the risk is small, and any changes to improve safety cost too much. You also ignore the fact that the RISKS increase with every additional NWO that exists and the extended period of time they are envisioned to be in operation. Thus, you need to multiply the indeterminate risk by the number of years and by the number of NWOs in operation. You also have no means to increase the cost per mREM as it is a fixed number, but the utilities charge as much as they can to fulfill regulatory requirement, sometimes exceeding the NRC (and any reasonable estimate) by as much as 10x.

6. There is never much of any consequence that needs to be analyzed if everything goes well. The problem is when things don't go well. You analyze spent fuel fires based on limited concept of type of accidents that might occur. "Design basis accidents" are used as a way to limit the cost for dealing with accidents, because only a limited number of scenarios need be considered. In this document, you consider only two possible scenarios, when in fact there are an unlimited number of scenarios, some of which we could not think of because we don't understand everything. For example, at SONGS, the steam generator tubes were analyzed for only one type of rattling motion. Motion along the other plane was considered inconsequential. In actuality, the steam generators were rattling themselves apart at the seams. So what is the likelihood that you have it wrong? Probably 100%.

7. Perhaps the largest danger presented by the establishment of some 69 NWO sites in 34 states (Page 2-14 line 10) is that these become potential terrorist or wartime targets. An attack with a conventional missile will not just take out an area much larger than the NWO itself. The dry cask storage systems, and certainly the fuel pools, are NOT hardened against such attacks, and it is doubtful that there is any ultimate hardening approach short of a deep geologic repository. The fact that the NWO installations DIFFER substantially from a deep geologic repository in this regard must also mean that there must be some serious risk that is now included. YOU NEED TO DESCRIBE THIS RISK AND DIFFERENTIATE THIS OPTION WITH THE PERMANENT GEOLOGIC REPOSITORY OPTION.

8. It is a good point, what is the difference between a deep geologic repository and the NWOs that

you propose to scatter around the country? Is there a reason the experts have pushed for a site like Yucca Mountain and have not proposed leaving it in casks, exposed to the elements and wartime or terrorist attack? Of course there is, but if you use the logic of this GEIS, the fuel will never be moved to such a repository, because you say that there is no problem with leaving it where it is. YOUR DOCUMENT MUST REVEAL THESE DANGERS!

9. You say there are no "there are no remaining issues that require resolution" (Lxii) and yet you also say "The environmental impacts of terrorism are an area of particular controversy." That also means that it requires resolution, and therefore your first statement is incorrect. But we will see also in other comments below that this statement is patently untrue. THERE ARE REMAINING ISSUES AND THEY MUST BE RESOLVED.

10. We disagree that you can conclude that the IMPACTS of Accidents or Sabotage or Terrorism are all SMALL. I know you want this to be the case, but it is not, and if you continue to assert this, I don't know how you can sleep at night. The reason the deep geologic repositories are proposed is to avoid these dangers. THIS MUST BE SPELLED OUT.

11. You say on Page 1-5 that this only modifies 10 CFR 51.23, and "This draft GEIS does not authorize issuance of any NRC license." But it does expand SIGNIFICANTLY the licenses that were previously granted, and therefore is a sneaky and disgusting attempt to work around the normal license amendment procedures. THIS CHANGE <u>DOES</u> CHANGE THE LICENSES THAT DO EXIST AND THEREFORE EACH MUST BE SUBJECTED TO A LICENSE AMENDMENT PROCESS, which includes the opportunity to intervene and request a hearing by members of the public.

12. We reject the notion that this GEIS can adequately address the needs of each specific site situation, and therefore, the assertion that 10 CFR 51.23 could be revised to "state that because the impacts of continued storage have been generically assessed in this draft GEIS and codified in a Rule, NEPA analyses for future reactor and spent fuel storage facility licensing actions would not need to separately consider the environmental impacts of continued storage."[1] -- NO! NEPA analyses must still occur because the GEIS addresses only GENERIC concerns!

13. COPS supports only the GEIS-only alternative, and require that any NWO that is to extend licensing past the decommissioning period of 60 years, must first accomplish a license

1 Waste Confidence Draft GEIS Page 1-5

amendment process, if not before. WE DO NOT SUPPORT THE NOTION THAT THESE ARE SAFE ENOUGH FOR USE AFTER THE 60-year DECOMMISSIONING PERIOD!

14. COPS does not support the "Policy-statement alternative," as described above, due to the fact that this circumvents site-specific public oversight, and assumes incorrectly, that a generic EIS is sufficient to deal with site-specific issues, which abound (but you conveniently forget to enumerate and acknowledge exist).

15. We disagree that abandonment of reactor licensing and the closure of existing plants is not a reasonable alternative. This should be INCLUDED as an option. We believe this is the only prudent and reasonable option, which responsibly acknowledges the severe danger of nuclear substances, the fact that no permanent geologic repository exists, and the fact that the NWO DO NOT measure up to the deep geologic repository alternative. No new licensing should be allowed unless and until the permanent solution for the waste is determined, and no plant licenses should be extended.

16. On Page 1-9, you say that "unless a threat to the public health and safety of the common defense and security exists, the NRC has no authority to deprive current licensees of their vested interest in licenses...." This means that we can never decide that we have made a very big mistake by ever getting these plants running from a safety standpoint. Once we decided to allow it, then we can never turn back? WRONG. The NRC does have the authority to pull licenses if they decide the plant is not safe, period. It does not matter if the licensee has some vested interest. We see this as the key and disheartening reality... the NRC is now a toothless lapdog instead of being a watchdog, and it has been co-opted by the industry to the point that it truly believes that the right thing to do is to continue to grant and extend licenses WHEN NO SOLUTION EXISTS TO DEAL WITH THE WASTE!

17. Page 1-9, lines 19-20, you are right that cessation of nuclear power plant licensing and operations would halt the future generation of nuclear fuel. That is as far as your analysis should go. You are not responsible for regulating every form of energy or option. You have no analysis of "other environmental impacts that may result." etc. We believe that if done responsibly, this is the best course of action. Alternative forms of energy DO exist. In California, we have 156% of the power requirements of the state, and according to a presentation at the California Energy Commission, SONGS would have been cost effective for

only 16 16-hour periods in the entirety of 2012, when the plant was already shut down. The dirty secret is that these plants are NOT COST EFFECTIVE and DO NOT COMPETE WITH OTHER FORMS OF ENERGY, and HAVE A SEVERE DEFECT IN THAT THEY PRODUCE VAST QUANTITIES OF WASTE THAT IS EXTREMELY DANGEROUS FOR LONGER THAN RECORDED HISTORY.

18. Regarding Page 1-9, Lines 25-29, you say that requiring hardened storage systems, etc. are outside the scope of the GDEIS. Of course it is, because this is not a licensing action. But the GDEIS CAN state that these would be necessary if any site were to become truly safe under certain accident scenarios. To eliminate these concerns out of hand by stating that they are "out of scope" is truly ridiculous. THESE CONCERNS MUST BE ADDRESSED AND YOU CAN'T SWEEP THEM UNDER THE RUG BY SAYING THEY ARE OUT OF SCOPE!! There are differences between a deep geologic repository and surface NWOs... YOU MUST DISCLOSE THESE DIFFERENCES!

19. Page 1-10, Line 1: the expedited transfer of fuel from fuel pools to ISFSI did not consider plants that were not operating! So their conclusions cannot be directly adopted by your group. You did not mention that, and then the implications that the scope of that project explicitly did not consider the scope you are considering. The fact is that the expedited fuel transfer project ASSUMES that the fuel will not necessarily need to be placed in dry storage on site, and could potentially be shipped directly from the fuel pools. Thus, by not moving fuel from the pools as soon as practicable into dry casks, they envision avoiding this cost. However, in the scenario you are promoting here, all fuel from the fuel pools will be moved into the ISFSI prior to being transported off site, and therefore, there is NO SAVINGS, and the conclusion of that project should be REVERSED, i.e. expedited transfer is WISE, PRUDENT, and COST EFFECTIVE, and the safest thing to do, based on the fact that <u>there is a safety difference</u> between dry casks and fuel pools. If you have to transfer it to dry casks anyway, why not do it as quickly as practicable, to avoid the safety differences between the ISFSI and FUEL POOLS? Answer: there is no reason, and thus the conclusions of the expedited transfer are now moot.

20. Page 1-11, Line 16-17. Interesting that you are using the guidance of NUREG-1748 regarding "LICENSING ACTIONS" when you have already said this document has nothing to do with licensing. Again, this underlines our assertion that indeed you are considering a change in the

license, but are doing it in such a way to avoid the scrutiny of the license amendment process. Shame on you.

21. Page 1-14, Lines 5-7 "the NRC assumes that all spent fuel is removed from the spent fuel pool and placed in dry cask storage in an ISFSI no later than 60 years after the end of the reactor's licensed life for operation." -- According to testimony by SCE in the recent Nuclear Decommissioning Cost Triennial Proceeding of the California Public Utilities Commission, SCE believes they cannot terminate their license until the ISFSI is completely gone. Thus the license will still be open (although not for operation) until the ISFSI is completely decommissioned as well. There seems to be a lot of confusion here.

22. Page 1-17, Lines 14-15 "It is assumed that an ISFSI of sufficient size to hold all spent fuel generated will be constructed during the licensed life for operation." Not necessarily true. At San Onofre, they have not constructed the ISFSI completely yet, and yet their "for operation" license is no longer valid. You may have to change this to "licensed life for operation and decommissioning time (60 years)," otherwise, your assumption is clearly incorrect. Plus, why do you need to assume this? Please note you can't have it both ways, between this comment and the prior one, something has to give.

23. Page 1-22 Lines 1-3 "The storage of spent fuel during the initial licensed term for operation of a nuclear reactor is considered within the site-specific EIS for either a 10 CFR Part 50 or 10 CFR Part 52 licensing review." I think this is again a problem of wording. Probably you mean during the license term prior to ceasing power operations, because the license persists for up to 60 years, and as I mentioned, SCE believes it cannot terminate the license until the ISFSI is decommissioned as well.

24. Page 2-12, Lines 17-20. You say that you are still working on trying to determine if the design basis and systems, structures, and components important to safety, including spent fuel pools, needs to be updated. But you haven't completed that yet. You say "NRC has not yet received responses to the request for information and has not decided whether any license needs to be modified, suspended, or revoked, for purposes of analysis in this draft GEIS, the NRC assumes that the existing regulatory framework remains unchanged."
That sounds like a pretty big assumption, and clearly is in violation of your other assumption and statement that " there are no remaining issues that require resolution" (Page Lxii) Gee, this

seems like yet another example of an issue that requires resolution, unless it is the normal practice of the NRC to depend on assumptions that everything is fine. This is quite distressing to say the least, that a regulatory agency that has has its primary mission safety, and it would simply assume that everything is fine. NO MORE ASSUMPTIONS, PLEASE!

25. Page 2-16, Lines 17-18. You say that the NRC issued orders to ISFSI licensees etc. based on 9/11 attacks, and that the details are withheld from the public. But can you reveal how these orders were reviewed by other parties to ensure that they are adequate? If there was no review, this does not help us be confident that you are doing your job, given the fact that rarely do you push safety over profits. WHO REVIEWED THIS?

26. Page 2-17, Lines 3-5, the same comment as #21 above.

27. You rely on the existence on a Dry Transfer System (DTS) (section 2.1.4, Page 2-19) but these have never been built, are only a concept at this point, and may prove to be entirely unworkable. You can't rely on technology that does not exist as the single option! Instead, you should require either a wet-transfer system (such as a fuel pool) OR dry transfer system (that is still a figment of the designer's imagination) at any ISFSI site. Indeed, it may be easier for the ISFSI's co-located at an existing plant where a Fuel Pool already exists, to continue to utilize the fuel pool as long as practicable as a wet transfer system. The DTS envisioned cannot deal with casks and canisters that have been compromised and have significantly diverged from specifications. What happens when the fuel assemblies degrade for some reason to the point where they cannot be pulled out of the canister or cask? What if we discover the fuel assemblies have all experienced extreme embrittlement to the point that many have started to decompose? What happens if a canister starts to leak and we need to immerse it in a fuel pool to stop the leakage? From my reading, it may take 11 days or more to deal with a problem like this, with radioactivity released to the environment all the while. THIS IS UNACCEPTABLE.

28. The details regarding how radiation releases will not occur by the DTS when the casks/canisters are removed from the DTS is not clear. If there is a severe problem with one of the canisters, such as a leak or accidental criticality event, then it may be necessary to immerse the cask in a fuel pool for safety until it can be stabilized.

The fact that you are relying on untried and conceptual technology is yet another example of an

"issue that requires resolution" that you claim does not exist.

Sure, you can try to quantify releases from a conceptual DTS system, but this is yet another example of a wild-ass guess. The problem is not when the system works as it is supposed to, if it works at all, but when things go wrong. What happens if the DTS fails? is it contained in a containment building that will help to contain the release of radiation? Not addressed.

29. Page 2-21 Line 20-21 "This draft GEIS considers the environmental impacts of constructing a reference DTS to provide a complete picture of the environmental impacts of continued storage." What a joke! This is only a CONCEPTUAL design of a DTS. No such thing exists. It has never been made, and the concept that you are providing a "complete picture" by analyzing a conceptual DTS as if it was a real thing, only makes us believe that you are so used to deceiving yourself that you don't even realize it when you are talking about something that does not even exist, as if it were a real thing and creates a real picture. You can't create a reference design based on a concept.

30. Page 2-26, Lines 32+, you consider "aging effects" and list a few that are related only to the canisters, casks, and overpacking, but not the aging of the fuel assemblies and fuel contained by them. The use of "high burnup fuel" is extremely prevalent and the implications in terms of aging are really unknown. This is yet another example of a pesky "issue that requires resolution"... we really don't know what will happen to the fuel assemblies after 100 years (or even 20 years) of containment in a ISFSI, but they certainly must be contained in your list of aging issues.

31. Page 2-28, Line 4-5, you say the NRC assumes a DTS "or its equivalent" would be used to transfer fuel. What is "its equivalent" -- do you mean, as we assert, that a fuel pool should be described as THE option unless there is such a thing as a DTS that actually works? And, it may be necessary, we believe, and prudent, to maintain a (small) fuel pool as an emergency backup even if a DTS can work in some situations.

32. Page 2-28, Lines 32-34: You describe the most critical step without much effort. The hard part is closing the casks and transitioning to "detached from the transfer containment area".... how

do you do that without releasing some radiation? Not clear and probably nearly impossible to implement.

33. Section 3.0 "Affected Environment" considers only the effects when everything goes well, not when the accidents happen, and THEY WILL HAPPEN! This is the lesson, more than anything else, we must accept from Fukushima, and the nuclear industry in general. No matter how unlikely the accident, they STILL WILL OCCUR, and you SHOULD consider this in the affected environmental analysis. THE ENTIRETY OF THIS SECTION MUST BE CHANGED to address the consequences of accidents, not operation without any problem. No one is concerned about non-accident operation of an ISFSI !!!! If there is no accident, there is by definition, no problem. But when there is an accident, then there is, and this is why your treatment of the effects on the environment are ALL INSUFFICIENT!

We must continue to point out that a NWO **DOES DIFFER** from a deep geologic repository. YOU NEED TO DESCRIBE THAT DIFFERENCE AND BE HONEST ABOUT THE RISKS!

34. Section 3.14 "Waste management" only concerns EXPECTED waste when everything is going well. What happens when something happens that is out of expectation? Not addressed.

35. Section 3, in its entirety, you also do not sufficiently mention issues that need to be addressed on a case-by-case basis. For example, in Section 3.15, Transportation, you say "Local and regional transportation networks in the vicinity of nuclear power plant sites may vary considerably depending on the regional population density, location, and size of local communities, nature of economic development patterns, location of the region relative to interregional transportation corridors, and land surface features, such as mountains, rivers, and lakes." This is certainly an example of an impact where generic treatment is insufficient.

36. Page 3.38, Section 3.16 "Public and Occupational Health" again, you deal with exposure when everything goes well, when any accident is one of those expected accidents. But not if something unexpected happens.

37. Section 4.0 -- You attempt to address continued storage of spent fuel at ISFSIs with DTS, and the notion that the ISFSIs can persist for that period of time, and the contents of the canisters will be fine, even if the fuel assemblies may have completely degraded by then.

WE BELIEVE YOU CANNOT ADEQUATELY ADDRESS THIS ISSUE THIS FAR IN

ADVANCE. THERE MUST NOT BE A GENERAL PURPOSE "APPROVAL" OF ISFSIs "forever" using technology that does not exist (like DTSs) and total speculation about how these structures degrade over time. I know you want to get these approved "forever" but to do so is COMPLETELY IRRESPONSIBLE!

WE BELIEVE THAT AT THIS TIME, THE ISFSIs MUST NOT BE APPROVED FOR INDETERMINATE TIME PERIODS, and to even suggest it points out how far the NRC has gone astray.

Thus, it is IMPRUDENT for the NRC to create a GEIS for any time exceeding the initial 60-year timeframe which was the original concept for the decommissioning period. Contrary to your assertion, there are too many unresolved items at this time, and we must work quickly to establish a permanent deep-geologic repository, which DOES HAVE safety differences in terms of fewer vulnerabilities to terrorist or wartime attack.

38. Under the license terms for a given nuclear power plant, the entire plant must be decommissioned and restored to unlimited or partial use within 60 years of the end of operations. This is the underlying "contract" with the public when these plants were installed. Now, the NRC is suggesting in Section 4 that the ISFSIs can remain in operation for centuries. We believe this is WRONG for the NRC to suddenly change this contract with the public.

39. Page 4-.34, Section 4.9.3, as an example, "Indefinite Storage" If the ISFSI must be completely rebuilt at the end of 100 years, then THE SPENT FUEL SHOULD BE MOVED TO ANOTHER LOCATION, typically out of high-population density areas, away from water resources and to seismically inactive areas, and hopefully in a way that will not allow terrorist or wartime attacks. Therefore, IN NO CASE SHOULD ANY CO-LOCATED ISFSI CONTINUE TO OPERATE FOR MORE THAN 100 YEARS! Indeed, the canisters should be transported to a more appropriate area at that time, and this line of reasoning SHOULD BE MORE PREVALENT in the DGEIS. **NO PERMANENT ISFSIs!** We soundly REJECT THE NOTION presented in this section. The affect on Aquatic resources, again, assumes NO ACCIDENTS occur.

40. Page 4-77, Line 30+, you consider two design basis accidents in the hypothetical DTS. You did

not consider unusual and unexpected events, like partial meltdown inside a canister due to failure of cladding around high-burnup fuel pellets, a problem that has been described as a concern. At this point, we assert that there are simply TOO MANY UNKNOWNS and "unresolved issues" for this DGEIS to apply to any period longer than the normal decommissioning period. As more information is learned, if a DTS is actually ever designed and constructed, if we get statistics about how well the fuel lasts inside canisters, etc. etc. then it may be possible, IN ABOUT ANOTHER 50 YEARS to speculate about the subsequent 100. Until then, your optimism is far too apparent, and again a sign that the NRC has gone so far astray that it does not even realize that it is lost.

41. Page 4-78, you consider a "loss of containment event" but constrain it to filters that are inoperable. Why not assume the entire DTS fails and radiation is emitted? Then what? There is no containment around the DTS, in the design you have conceptualized. Ridiculous. STANDARDS FOR DRY/WET TRANSFER MUST BE IMPROVED!

42. Page 4-81, external events on fuel pools... the pools are not in hardened containment buildings but instead have only a thin roof over them, only for decoration. Those in Mark I containments are elevated above the ground, like those at Fukushima. THESE STRUCTURES ARE UNSAFE! Your rules for Fuel Pools are wholly insufficient but you will not admit this because it will mean you will have to tell existing licensees that they will have to spend money for safety, or shut down. And even when they shut down, they are still left with the problem.. STANDARDS FOR FUEL POOL SAFETY, INCLUDING HARDENED CONTAINMENT MUST BE IMPROVED!

43. Page 4-84 "The environmental impact for a successful terrorist attack, if one occurs, could be significant and destabilizing." We agree with this statement, it is probably one of the few things you have said that were admitting the truth in this document. However, then you go on to say that because the probability is so low, we don't have to worry about a thing. If we used this method for dealing with risk that you use, then we would not have any defense department at all. They do not determine whether to create a defense only if the probability says that it might happen using PRA, and you must not use it to allow permanent ISFSIs.

44. Page 4-85, Line 15-16, "The NRC has determined that the probability of a successful terrorist attack on a spent fuel pool, although numerically indeterminable, is very low." That's probably

what they said about the attack on the World Trade Center by 19 hijackers. Very low probability. And even lower probability that the towers would completely fall to the ground. But it happened anyway. So we object to the notion that you know that the probability is so low that we can disregard this risk. First you say you have no clue as to the probability, and yet you say it is low and therefore inconsequential. THIS IS THE MOST SIGNIFICANT THREAT POSED BY SITING 69 NWOs AROUND THE COUNTRY, resulting in 69 targets for conventional missiles that will result in a massive radioactive release, just like a "dirty bomb". I DON'T THINK THE PENTAGON WILL LIKE THIS IDEA, or at least I hope they still have some people there who still realize real risk when they see it.

45. Page 4-85 Lines 24-30. Changing procedures and adding training, improving security through access authorization, etc. are of no consequence when considering the possibility of a missile launched from North Korea, or a shoulder-launched missile directed at a fuel pool from well outside the secure perimeter of the power plant.. It is very distressing to learn how easily the NRC disregards these serious national security concerns.

46. Page 4-88 Lines 19-23. Adding new rules will not defend against serious wartime attacks. Our country was attacked in WWII and it can happen again. We do not want 69 NWOs around that will be targets, esp. if these are in densely populated areas, which most are.

47. Page 4-88 Lines 24-26, another ridiculous statement: "The NRC has determined that the measures described above, coupled with the robust nature of dry cask storage systems, make the probability of a successful terrorist attack, although numerically indeterminable, very low." Really? How do you figure that out. First, we do NOT know the likelihood of a war or terrorist attack over a 100 year period. So please, stop it with the jokes, will you? This only makes the NRC look pretty naive, to be sure. The trouble with your calculations is that a terrorist attack in 100 years is probably a certainty. A world war, probably also will happen. If it is a conventional war, then these NWOs will be targets. **We can't let that happen. Period.**

48. Section 7.4 GEIS-Only Alternative. COPS supports ONLY this option, and than only for the short-term (decommissioning time) for each plant. This GEIS should not be used to allow unlimited and permanent ISFSI operation!

CONCLUSION

We find the Waste Confidence Generic Environmental Impact Statement to be fraught with errors, unfounded optimisms, omissions, and obvious obfuscations. COPS does not support a policy-statement approach, which will, without any site-specific review, hearing or study, allow NWOs to persist on a permanent basis. We support only the use of a GEIS-Only alternative, and that, we support the approval of the use of co-located NWOs ONLY FOR THE SHORT TERM (60-year) decommissioning period. At that point, the canisters should be transported off-site to either a below-ground deep geologic repository or a surface repository in lower-risk areas, and allow plants to fully decommission and remove all traces of the ISFSI, and then return any balance of decommissioning funds to ratepayers.

The use of the DTS, which is all conceptual and speculative, as a key component that allows NWOs to continue to operate for 100s of years a severe defect, as these systems do not exist, and there is no track record to show that they work safely. Until these actually exist, the plan put forward MUST include a transfer system that we know will work, i.e. the wet transfer system. In other words, the fuel pools should be emptied but should not be decommissioned but remain available for an emergency.

There is no enumeration of issues that are likely to need to be resolved on a site-by-site basis. This must be included.

The document sidesteps the key issue... These NWOs are not as safe as a deep geologic repository due to the obvious risk of terrorist or wartime attack. THIS ISSUE CANNOT BE LEFT OUT! And if you are honest, you will decide that there is no way we can continue to license new plants and extend the licenses of old plants, particularly those with Mark-I containments, which have fuel pools above grade and much easier to attack and cause a problem than one that is built at ground level.

Please review this document AND BE HONEST about the risks. Please do not sweep them under the "out of scope" carpet.

Respectfully Submitted,

/s/

Raymond Lutz

Citizens Oversight Projects (COPS).

High Burnup Nuclear Fuel

No short-term storage or transport solutions

Docket ID No. NRC-2012-0246

The Nuclear Regulatory Commission (NRC) states they have no safe short-term storage or transportation solutions for high burnup[1,2] spent nuclear fuel:

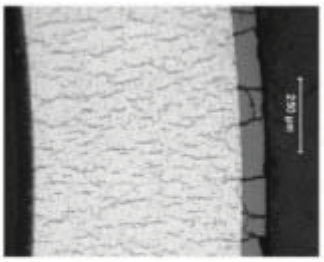
- Insufficient data to approve high burnup dry cask storage for over 20 years,[3] and
- No approved transportation casks to safely move high burnup spent nuclear fuel offsite. *Exceptions approved on a case-by-case basis*.[4]

San Onofre[5] and Diablo Canyon[6] nuclear power plants both use high burnup fuel as do other U.S. nuclear power plants.[7] The NRC approved high burnup fuel about 15 years ago.[8]

High burnup fuel stays in the reactor longer, thus increasing industry profits, but makes us less safe. The NRC defines "high burnup" as fuel that has burned over 45 gigawatt-days per metric ton of uranium (>45 GWd/MTU). However, according to a June 15th, 2013 Department of Energy (DOE) report, experimental data suggests fuel with burnup as low as 30 GWd/MTU shows signs of premature failure.[9]

The NRC has not approved short-term storage and transportation because numerous scientific reports have shown these high burnup fuel problems:

- **Unstable and unpredictable in storage**
  - The protective Zirconium metal cladding around the low enriched (up to 5% U-235) uranium fuel is becoming brittle, making it fragile and subject to shattering. If the radiation breaches the cladding, it can also breach the steel canister and cement cask, release radiation into the environment.
  - High burnup fuel reacts with the Zirconium cladding resulting in hydrides, adding the risk of a hydrogen explosion.



Microscopic View of Fuel Clad Hydrides

- **Hotter and over twice as radioactive**
  - Requires up to a minimum cooling of 20 years in spent fuel pools (instead of 5 years for lower burnup fuel).[10] Fuel cladding temperature must be 400° C (752° F) or less before moving fuel assemblies to dry storage.[11]
  - Requires over double the storage space (of lower burnup fuel) in a permanent geological repository and there are no geological repository designs for high burnup fuel. [12]

The NRC has known for decades of high burnup fuel problems,[13] yet continues to approve use of this fuel. In some cases, it has approved burnup levels up to 75 GWd/MTU.[14]

High Burnup Nuclear Fuel

No short-term storage or transport solutions

Docket ID No. NRC-2012-0246

The independent U.S. Nuclear Waste Technical Review Board December 2010 report, "*Evaluation of Technical Basis for Extended Dry Storage and Transportation of Used Nuclear Fuel,*"[15] states ***"Argonne scientists reported high burn-up fuels may result in fuel rods becoming more brittle over time***." And "***...insufficient information is available on high burnup fuels to allow reliable predictions of degradation processes during extended dry storage.***" It also states

> *Only limited references were found on the inspection and characterization of fuel in dry storage, and they all were performed on low-burnup fuel after only 15 years or less of dry storage. Insufficient information is available on high-burnup fuels to allow reliable predictions of degradation processes during extended dry storage, and no information was found on inspections conducted on high-burnup fuels to confirm the predictions that have been made. The introduction of new cladding materials for use with high-burnup fuels has been studied primarily with respect to their reactor performance, and little information is available on the degradation of these materials that will occur during extended dry storage.*

There is no technology to monitor conditions inside dry casks.[16] According to Argonne scientists, this requires sensors with (1) the ability to endure temperatures above 200 degrees C, (2) the ability to endure radiation levels higher than 1000 rads per hour, (3) a means of "harvesting" the energy inside the container, and (4) batteries that will power the sensors for more than 10 years, and (5), a way to wirelessly transmit the sensor data out of the cask.

Statistics from the Nuclear Energy Institute (NEI):

- High burnup fuel has been stored in dry casks in the U.S. since 2003
- Approximately 200 loaded-casks contain high burn-up fuel
- Most fuel in pools for future loading is high burn-up.[17]

RECOMMENDATIONS

The NRC should stop approving high burnup fuel. The NRC should not approve the Waste Confidence Generic Environmental Impact Statement, since they do not have sufficient data on extended storage of high burnup to have confidence this waste can be safely stored or transported.

The DOE and NRC should take a leadership role in finding both short and long term storage and transport solution for high burnup spent fuel, and not depend on the nuclear industry to put safety over profits. This should take priority over research for new reactors and nuclear waste reprocessing. Congress should provide adequate funding to find a solution that puts safety above industry profits.

High Burnup Nuclear Fuel

No short-term storage or transport solutions
Docket ID No. NRC-2012-0246

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