Coastal Development Permit 9-15-0228, Special Condition 7: Inspection and Maintenance Program for fuel storage canisters at San Onofre comments

Donna Gilmore <donnagilmore@gmail.com>

Fri 7/10/2020 8:05 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Krista Walker <kalewalk@gmail.com>; Len Hering <lrhering@aol.com>; Gregory Jaczko <gregoryjaczko@gmail.com>; Torgen Johnson <torgenjohnson@hotmail.com>; Paul <pmblanch@comcast.net>

Southern California Edison cannot meet Coastal Development Permit 9-15-0228, Special Condition 7: Inspection and Maintenance Program for fuel storage canisters at San Onofre

False Assumptions in Reports
The LPI report (Attachment B) and Southern California Edison Inspection & Maintenance Program (Attachment C) are based on false assumptions.

Cannot be inspected for cracks or repaired according to ASME codes per NRC & SCE staff

- None of the canisters have been or can be inspected for cracks as outlined in my previous comments to the Coastal Commission, linked below. Evidence is from NRC Senior Inspector Lee Brookhart correspondence with SCE and with SCE's own Visual Assessment report that state they cannot meet ASME codes for inspection and/or repair.
  https://sanonofresafety.files.wordpress.com/2019/10/ccc-comments.pdf

- LPI and SCE (Coastal Commission Attachment B & C) reference a Draft ASME code as their justification for ability to inspect for cracks. A draft ASME code is not an approved code. The Coastal Commission has no basis for accepting a draft ASME code as evidence of an approved inspection technology. In fact, the only conclusion the Coastal Commission can accurately make is that they cannot meet current ASME codes for inspection or repair of flaws (cracks) in pressure vessels.

- NRC Commissioner David A. Wright asked NRC engineer Christian Araguas the status of ability to inspect and repair canister cracks. Araguas admitted they have no ability to inspect canisters for cracks. They have no ability to "detect the flaws" or "understand and characterize the flaws". He did not respond to Commissioner's question regarding repair technology. NRC Commissioners October 11, 2018 meeting: Strategic Programmatic Overview of the decommissioning and Low-Level Waste and Spent Fuel Storage and Transportation Business Lines (ML18295A698) (page 104 and 105) of transcript.
  https://www.nrc.gov/docs/ML1829/ML18295A698.pdf
  NRC Commissioner David Wright video. https://youtu.be/GYeGT5NQW58

- Characterizing flaws (cracks) includes measuring width, depth, length, and direction(s) of crack growth. Some of these cracks (including microscopic cracks) will likely have some of these characterizations hidden from the canister surface. Obviously, this cannot be seen with a camera in SCE's visual assessments.

- Holtec President Kris Singh admits it's not feasible to repair cracks even if you could find them.
  Kris Singh video https://youtu.be/euaFZt0YPi4
  Singh Transcript https://sanonofresafety.files.wordpress.com/2015/09/attachment-14-declaration-of-donna-gilmore.pdf

Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co). San Onofre, Comment

Donna Gilmore <donnagilmore@gmail.com>

Sat 7/11/2020 11:53 AM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Street, Joseph@Coastal <Joseph.Street@coastal.ca.gov>; Len R. Hering <lrhering@aol.com>; Krista Kalene Walker <kalewalk@gmail.com>; Torgen Johnson <torgenjohnson@hotmail.com>; Gregory Jaczko <gregoryjaczko@gmail.com>

Regarding SCE proposed plan to use a transport cask as an overpack for a defective canister, there is no NRC approved system to use a transport cask for this purpose. Canisters require air cooling so they don't overheat. A thick sealed transport cask would eliminate the cooling system.

Scott Morris (NRC Region IV Director) told me the NRC has not even evaluated this nor done a thermal analysis for such a situation.

Years ago the NRC did do an analysis for Big Rock Point and determined the canister would eventually overheat.

Vendor claims that they can put a leaking canister into a thick sealed transfer or transport cask are unsubstantiated. No such cask is approved for this purpose. A thermal analysis and other evaluations have not been done or approved by the NRC. The NRC evaluated the potential use of a cask at Big Rock Point for temporary storage of a thin-wall canister. They approved it for only 270 days. Big Rock has much cooler canisters than San Onofre. The NRC allowed Big Rock to destroy their pool with the assumption Big Rock would have a solution after 270 days. However, they don't. Big Rock Point References:

> ML020250519 – 01/25/02 – Ltr to R. D. Quinn, BNFL From: E. W. Brach Subject: Amendment No. 2 to Certificate of Compliance No. 1026 for the FuelSolutions Spent Fuel Managment System Enclosures: 1.) CoC No. 1026, Amendment No. 2; and 2.) Safety Evaluation Report. (3 page(s), 1/25/2002)
>
> https://www.nrc.gov/docs/ML0202/ML020250519.pdf
>
> ML020250586 – Final Safety Evaluation Report for the BNFL FuelSolutions Spent Fuel Management System (CoC No. 1026, Amendment No. 2). (4 page(s), 1/25/2002)
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> https://www.nrc.gov/docs/ML0202/ML020250586.pdf
>
> 01/25/02 – Package to R. D. Quinn, BNFL Subject: Amendment No. 2 to CoC No 1026 for the FuelSolutions Spent Fuel Mgmt System (ML020250512.html)
>
> https://www.nrc.gov/docs/ML0202/ML020250512.html

- The LPI report never mentions the word "carbon". It is unclear what the reason for this is since carbon is highly corrosive to stainless steel. They mention the "Shield Ring", but not that it is carbon steel. Do they not know carbon particles are unavoidably scraped and gouged into the canister walls during the inferior Holtec canister downloading system process? According information SCE engineers provided to the NRC, the Shield Ring (technically the MPC Guide Ring) scratches (or gouges) the walls of every canister the entire length of the canister walls. This is another huge flaw in the LPI report.

Cold Spray repair technology is flawed

- You cannot repair what you cannot find.

- Cold Spray coatings are not a proven or approved repair technology for these pressure vessel thin-wall canisters.

- "Cold spray cannot deposit on surfaces that are positioned less than approximately 45° relative to the spray direction, and as a result of this, **cold spray cannot fill cracks.** To repair cracks or deep grooves, the damaged area must be opened by machining such that a shallow depression is presented.**"** *Critical Assessment 11: Structural repairs by cold spray*, V. Champagne &D. Helfritch, Nov 27 2014, Pages 627-634
https://www.tandfonline.com/doi/full/10.1179/1743284714Y.0000000723

- "The effect of CS coating on different mechanical characteristics such as fatigue, corrosion, bond strength, hardness, oxidation, etc. has been investigated. These properties are all of industrial interests. Among these, fatigue accounts for about 90% of all mechanical failures. However, less attention has been paid to the fatigue performance of cold spray coating. The available literature on this topic presents controversial results. Some material systems showed improvement while the others showed deterioration of fatigue limit..."
Cold spray coating: review of material systems and future perspectives
A. Moridi 1,2, S. M. Hassani-Gangaraj 1,2, M. Guagliano*1 and M. Dao 2
1 Department of Mechanical Engineering, Politecnico di Milano, Via G. La Masa,1,20156, Milan, Italy
2 Department of Material Science and Engineering, Massachusetts Institute of Technology, 02139, Cambridge, MA, USA
*Corresponding author, email mario.guagliano@polimi.it
https://nanomechanics.mit.edu/sites/default/files/2014_Surf_Eng_Moridi_cold_spray_coating_review.pdf

- "Cold spray cannot deposit on surfaces that are positioned less than approximately 45° relative to the spray direction, and as a result of this, cold spray cannot fill cracks. To repair cracks or deep grooves, the damaged area must be opened by machining such that a shallow depression is presented. This depression can then be filled as shown in Fig. 4. The substrate surface need not be shot peened, except for very hard metals, such as tool steel. This is because the extremely high impact velocities cause the impacting particles to crater and bond with the substrate metal..."
Critical Assessment 11: Structural repairs by cold spray, V. Champagne US Army Research Laboratory Aberdeen Proving Ground, MD, USA & Dennis Helfritch TKC Global Herdon, VA USA
dennis.helfritch@tkcglobal.com
Pages 627-634 | Received 13 Nov 2014, Accepted 13 Nov 2014, Published online: 27 Nov 2014
https://doi.org/10.1179/1743284714Y.0000000723

- More information on cold spray limitations available on request.

SCE report (Attachment C) misleading.

- On page 13, Figure 3 - The Holtec UMAX storage system at SONGS is misleading. It doesn't clearly emphasize the vulnerabilities to the coastal environment (fog and salt corrosion) from the huge air vent lids over each canister storage enclosure. The photo is a drawing with most of the air vents missing. Please the below similar photo in your Coastal Commission staff report. This photo shows the huge air vents and also indications of early rust on the lids. The metal sprays are there to keep the seagulls from pooping on and inside the lids. Another possible corrosion mechanism.
  https://sanonofresafety.files.wordpress.com/2019/02/sanonofreholtecumax-lidrustingsce.jpg?w=768&h=460

Laser peening can make problems worse and there are many unknowns.

- "Laser peening can result in surface roughness...The roughness can be areas of stress concentration and crack initiation sites which have adverse effect on fatigue life of components." This and other potential problems with laser peening explained in this reference: *Laser Peening Process and Its Impact on Materials Properties in Comparison with Shot Peening and Ultrasonic Impact Peening*, Abdullahi K. Gujba 1 and Mamoun Medraj, 2014
  https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5456420/pdf/materials-07-07925.pdf

- Peening will induce a higher hardness into the weld and this is something that should be avoided. For this reason, peening is not normally accepted by the majority of codes, standards or specifications (ex. ASME B31.3 para 328.5.1 (d) location changes when new codes are published)." https://en.wikipedia.org/wiki/Peening

- Furthermore: "Among the fabrication processes, welding has the greatest potential to affect the integrity of the waste package… although compressive stress is expected in the peened areas, the residual tensile stress may be greater than the original, nonpeened level at the transition zone just outside the peened area. The transition area between the peened and nonpeened regions at the surface of the welds needs to be carefully studied. Numerous failures were observed at these transition regions in laser-peened steam generator tubes (Wong and Payer, 2002)" [cited in Tszeng, 2008]

- Inspection requirements for these components are prescribed by U.S. Nuclear Regulatory Commission (NRC) regulations (based on American Society of Mechanical Engineers Boiler and Pressure Vessel Code Cases). NRC approval is thus required for relaxation of these inspection requirements following peening mitigation. Licensees may reference this topical report in support of site-specific relief requests. Transmittal of Materials Reliability Program: Topical Report for Primary Water Stress Corrosion Cracking Mitigation by Surface Stress Improvement (MRP-335 Revision 3-A), EPRI 2016.3002009241, Burgos B, Czufin D, Electric Power Research Institute (EPRI), 11/08/2016
  https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML16319A282

- The NRC has not evaluated peening in canisters. Unresolved issues include:
  – Validate uncertainty in x-ray diffraction residual stress measurements
  – Validate locations on CRDM nozzles where residual stress measurements should be made
  – Validate effect of peening on ability of UT/ET in finding pre-existing cracks
  – Validate effectiveness of peening in reducing initiation of PWSCCC

Peening Validation Program Update slides, February 28, 2017
https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML17054C407

- "Hydrogen-rich environments such as fuel cell reactors can exhibit damage caused by hydrogen permeation in the form of corrosion cracking by lowering tensile strength and decreasing material ductility. Coatings and liners have been investigated, but there were few shot-peening or laser peening studies referenced in the literature with respect to preventing hydrogen embrittlement. The surface compressive residual stress induced by laser peening had shown success in preventing stress corrosion cracking (SCC) for stainless steels in power plants. The question arose if the residual stresses induced by laser peening could delay the effects of hydrogen in a material. This study investigated the effect of laser peening on hydrogen penetration into metal alloys. Three areas were studied: laser peening, hydrogenation, and hydrogen detection. This study demonstrated that laser peening does not reduce the hydrogen permeation into a stainless steel surface nor does it prevent hydrogen embrittlement. The effect of laser peening to reduce hydrogen-assisted fatigue was unclear."
  Zaleski, Tania M. *Investigation of Laser Peening Effects on Hydrogen Charged Stainless Steels*. United States. doi:10.2172/965957.

I would like more time to review all these documents and add additional comments in case what I have submitted isn't sufficient for the staff to oppose the SCE Inspection and Maintenance Program. Therefore, please consider rescheduling the July 16th meeting.

An Aging Management plan will be relevant for the upcoming permit request for the aging Areva NUHOMS thin-wall canisters at San Onofre. Some of these thin-wall canisters are already 17 years old. None of them have been inspected for cracks. This is very different system than the Holtec system, although there are many similarities. No one knows how many cracks or how deep the cracks are in the older system, since there is no adequate inspection technology to find cracks in the canisters once they are placed in service. Both the Holtec and NUHOMS requirements for transportability should be considered. The related Coastal permit for Decommissioning affects both systems.

Fuel pools are needed in order to replace defective canisters to ensure transportability. SCE and LPI have not provided evidence to prove otherwise.

The Coastal Commission should be aware of how other countries are managing their dry storage systems. Please share the below link with the Commissioners. It's an example of how other countries, such as Switzerland are successfully managing their systems. They started by selecting thick-wall casks designed to be inspected, maintained, monitored and repaired. In contrast, SCE is using a system where these basic minimum requirements do not exist.
The Swiss Solution a type of system SCE must have in order to meet Coastal Commission Special Condition 7 for transportability.

The Swiss Solution
https://sanonofresafety.org/swiss/

Thanks,

Donna Gilmore
SanOnofreSafety.org

949-204-7794

Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co). San Onofre, Comment

Donna Gilmore <donnagilmore@gmail.com>

Sat 7/11/2020 11:53 AM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Street, Joseph@Coastal <Joseph.Street@coastal.ca.gov>; Len R. Hering <lrhering@aol.com>; Krista Kalene Walker <kalewalk@gmail.com>; Torgen Johnson <torgenjohnson@hotmail.com>; Gregory Jaczko <gregoryjaczko@gmail.com>

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>
> https://www.nrc.gov/docs/ML0202/ML020250512.html

Citizens Oversight settlement & other transport promises

Donna Gilmore <donnagilmore@gmail.com>

Sat 7/11/2020 1:08 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Street, Joseph@Coastal <Joseph.Street@coastal.ca.gov>; Len R. Hering <lrhering@aol.com>; Gregory Jaczko <gregoryjaczko@gmail.com>; Krista Kalene Walker <kalewalk@gmail.com>; Torgen Johnson <torgenjohnson@hotmail.com>

My understanding is that the Coastal Commission was not a party in the Citizen's Oversight settlement agreement. The language on page 8 of the staff report doesn't clarify that issue.

Also, the settlement agreement has no teeth and may give false hope that any of the relocation options listed there are viable.

Please revise staff report accordingly.

Given the history of failed attempts to relocate ISFSI's in the U.S., such as the Private Storage Facility site in Utah, or to even locate a low level waste facility in California, such as the failed attempt at Ward Valley, it would be better to not give false hope and to provide more realistic expectations.

Also, proposed federal bills, such as S.1234 promising to move the waste to a Consolidated Interim Storage or Monitored Retrievable Storage Facilities contain many flaws. For example, they allow title transfer from utilities such as SoCal Edison and PG&E at **EXISTING** sites. They also remove current mandatory funding (from lawsuits against the Treasury). Instead, we will be at the mercy of Congress to provide adequate funding. This was in the COB analysis for H.R.3053 that has some similar language.

In addition, these bills remove safety requirements for storage and transport of the containers. They also take away state, federal and public rights for transparancy.

Both New Mexico and Texas Governors do not want these canisters. We cannot force them to take them. The receiver gets to decide.

The Pentagon doesn't want the canisters on their property anywhere in California or elsewhere. So far, they have been successful in sending their waste to the Department of Energy.

Page 8 current text:
"Following this approval, SCE constructed the ISFSI, which consists of a large concrete pad with space for vertical storage of steel canisters that hold spent nuclear fuel and began transferring spent nuclear fuel in the canisters to the ISFSI. In addition, a legal settlement of a challenge to CDP 9-15-0228 resulted in a change to the due date for the Inspection and Maintenance Program to October 2020.3
3 **In November 2015, CDP 9-15-0228 was challenged in court and resolved by settlement in August 2017**
(Citizens Oversight, Inc. et al. v. California Coastal Commission, Southern California Edison Company, et al., Superior Court for County of San Diego Case No. 37-2015-00037137-CU-WM-CTL). Stipulations to the settlement agreement include:
1. SCE shall retain an “experts team” to advise SCE on issues related to the proposed relocation of SONGS spent nuclear fuel to an offsite storage facility.
2. SCE shall develop a “strategic plan” to support the development of a Commercially Reasonable

Offsite Storage Facility for spent nuclear fuel.
3. SCE shall develop a conceptual transportation plan to transport SONGS spent nuclear fuel to an offsite storage facility assumed to be located in the southwestern U.S.
4. SCE will make a written request to solicit an agreement from the owners of Palo Verde Generating Station, a nuclear power plant near Tonopah, Arizona, regarding the development of an expanded ISFSI at the Palo Verde site to store SONGS spent nuclear fuel. If this request is accepted, SCE will engage in discussions with the owners of Palo Verde to evaluate the feasibility of licensing...

Thanks,

Donna Gilmore
SanOnofreSafety.org
949-204-7794
donnagilmore@gmail.com

Re: Pit Corrosion and Sideways Pits

Kale Walker <ggchappykale@yahoo.com>

Mon 7/13/2020 7:22 AM

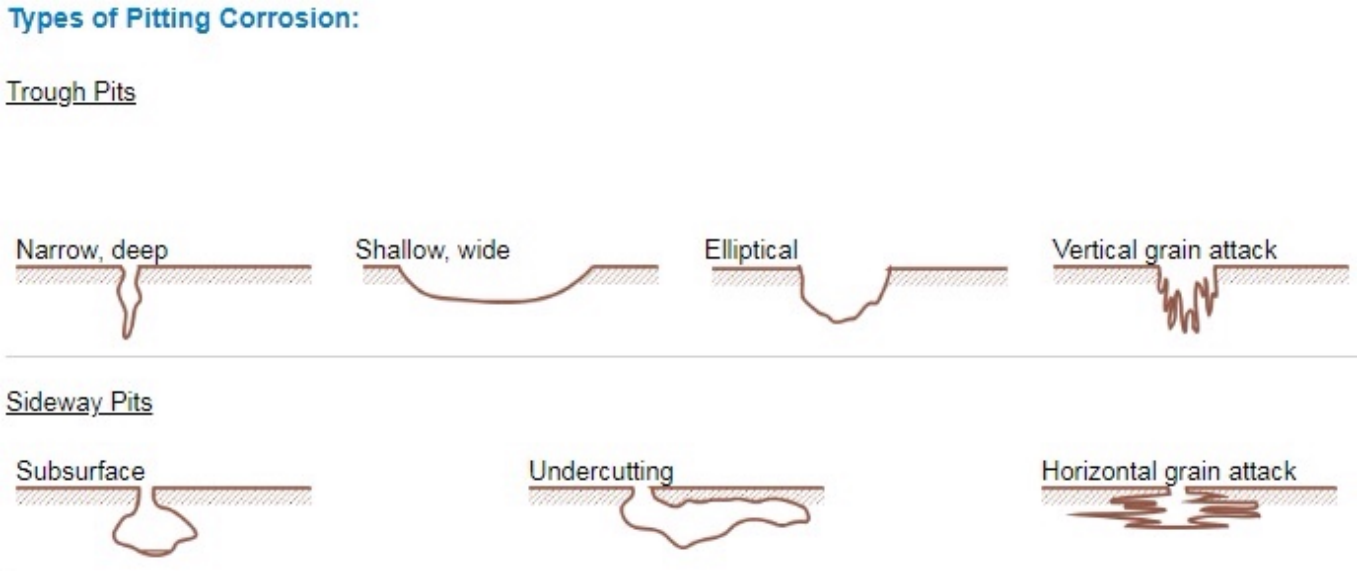
To: Paul <pmblanch@comcast.net>
Cc: Weber, John@Coastal <john.weber@coastal.ca.gov>; Donna Gilmore <donnagilmore@gmail.com>; Greg Jaczko <gregoryjaczko@gmail.com>; Hering R. Sr. <lrhering@aol.com>; Marv Lewis <marvlewis@juno.com>; Torgen Johnson <torgenjohnson@hotmail.com>

Hi John,
Pit Corrosion and Sideways Pits is another example showing why the Coastal Commission must reject Edison's 'Visual Assessment' as a viable 'Inspection' plan.

The LPI Report admits (pg 10) that 'pit corrosion' is one of the most likely degradation mechanisms at SONGS.

A Visual Assessment with a camera can only view the surface of a canister - it can not view or characterize the degradation a 'Sideways Pit'. see image

https://www.nace.org/resources/general-resources/corrosion-basics/group-1/pitting-corrosion
Image from NACE (National Association of Corrosion Engineers)



Just one bad pit could cause canister failure.

Thank you for including this with my previous comments.
Kalene

> On Jul 10, 2020, at 3:45 PM, Kale Walker <ggchappykale@yahoo.com> wrote:
>
> Hi,
> I'm wondering if you received and reviewed my comment.
> Do you have any disagreements or questions? Please let me know before the meeting, so I have an opportunity to respond to questions Or disagreements.

I'd appreciate a response before the meeting.

To clarify and reiterate on the Corrosion Problem:
I find it interesting that the LPI report mentions the shield ring, but never that it is made of carbon steel. I did a word-search of the LPI document, and it does not even mention the word 'carbon', yet it claims no disparate metals in the system.

Carbon introduces a whole new mode of corrosion mechanisms to the canisters.
'Carbon steel stains' and 'iron oxides' are not minor problems. They indicate the presence of carbon particles on the stainless steel canisters - - a SIGNIFICANT trigger for stress corrosion cracking.

Edison's report even references the problem with carbon in their Design Improvements section (pg 9). It states "Typically, canisters fabricated for spent fuel storage are constructed with stainless steel 304. **SCE's use of stainless steel 316L minimizes carbon content within the shell and weld material, which SIGNIFICANTLY minimizes the potential for SCC."**

Using statistics and probability are not adequate methods to analyze this corrosion mechanism that has now been introduced to virtually every Holtec canister.
A Visual Assessment CANNOT find cracks (according to ASME) characterize flaws (length, width, depth, direction of cracks) or the propagation **crack growth rate**.

SCE's professional engineers who signed the Visual Assessment report made this clear that the visual assessment is NOT an inspection by ASME or any other code. LPI and SCE have NOT provided adequate evidence that the ISFSI containers can be inspected or maintained according to Condition 7 of their Coastal permit.

I look forward to hearing your feedback.
Kalene

> On Jul 8, 2020, at 3:33 PM, Kale Walker <ggchappykale@yahoo.com> wrote:
>
> Hello Mr. Weber,
> I've been reading the documents regarding Edison's proposed Inspection Maintenance Program for the SONGS Holtec ISFSI.
> https://www.coastal.ca.gov/meetings/agenda/#/2020/7 (Agenda item 3. Conditions of Compliance - July 17, 2020 meeting)

With only a partial review, I've found serious errors and misrepresentations in the reports.
The following problems undermine the credibility and validity of the LPI and Edison Reports (Appendix B and Appendix C)

Problem #1 – Draft ASME Code Case N-860

Both the Edison and LPI Reports reference Draft Code Case N-860 to validate the proposed inspection and repair plans.
Edison states, "SCE's inspections will be modeled after the American Society of Mechanical Engineers' (ASME) Draft Code Case N-860, which provides guidance for the inspection and maintenance of spent fuel canisters to manage potential degradation from SCC." (Appendix C pg 4)

The LPI report refers to the Draft Code numerous times with footnote [6], particularly in their recommendation for a '10% flaw allowance'. (Appendix B pg 4)
[6] ASME Code Section XI, Division 1 and 2, **Draft Code Case** N-860, "Inspection Requirements and Evaluation Standards for Spent Nuclear Fuel Storage and Transportation Containment Systems," Rev. 0ah, February 26, 2020.

But Code Case N-860 is NOT an approved code. It is a draft.
A draft document must not be considered a valid technical reference for assessing inspection or repair capabilities - or for basing recommendations.
Contrary to Edison's claim that the draft is "currently being finalized and is expected to be approved by the end of 2020" (Appendix C pg 20), this February 1, 2019 report on the draft code states, "The new code case being developed for ASME Section III is currently at stage 2" of a 7 stage process. (see Table 5 on page 10)
https://www.researchgate.net/publication/339014285_Application_of_the_Advanced_Surface_Modification_Process_to_the_ASME_Code_Case_for_Sections_III_and_XI_of_Nuclear_Power_Plants/fulltext/5e38ca95299bf1cdb90aef18/339014285_Application_of_the_Advanced_Surface_Modification_Process_to_the_ASME_Code_Case_for_Sections_III_and_XI_of_Nuclear_Power_Plants.pdf?origin=publication_detail

There is no guarantee this draft will become Code - the industry has been trying to solve the problem of the inability to adequately inspect or repair stress corrosion cracks in these in-service pressure vessels for decades - with no adequate solution to date.

That LPI would recommend a Draft Code indicates they were not able to find an approved ASME Code, and represents a desperate attempt to find a way to validate Edison's unapproved inspection and repair plans. This is unacceptable by any professional standards.

Problem #2 - Inspection and Repair

Edison continues to mislead the Commission and the public by claiming they can "inspect" canisters for cracks - and characterize cracks. Documents obtained through FOIA (Freedom of

Information Act) contain Edison's Visual Assessment Report which explicitly states, "This is NOT a formal 'inspection' or an activity qualified to ASME Sections Ill, V, XI or otherwise."
https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML19261A089 (attached image pg 124)
<image0.jpeg>
NRC senior inspector, Lee Brookhart stated that it's impossible to inspect or repair
canisters. https://sanonofresafety.files.wordpress.com/2019/10/ccc-comments.pdf

And Edison's proposed nickel spray "repair" process has not been approved by the NRC or ASME, nor has it been demonstrated in an actual canister or tested to withstand pressure limits.

Problem #3 - Carbonic Corrosion
The LPI report clearly makes an incorrect
statement regarding Carbonic Corrosion. The report states, "This degradation mechanism is seen as extremely unlikely (there are no dissimilar metals in contact for the UMAX canister system)."
(Appendix B page 50)

In fact, a basic problem with the Holtec system is that stainless steel canister walls scrape and gouge against carbon steel guide rings and seismic restraints during canister downloading.

A valid and professional report on the SONGS proposed IMP would include a technical assessment by professional structural and material engineers of the potential introduction of new corrosion mechanisms and new corrosion sites caused by the carbon steel contamination.

Edison references carbon steel contamination numerous times in their Visual Assessment Report.
https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML19261A089 (pgs 121 - 138)
(attached image is from pg 136)
<image1.jpeg>
Not only did LPI not address the 'dissimilar metal' and carbon steel contamination issues, but they presented incorrect information as fact.
This calls into question the validity of the entire LPI report.

The Commission must not accept a report with faulty information as a credible expert assessment.
A flawed LPI report does not satisfy Special Condition 19 of the Decommissioning Permit.
Please revise your staff report and do not recommend approval.

Thank you for reviewing these serious issues.
I would appreciate your feedback BEFORE the July 16, 2020 meeting.

Sincerely,
Kalene Walker
760-712-2799

Paul Blanch
135 Hyde Rd.
West Hartford, CT 06117
pmblanch@comcast.net
860-236-0326
Cell 860-922-3119

From: Peter Andersen <westone47@gmail.com>
Sent: Monday, July 13, 2020 2:38:57 PM
To: Dettmer, Alison@Coastal <Alison.Dettmer@coastal.ca.gov>; Ainsworth, John@Coastal <John.Ainsworth@coastal.ca.gov>; Huckelbridge, Kate@Coastal <Kate.Huckelbridge@coastal.ca.gov>
Cc: George Courser <gcourser@hotmail.com>; ConsCom <conscom@lists.sierrasd.org>; Dave Hogan <hogansierraclub@gmail.com>; ExComm <Excom@lists.sierrasd.org>; Pam Heatherington <pjheatherington@gmail.com>; Chelsi Sparti <chelsi@samuellawrencefoundation.org>; Dave Rice <daverice1@cox.net>; Amanda <amanda@samuellawrencefoundation.org>; Bart Ziegler <bart@samuellawrencefoundation.org>; Alice McNally <alimcnally8@gmail.com>
Subject: San Onofre Decommissioning

Dear Coastal Commission Staff,

I am Dr. Peter Andersen, Vice Chair of the Sierra Club San Diego Conservation Committee and a member of the National Sierra Nuclear Waste Task Force.

The Sierra Club asks that the Coastal Commission Coastal storage and decommissioning permits require a condition that the applicant maintain the cooling pools and subsequently construct a hot cell on-site at the San Onofre plant.

This is essential for the Coastal Commission to carry out its charge of "protecting and enhancing California's coast and ocean for present and future generations."

There is no emergency response plan for dealing with a damaged or leaking nuclear waste container by either the Nuclear Regulatory Commission or Southern California Edison.

Canisters can be damaged by earthquakes, tsunamis, terrorism, corrosion, high burnup fuel, loss of helium or by accidents (as could have happened in 2018 when one 50 ton canister almost fell 18 feet during spent fuel loading into dry storage).

Sierra Club urges you to oppose Southern California Edison's Coastal Development Permit 9-15-0228 with the California Coastal Commission for Proposed Inspection and Maintenance Program at San Onofre Nuclear Generating Station.

Removing the spent fuel pools at San Onofre without a validated handling facility on-site is an irresponsible decision. The spent fuel pools are the last option for dealing with a damaged canister.

Before storage or transportation of canisters you must require the applicant to construct a handling facility on-site to mitigate damaged canisters by retaining spent fuel pools, until a validated handling facility is built (i.e. hot cell). A damaged canister would expose the Southern California coast to dangerous radiation that would harm California's residents, natural resources, coastal tourism, and economy.

Dr. Peter Andersen
Sierra Club San Diego

San Onofre

Peter Andersen <westone47@gmail.com>

Tue 7/14/2020 8:14 AM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Dave Rice <daverice1@cox.net>; Bart Ziegler <bart@samuellawrencefoundation.org>

Dear Commissioner Weber,

This is Dr. Peter Andersen, Vice Chair of the Sierra Club San Diego Conservation Committee and a member of the National Sierra Nuclear Waste Task Force.

The Sierra Club asks that the Coastal Commission Coastal storage and decommissioning permits require a condition that the applicant maintain the cooling pools and subsequently construct a hot cell on-site at the San Onofre plant.

This is essential for the Coastal Commission to carry out its charge of "protecting and enhancing California's coast and ocean for present and future generations."

There is no emergency response plan for dealing with a damaged or leaking nuclear waste container by either the Nuclear Regulatory Commission or Southern California Edison.

Canisters can be damaged by earthquakes, tsunamis, terrorism, corrosion, high burnup fuel, loss of helium or by accidents (as could have happened in 2018 when one 50 ton canister almost fell 18 feet during spent fuel loading into dry storage).

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Before storage or transportation of canisters you must require the applicant to construct a handling facility on-site to mitigate damaged canisters by retaining spent fuel pools, until a validated handling facility is built (i.e. hot cell). A damaged canister would expose the Southern California coast to dangerous radiation that would harm California's residents, natural resources, coastal tourism, and economy.

Dr. Peter Andersen
Sierra Club San Diego

Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co). San Onofre, Comment

Donna Gilmore <donnagilmore@gmail.com>

Tue 7/14/2020 8:33 AM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>

I see the draft ASME Case Code N-860 for inspection of canisters was approved. I have not seen the contents of this case code. Would you please share that information?

SCE references volumetric inspections in reference to that Case Code. That would normally be something like ultrasonic inspection for flaws/cracks. I have not seen any evidence by SCE, LPI or anyone else verifying this technology or any other technology is proven for adequate volumetric inspection in the Holtec UMAX canister system. I know the industry is researching and experimenting on this at least for above ground thin-wall canister systems. But so far anything that has been done is preliminary and not adequate

Be careful when you see the term "best available technology". That doesn't equate to adequate technology.

Currently, the "best available technology" cannot adequately inspect for cracks or characterize cracks in these thin-wall canisters.

Calvert Cliffs ISFSI was relicensed for storage with that terminology, so is not an example of proven success. The NRC did not require that technology be available that can thoroughly inspect for cracks and repair and maintain these canisters. They do not require the interior of the canisters to be inspected.

They only need to inspect external surfaces using "*proven technology* ***reasonably available***", which is vague and inadequate. Here's the exact wording:

"The licensee shall perform inspections of DSC [dry storage canister] external surfaces using proven technology ***reasonably available*** *at the time the inspection is conducted which is capable of meeting the physical access and environmental constraints of the HSM (concrete overpack) interior.*

https://www.nrc.gov/docs/ML1427/ML14274A030.pdf

More Calvert Cliffs renewal documents here.
https://sanonofresafety.org/calvert-cliffs-nuclear-power-plant/

Also, where is the evidence that the nickel cold spray repair technology has been tested and approved by ASME? I don't think it's part of that Code case or any ASME code or other code for these pressure vessels.

I'm not seeing evidence in either the LPI or SCE reports. Where is the written research and evidence on this? A video spraying nickel on stainless is not evidence it is an effective repair.

Pressure vessels are more complicated structures. ASME codes were created to avoid explosions of pressure vessels. This is a major issue that shouldn't be accepted lightly.

Donna Gilmore
SanOnofreSafety.org
949-204-7794
donnagilmore@gmail.com

San Clemente Green
Citizens for a Sustainable Future

July 13, 2020

Public Comment on July 2020 Agenda Item undefined 3a - Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co).

San Clemente Green represents nearly 5000 concerned citizens living in harm's way. We call for denying this permit, until further examination of the claims made by LPI can be more thoroughly examined. There is no need to rush this decision. The timeline SCE has set forth to demolish the domes and pools is still years out.

The Coastal Commission should heed the warnings from a recent congressional task force regarding nuclear waste at San Onofre, in which we were participants. The task force established by Rep.Mike Levin, was co-chaired by Len Hering, a retired rear admiral who served in the U.S.Navy for 30 years, and Gregory Jaczko, former chairman of the Nuclear Regulatory Commission from 2009 to 2012. Please take the time to review the full report and virtual press conference before this meeting, if you have not done so already.

The task force of 33 members included elected officials from some of the towns around the San Onofre plant as well as members with significant experience in nuclear power, concerned citizens, and four members of Edison's Community Engagement Panel. For the most part, people on this diverse panel agreed that we must keep the spent fuel pools intact until they can build a dry fuel handling facility, (also called a hot cell). Otherwise, we will have no proven way to deal with a damaged or leaking canister over the next few decades while the waste remains on site for a required period of cooling.

The proposed experimental method for monitoring and maintaining these thin, pressurized canisters has yet to be approved. Spraying a thin metallic coating on a surface defect may slow the effects of corrosion but is totally inadequate for repairing or replacing the highly radioactive contents of these containers if needed for onsite or off-site transportation. The task force recognizes the need to consider proven monitoring and maintenance systems currently in use, specifically mentioning the Zwilag facility in Switzerland. The task force requests a study be done regarding many of these matters by the National Academy of Sciences. We need time for that.

These quotes from the press conference, should be reason enough to deny this permit until additional research has been completed:
Rep. Mike Levin, "We must do better than this!"
Greg Jaczko, "the movement of fuel, is the most risk significant in many ways".
Len Hering, "This report clearly shows how the relaxation of (oversight) has put us at risk."

Let's not rush this crucial decision.

Gary Headrick
Co-founder - San Clemente Green

2837 Penasco - San Clemente - California - 92673 (949) 218-4051

July 14, 2020

California Coastal Commission
45 Fremont St #1900
San Francisco, CA 94105

To: Steve Padilla, Chair, California Coastal Commission

CC: Jack Ainsworth, Executive Diretor, California Coastal Commission
Alison Dettmer, Senior Deputy Director, California Coastal Commission

Re: July 16 Special Meeting - San Onofre Inspection and Maintenance Program Condition Compliance for CDP No. 9-15-0228

Dear Chair Padilla and Commissioners,

The Surfrider Foundation (Surfrider) offers the following comments to the California Coastal Commission (Commission) regarding Southern California Edison's (Edison) Proposed Inspection and Maintenance Program (IMP) at the San Onofre Nuclear Generating Station (SONGS). Surfrider is a non-profit organization that works to protect our ocean, waves, and beaches for the enjoyment of all people through a powerful community-based network. We strongly urge you to oppose or postpone Edison's IMP as proposed. The IMP does not meet the requirement of Special Condition 7 of the Commission's 2015 Coastal Development Permit (CDP) "to ensure that the fuel storage casks will remain in a physical condition sufficient to allow both on-site transfer and off-site transport", by failing to provide sufficient detail on the proposed inspection and repair methods, especially regarding concrete inspections of the independent spent fuel storage installation (ISFSI), and reliable plans for ensuring repair and transportability of spent fuel casks. Please consider including the below mentioned modifications before approving Edison's proposed IMP.

I. The Coastal Commission Has Jurisdiction Over Edison's Proposed Inspection and Maintenance Program.

Surfrider requests that the Commission refrain from approving the IMP until Edison has further addressed certain safety concerns related to onsite inspection and repair mechanisms, transportability, and reporting potential canister issues. Although federal requirements do not require the Nuclear Regulatory Commission (NRC) to evaluate the proposed safety measures beyond what is referenced in the IMP, those requirements are inadequate and do not consider the potential for long term geologic, coastal and seismic risks at the SONGS site. The Commission is responsible for protecting our coastal environments and

ensuring safety within our coastal communities, which will face enormous risk if a canister storing nuclear materials fails without appropriate solutions in place. It is clearly within the Commission's jurisdiction to decline approving the IMP until Edison addresses these concerns.

II. Edison Must Provide Further Details on the Proposed Processes for the Inspection and Repair of ISFSI Components, and Enhance Public Notification.

The current IMP proposes to utilize robotic technology and a test canister method to monitor the canisters for cracks and degradation.[1] However, the proposed inspection schedule is very limited. Currently, the test canister method will only be tested once every 2.5 years.[2] Additionally, once the test canister has been tampered with to assess potential repair mechanisms, it may no longer be reflective of the loaded canisters onsite. The robotic inspection method plans to inspect only two canisters every five years.[3] Further, the robotic inspections purport to cover 98% of the canister surface, but excludes the canister base from testing. In addition to increasing the number of canisters tested to an amount that results in a sample size reflective of the entire population of Holtec canisters onsite, Edison must provide clarification on how the robotic inspection test percentage was determined and whether the same percentage of the canisters will continue to be inspected in the future.

The NRC only requires one inspection every five years, leading to the false assumption that Edison has gone above and beyond in monitoring the condition of its canisters. However, as stated in the IMP, "[t]he frequency and number of canisters inspected can be modified by the Independent Spent Fuel Storage Installation (ISFSI) license holder based on its inspection results, and any other factors that may warrant additional (or fewer, if inspection results show no degradation) inspections."[4] Given the site's proximity to the coastline and the potential local and regional impacts to the coastal environment from unretrievable spent fuel in stranded canisters stuck on the coast in perpetuity, **Surfrider recommends that Edison increase its testing schedule to ensure canisters remain intact and transportable**. Specifically, Surfrider suggests that Edison: 1) increase the robotic canister inspections to a larger sample size of canisters every 5 years; 2) increase the robotic canister inspection to at least two canisters (test canister + one loaded canister) every 2.5 years; and 3) increase its concrete visual inspections to monthly with more clarification of exactly what will be inspected during the visual concrete inspections, how they will be completed and by whom, including the training and credentials of those performing the inspections. The structural integrity of concrete components of the ISFSI is essential for ensuring retrievability of loaded canisters from the vertical ventilated modules

[1] CDP 9-15-0228, 13-18.
[2] CDP 9-15-0228, 17.
[3] CDP 9-15-0228, 17.
[4] CDP 9-15-0228, 17.

(VVM), as the concrete pad must be able to withstand the weight of necessary machinery used for downloading and retrieving canisters.[5]

According to the current IMP, Edison will release a report to the Commission and the general public regarding inspection results, trends, and any corrective actions taken within six months following the inspection.[6] **Surfrider recommends that if there is indication of degradation of the canisters and ISFSI components during an inspection, the timeframe for reporting such issues be shorter**, to adequately inform the Commission and the public of any potential issues with the ISFSI.

III. Edison Must Submit Further Details on the Metallic Overlay Method and Other, Reliable Methods for Handling a Damaged Canister.

The spent fuel cooling pool system is the only mechanism currently available onsite to remove spent fuel from loaded casks and allow the transfer of spent fuel rods from a damaged or faulty cask to a replacement cask. In other words, these spent fuel pools have been the only onsite method available for dealing with a severely damaged canister. Edison now plans to remove most of its onsite structures consistent with the decommissioning process, including the spent fuel pools. If a situation arises where a cask is cracked, damaged or otherwise malfunctioning, the cask must either be adequately repaired in a manner that is consistent with requirements for offsite transportation, or the fuel in a damaged cask would need to be transferred to a new, intact cask. It is therefore imperative that Edison retain an alternative method for dealing with failed canisters onsite.

The current IMP proposes a “metallic overlay” method for repairing a potentially damaged canister.[7] This method combines a robotic visual assessment with metallic overlay technology, employing a high-energy solid□state coating and powder consolidation process to repair the cracked cask.[8] Specifically, the metallic overlay process purports to conduct particle adhesion via an electrically heated high□pressure carrier gas to accelerate metal powders through a supersonic de Laval nozzle above a critical velocity.[9] According to the IMP, this method has been successfully tested by Edison and following an internal assessment, Edison concluded

[5] Day, K. 2020. Self-Assigned Surfrider Foundation Question (2) What are potential impacts on the ISFSI and canisters if directly exposed to saltwater or groundwater?. Rep. Levin San Onofre Task Force Report, Technical Analysis. http://www.samuellawrencefoundation.org/wp-content/uploads/2020/06/Katie-Day.pdf
[6] CDP 9-15-0228, 23.
[7] CDP 9-15-0228, 19.
[8] CDP 9-15-0228, 19.
[9] CDP 9-15-0228, 19.

that outside approval by the Nuclear Regulatory Commission (NRC) was not required.[10] Edison has also identified a grinding method for removing flaws on the canisters' exterior.[11]

Surfrider requests that additional vetting of these processes take place prior to IMP approval. Currently, the metallic overlay has only been applied to a test canister, demonstrating a need for additional testing to ensure reliability of the method. The IMP makes no mention of prior testing for the grinding method. Further, Edison has not shown that either metallic overlay or grinding would be sufficient for an emergency response, and has not assured that a canister repaired using either method would meet the requirements for offsite transportability. The IMP claims that Edison is considering other potential mitigation methods such as an overpack,[12] yet the IMP also states that NRC approval for use of an overpack as extended storage of a damaged canister has not been further explored due to time-consuming testing and licensing process.[13] However, it should be noted that this review process is time-consuming because it takes time to test and ensure safety, which should ultimately be a goal of the IMP. **Surfrider therefore recommends that Edison submit a more clearly defined plan for exploring alternative repair and storage mechanisms** (such as use of an overpack).

IV. The Current Methods as Proposed by the IMP Fail to Address Canister Transportability Offsite.

It is crucial that the IMP address transportability of failed or damaged canisters. Currently, neither the proposed metallic overlay nor the grinding method address transportability offsite. Additionally, there is no clarification on whether the backup overpack method that Edison has considered would ensure transportability of the canister offsite. Once a canister becomes impaired with a crack or any type of dysfunction, it may not be allowed to be transported offsite for repair. When the spent fuel is ultimately transferred from SONGS to an interim or permanent storage location, a damaged cask may be stranded if it is not adequately repaired onsite or if there is no way to transfer the spent fuel to a new, intact cask. Without cooling pools, the only other option for repackaging spent fuel canisters would be through the use of a hot cell or alternative fuel handling facility.. The IMP must consider methods such as these that provide for transportability to ensure that damaged casks are not stranded at SONGS in the future.

Due to the importance of transportability, **Surfrider recommends that the current IMP be updated to address whether the overpack is legally adequate for offsite transfer in the case of a damaged canister, and whether Edison has plans to explore the use of a hot**

[10] CDP 9-15-0228, 21.
[11] CDP 9-15-0228, 22.
[12] CDP 9-15-022, 19.
[13] CDP 9-15-022, 22.

cell, which would safely house a failed canister until the nuclear material became cool enough to transport offsite.

Finally, the IMP fails to address whether Edison has triggers in place for relocating the ISFSI onsite in response to potential coastal hazards, such as coastal erosion, rising sea levels or groundwater rise. We appreciate Edison's effort to conduct annual sea level rise and groundwater vulnerability assessments of the ISFSI, yet it's also important to establish a trigger system with specific indicators, timelines and response plans for relocating the ISFSI once exposure to the coastline and storm surge become imminent.

Surfrider has a large constituency of coastal community members in Southern California who are deeply concerned about the radioactive waste and the ISFSI at SONGS. As an agency charged with protecting our coast, the Commission must ensure that adequate safety precautions are taken to protect the community and the environment from exposure to spent nuclear fuel during the SONGS decommissioning process. This area borders a fault line, is on a receding cliff subject to sea level rise, and is in a tsunami hazard area. SONGS is also in close proximity to one of the nation's busiest transportation corridors (Interstate-5) and the major urban areas of San Diego and Los Angeles. Finally, SONGS is nestled in the middle of one of the state's most picturesque, famous, and popular California State Parks, San Onofre. San Onofre Beach in particular hosts over 2.5 million visitors each year and is home to multiple world-renowned surf breaks and ancient Acjachemen historical sites.

We submit these comments on behalf of Surfrider Foundation's 180 chapters and student clubs, and 500,000 members and supporters in the United States.

Sincerely,

Rosa Acheson
Legal Intern
Surfrider Foundation

Katie Day
Staff Scientist
Surfrider Foundation

Mandy Sackett
California Policy Coordinator
Surfrider Foundation

FW: Comments on July 16 Agenda Item - Permit No. 9-15-0228 (Southern California Edison)

SanDiegoCoast@Coastal <SanDiegoCoast@coastal.ca.gov>
Tue 7/14/2020 12:50 PM
To: Weber, John@Coastal <john.weber@coastal.ca.gov>

-----Original Message-----
From: Joan Herskowitz <jmherskowitz@yahoo.com>
Sent: Saturday, July 11, 2020 10:47 AM
To: SanDiegoCoast@Coastal <SanDiegoCoast@coastal.ca.gov>
Subject: Comments on July 16 Agenda Item - Permit No. 9-15-0228 (Southern California Edison)

Dear Commissioners:

I have great concern about the safety conditions related to the plant shutdown. The report on the shutdown indicates the potential steel and concrete degradation, hazards of the sandstone bluffs, lack of ability to repair damaged cylinders if needed.

There have been infractions in the past at this facility and, considering the precarious ocean site and proximity to geological faults, I feel unsafe with the current plans for the shutdown. Please revise current shutdown plans to provide safe storage of the nuclear material.

Joan Herskowitz
Encinitas, CA

Coastal Development Permit 9-15-0228, Special Condition 7

cathy iwane <cathyiwane@yahoo.com>

Tue 7/14/2020 2:19 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>; Dettmer, Alison@Coastal <Alison.Dettmer@coastal.ca.gov>; Ainsworth, John@Coastal <John.Ainsworth@coastal.ca.gov>; Huckelbridge, Kate@Coastal <Kate.Huckelbridge@coastal.ca.gov>

Dear Coastal Commission Staff,

I'm Cathy Iwane, a private citizen living in Del Mar, San Diego after evacuating my family in 2012 due to the Fukushima triple meltdowns. I work with the Coalition for Nuclear Safety and other local groups.

I urge you to oppose Southern California Edison's Coastal Development Permit 9-15-0228 with the California Coastal Commission for Proposed Inspection and Maintenance Program at San Onofre Nuclear Generating Station.

Edison's management plan for storing 3.6 million pounds of nuclear waste at San Onofre must absolutely include an onsite handling facility before the spent fuel pools are torn down. Decommissioning the spent fuel pools without a validated onsite handling facility is irresponsible.

Why? Edison has no emergency response plan, should a damaged canister breach by accident. Upon questioning by Congressman Mike Levin, Southern California Edison Vice President, Doug Bauder responded that in 2015, the NRC eliminated the requirement for SONGS specific off-site emergency plans by approving the SONGS Permanently Defueled Emergency Plan.

And yet, in August 2018 Edison came within a quarter inch of letting a 52 ton canister free-fall 18 feet into the dry storage vault.

Retaining the spent fuel pools is the last option for dealing with a damaged canister. It's also a last resort to repackaging waste for offsite transportation.

Dr. Gregory Jaczko, former Chairman of the Nuclear Regulatory Commission, tells us that onsite storage of spent fuel at SONGS is expected for an indefinite period of time. Yet, Edison has no plan for damaged nuclear waste storage canisters not fit for offsite transportation. Additionally, the canister repair procedure proposed by Edison has not been tested, nor is it approved by the American Society of Mechanical Engineers codes.

Commissioners, please uphold your mission to protect our coastal environment and future generations from potential widespread contamination. Without adding the conditions of retaining the spent fuel pools and building an on-site handling facility to Edison's IMP, you are woefully ignoring your mission.

Respectfully,
Cathy Iwane
Board of Directors, Samuel Lawrence Foundation

Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co). San Onofre, Comment

Donna Gilmore <donnagilmore@gmail.com>

Tue 7/14/2020 3:38 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>

LPI's responses regarding the DOE Gap Report lack a depth of understanding. This is not just an extended storage issue. This is a short-term storage issue. Regarding their claim the DOE cracking issue only affects 304L, any educated and experienced materials engineer would know that both 304L and 316L are vulnerable to chloride induced stress corrosion cracking. Any difference in crack initiation is insignificant. And the small difference in thickness offers little protection. If they disagree, they need to provide evidence. Crack growth rate will be about the same and can be must faster than they claim.

Here are a few of the references I have on this issue. Let me know if you need more or have any questions.

- Stainless Steel-Nickel Alloys Selection Guide identifies various stainless steel alloys and the advantages and disadvantages of each. "*Stress corrosion cracking (SCC) is one of the most common and dangerous forms of corrosion. Usually it is associated with other types of corrosion that create a stress concentrator that leads to cracking failure. Nickel containing stainless steel is especially susceptible to chloride induced SCC. Figure 7 (page 16) indicates the maximum susceptibility is in the nickel range of about 5-35% and that pure ferritics, such as Types 430, 439, and 409 are immune. The point of maximum susceptibility occurs between 7-20% nickel. This makes types 304/304L, 316/316L, 321, 347, etc., very prone to such failure.*" http://www.metline-pipefittings.in/wp-content/uploads/download/Stainless%20Steel-Nickel%20Alloys%20Selection%20Guide.pdf
- **NRC's NUREG/CR-7030 states *atmospheric corrosion of sea salt can lead to stress corrosion cracking within 32 and 128 weeks*** *in austenitic [corrosion resistant] stainless steel canisters*. See *Atmospheric Stress Corrosion Cracking Susceptibility of Welded and Unwelded 304, 304L, and 316L Austenitic Stainless Steels Commonly Used for Dry Cask Storage Containers Exposed to Marine Environments, NUREG/CR-7030*, October 2010 (ML103120081). http://pbadupws.nrc.gov/docs/ML1031/ML103120081.pdf
    - Several failures in austenitic stainless steels have been attributed to chloride-induced SCC. The components that have failed because of this failure mechanism at nuclear power plants…are made from the same types of austenitic stainless steels typically used to fabricate dry cask storage system canisters. …empirical data has demonstrated that this failure mechanism is reproducible in Type 304 and 304L stainless steel as well as in Type 316L stainless steel. Accordingly, the NRC expects that all types of austenitic stainless steels typically used to fabricate dry cask storage system canisters (304, 304L, 316, and 316L) are susceptible to this failure mechanism…Several instances of chloride-induced SCC have occurred in austenitic stainless steel components that were exposed to atmospheric conditions near salt-water bodies…. relevant examples:In the fall of 2009, three examples of chloride-induced SCC which extended through-wall were discovered at the **San Onofre Nuclear Generating Station** (SONGS) in the weld heat-affected zone (HAZ) of Type 304 stainless steel piping. http://pbadupws.nrc.gov/docs/ML1104/ML110400241.pdf

> The piping included 24-inch, Schedule 10 emergency core cooling system (ECCS) suction piping; 6-inch, Schedule 10 alternate boration gravity feed to charging line piping; and an ECCS mini flow return to refueling water storage tank. While the through-wall failures were attributed to chloride-induced SCC, surface pitting was also observed on the surface of the pipes, with a greater concentration in the weld HAZ. All three pipes were exposed to the outside ambient marine atmosphere. Through-wall cracks developed after an estimated 25 years of service…

Potential Chloride-Induced Stress Corrosion Cracking [SCC] of Austenitic Stainless Steel and Maintenance of Dry Cask Storage System Canisters, NRC Information Notice 2012-20: November 14, 2012 (ML12319A440).

- **An Assessment of Materials for Nuclear Fuel Immobilization Containers, AECL-6440 K. Nuttall and V.F. Urbanic, Atomic Energy of Canada Ltd, Chalk River Nuclear Laboratories, September 1981 (ML040150703)**

> …Of the remaining alloy systems discussed, the commercial alloys considered as most promising can be ranked according to their crevice corrosion behaviour in aqueous chloride solutions……
>
> Of the materials reviewed, the [titanium] Ti-0.2% Pd alloy is the most resistant to crevice corrosion in chloride solutions. However, it is at least a factor of two more expensive than C.P. titanium
>
> ….Sandia workers have eliminated the 300-series type stainless steels [e.g. 304, 304L, 316, 316L] from their list of candidate alloys for waste and fuel immobilization containers for the waste Isolation Pilot Plant [WIPP] because of the likelihood of SCC in the salt environment…

- **NRC metallurgist Darrell Dunn said cracks of the thin (1/2 to 5/8 inch) stainless steel spent fuel containers may grow through the wall in 16 years.** This is of particular concern near coastal environments. These dry storage containers are the primary radiation barrier to the highly radioactive spent fuel. In the August 5, 2014 NRC public meeting on stress corrosion cracking, the NRC stated: *"…Based on estimated crack growth rates as a function of temperature and assuming the conditions necessary for stress corrosion cracking continue to be present, the **shortest time that a crack could propagate and go through-wall was determined to be 16 years after crack initiation**…" See page 4 of meeting summary.* August 5, 2014 NRC Chloride Induced Stress Corrosion Cracking Regulatory Issue Resolution Protocol (TAC LA0233) meeting documents.
- Chloride-Induced Stress Corrosion Cracking Tests and Example Aging Management Program, Darrell S. Dunn, NRC (ML14258A082), August 5, 2014
- Summary of August 5, 2014, NRC Public Meeting with the Nuclear Energy Institute on Chloride Induced Stress Corrosion Cracking Regulatory Issue Resolution Protocol (ML14258A081), September 9, 2014
- NRC link to documents for August 5, 2014 NRC meeting (ML14258A087)
- Atmospheric SCC of welded stainless steels has been observed. Component failures in 11-133 years. Estimated crack growth rates of 0.11 to 0.91 mm/yr. See selected slides from 8/5/2014 NRC presentation:
    - https://sanonofresafety.files.wordpress.com/2011/11/stresscorrosioncrackingnrcslide2-2014-07-14.jpg

    - https://sanonofresafety.files.wordpress.com/2013/06/nrc-2014-08-05slide9-pplants-scc.jpg
- **Power plant operating experience with stress corrosion cracking** of stainless steel shows estimated crack growth rate of up to 0.91 mm (0.036 inch)/year for cold metal. Hotter metal, such as spent fuel dry storage canisters, will have increased crack growth rate, although initiation of the crack may take longer. The **Koeberg South Africa plant 304L stainless steel refueling water storage tank (RWST) had multiple cracks up to 15.5 mm (0.61 inch) long within 17 years, which is longer than the thickness of most U.S. canisters (0.61 inch vs 0.50 to 0.625 inch thick)**. More details on extensive cracks at Koeberg:

    - Basson, J.P., & Wicker, C. (2002). Environmentally induced transgranular stress-corrosion cracking of 304l stainless steel components at Koeberg. France: Societe Francaise d'Energie Nucleaire – SFEN.
      https://sanonofresafety.files.wordpress.com/2013/06/environmentally-induced-transgranular-stress-corrosion-cracking-of-304l-stainless-steel-components-at-koeberg.pdf
      Koeberg is a seawater-cooled, 2 x 920 MW Pressurised Water Reactor plant, with a three-loop Framatome nuclear steam supply system. Koeberg is situated 30 km North of Cape Town, South Africa, on the Atlantic coast. Koeberg have detected numerous externally initiated cracks, some through-wall, on seamed piping of safety related systems, the refuelling storage water tanks and cast valves of both units. The tanks, piping and valves are manufactured out of austenitic stainless steel grade 304L and the systems typically operate at temperatures below 50 C. Metallurgical assessment of the cracks concluded it to be transgranular stress-corrosion cracking (SCC) associated with the marine environment (chlorides), susceptible material (304L) and stresses associated with cold forming, welding and casting shrinkage. The cracking was almost exclusively initiated through surface pitting of the components. The problem presented a challenge in that a vast number of components were affected by SCC and due to the largely subsurface nature of the cracking the inspection method had to include grinding of all the pipe surfaces to allow use of dye penetrant testing (PT) to reveal cracks. This paper describes the background to the problem, the inspection method, the morphology and the recovery strategy.
      Abstract: https://inis.iaea.org/search/search.aspx?orig_q=RN:35038747
      Full Koeberg article: https://sanonofresafety.files.wordpress.com/2013/06/environmentally-induced-transgranular-stress-corrosion-cracking-of-304l-stainless-steel-components-at-koeberg.pdf
    - The Koeberg tank required dye penetrant testing (PT) to reveal cracks. This cannot be done with canisters filled with spent fuel. https://inis.iaea.org/search/searchsinglerecord.aspx?recordsFor=SingleRecord&RN=35038747#
    - South Africa uses thick (about 14" thick) ductile cast iron (DCI) cask storage for Koeberg spent nuclear fuel. https://inis.iaea.org/search/export.aspx
    - DCI casks do not have cracking issues. https://www.nrc.gov/docs/ML1432/ML14323A940.pdf

- **The rate of crack propagation is strongly dependent on temperature** but is relatively unaffected by stress intensity. Rates of CLSCC propagation can vary from 0.6mm per year at near ambient temperatures to >30mm per year at temperatures ~100 degrees C. See *Chloride stress corrosion cracking in austenitic stainless steel, Assessing susceptibility and structural integrity, UK*, prepared by the Health and Safety Laboratory for the Health and Safety Executive, 2011 R Parrott, et. al., SK17 9JN (page vii)
  http://www.hse.gov.uk/research/rrpdf/rr902.pdf

- Crack initiation is an unknown variable, since **nuclear industry has not been inspecting installed dry storage canisters** and has yet to develop a method to inspect them for cracks. However, a 2014 inspection for sea salts, found **sea salt crystals on a Diablo Canyon canister that had only been loaded for two years.** Only two Diablo canisters were inspected, ranging from only 2 to 3.5 years in service with heat load of 15 to 20 kW at time of loading. The canister loaded for only two years had sea salts and a low enough temperature range and sufficient moisture to trigger the corrosive environment needed for stress corrosion cracking initiation — much sooner than the NRC expected.
  http://www.nwtrb.gov/meetings/2014/aug/boyle.pdf
  http://pbadupws.nrc.gov/docs/ML1405/ML14052A430.pdf

- California climate zone data shows both Diablo Canyon (Zone 5) and San Onofre (Zone 7) are located in high moisture zones (with on-shore winds, surf, and frequent fog); enough moisture to dissolve salts on the canisters, starting the pitting and cracking process.
  http://www.pge.com/includes/docs/pdfs/about/edusafety/training/pec/toolbox/arch/climate/california_climate_zones_01-16.pdf

- Cracks grow faster in hotter containers.

  - Diablo Canyon: conditions for stress corrosion cracking in 2 years,
    https://sanonofresafety.files.wordpress.com/2011/11/diablocanyonscc-2014-10-23.pdf

  - **Crack initiation at the higher end of the temperature range (up to 80°C) is likely to occur sooner than at ambient temperatures.**
    Most austenitic stainless steels vessels and piping plant experience with SCC [stress corrosion cracking] suggests that incidence of SCC rises dramatically when temperatures exceed 55-60°C. Stainless steel items operating above these temperatures are definitely candidates for preventative measures. Stainless steel equipment operating below 55-60°C will not be totally immune to SCC. (Occasional failures have been reported on ambient temperature equipment after 10-15 years of service).An increase in temperature generally aggravates the conditions for SCC, other conditions being equal. Cracking is more likely to occur at 80°C proceeding about four times faster at this higher temperature in "wicking" tests compared with 50°C. In tests lasting 10,000 hours each, the maximum chloride concentration to initiate SCC was determined to be about 400 ppm at 20°C and 100 ppm at 100°C. These parameters however will vary with the nature of the specific chloride involved. For example, SCC has been reported at temperatures as low as -20°C in methylene chloride, where the aggressive species was almost certainly hydrochloric acid itself, formed by hydrolysis. Cracked: The Secrets of Stress Corrosion Cracking, Dr. Hira Ahluwali
    https://sanonofresafety.files.wordpress.com/2013/06/cracked_-the-secrets-of-stress-corrosion-cracking-_-flowgeeks.pdf

- The NRC has no current mitigation plan for stress corrosion cracks, no adequate inspection plan, and no ability to monitor for helium leaks (which would be an early indicator of canister failure). The NRC frequently follows ASME manufacturing standards. However, ASME does not have spent fuel canister standards for "subcritical crack growth from stress corrosion cracking (SCC), and its impact on inspection intervals and acceptance criteria." Instead, the NRC said canisters with corrosion and/or SCC must be evaluated for continued service in accordance with ASME B&PV Code Section XI IWB-3514.1 and IWB-3640 (which limits cracks to no more than 75% through-wall). The thin-wall canisters do not have ASME N3 certification. The NRC allows exemptions to ASME standards. http://sti.srs.gov/fulltext/SRNL-STI-2014-00151.pdf

- **Canisters at higher temperatures will have faster crack growth rate.** Sandia Chart below shows higher temperatures can cause canisters to penetrate the wall in less than 5 years. This chart assumes canister wall is 0.625″ (5/8″) thick. The majority of the U.S. canisters are only 0.50″ (1/2″) thick. It is unknown when a crack will start, but these canisters are subject to corrosion and cracking from environment conditions such as ocean salts (chlorides). air pollution (e.g., vehicle exhaust sulfides), pitting, and microscopic scratches. Draft Geologic Disposal Requirements Basis for STAD Specification, A. Ilgen, C. Bryan, and E. Hardin, Sandia National Laboratories, March 25, 2015, FCRD-NFST-2013-000723 SAND2015-2175R, page 46
  http://prod.sandia.gov/techlib/access-control.cgi/2015/152175r.pdf

  Crack propagation chart from SAND2015-2175R
  https://sanonofresafety.files.wordpress.com/2013/06/sccpropatationratessandiastad2015-03-25.jpg

Item Thursday 3a- Review of Inspection and Maintenance Program for spent nuclear fuel storage installation at San Onofre Nuclear Generating Station pursuant to Special Condition 7 of CDP 9-15-0228, US Marine Corps Base Camp Pendleton, San Diego County.

July 16, 2020

Dear Commissioners,

Southern California Edison is storing over 3 million pounds of high-level radioactive waste material at the San Onofre Nuclear Generating Station.

Please vote to ensure secure containment of radioactive material to protect the public, our environment, economy and way of life and prevent the risks associated with the indefinite storage of nuclear waste at reactor sites. Help ensure that best practices in canister selection and management of nuclear waste is carried out by utilities or private nuclear waste contractors.

Require Southern California Edison to construct and maintain a handling facility onsite, like a hot cell, before approving any nuclear waste storage permit. This facility should be enclosed and maintained for as long as waste remains onsite.

Thank you for your attention to this most critical issue.

Sincerely,

Donna Frye

Donna Frye

ondition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co). San Onofre, Comment

Donna Gilmore <donnagilmore@gmail.com>

Tue 7/14/2020 4:14 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>

Regarding other issues in the DOE Technology Gap report, these are significant unsolved issues in these thin-wall canisters and are both short and long term issues. I've included the DOE Sandia Lab summary information below. However, for the sake of brevity, I'll summarize them first and explain in non-technical terms.

Thermal Profiles (Priority 1): No one knows if the temperatures are too high in the canisters to cause damage to the contents.

Stress Profiles (Priority 1): No one knows if the contents of the canisters are in a condition that they can survive a trip by rail or road.

Welded Canister Corrosion (Priority 1): No one knows when these canisters will start cracking or how soon the cracks can grow through the wall. It may be short-term. They don't know.

Drying Issues (Priority 2): Water is inside canisters after they are "dried". They don't know how much. They know water can cause damage and accelerate corrosion of materials, yet have no way to monitor this. Irradiated water becomes hydrogen gas. They don't know if there is enough water in the canister to cause over pressurization or an explosion.

Monitoring (Priority 3): They have no current adequate method to inspect canister for cracks.

Cladding Hydride Effects (Priority 3): They don't know how brittle and cracked the fuel rods are. They don't know how much of the Zirconium rod metal is now Zirconium hydrides or what form it is in (explosion risk if exposed to air).

Consequence of Canister Failure (Priority 3): They claim they don't know what will happen or how bad it will be when there are through-wall cracks in the canisters. This item was added to the list of Technology Gaps because they now realize this is a short-term risk.
My documentation outlines various hydrogen gas explosion risks. This was submitted to the NRC: https://www.nrc.gov/docs/ML1826/ML18269A037.pdf Here is a webpage with live links of this information.
https://sanonofresafety.org/nureg-2224-high-burnup-storage-and-transport/

Fuel Transfer Options (Priority 3): They need a hot cell facility designed to repackage the fuel -- hopefully BEFORE through-wall cracks in the canisters.

SAND2019-15479R Gap Analysis to Guide DOE R&D in Supporting Extended Storage and Transportation of Spent Nuclear Fuel: An FY2019 Assessment Prepared for US Department of Energy Spent Fuel and Waste Science and Technology, Melissa Teague1, Sylvia Saltzstein1, Brady Hanson2, Ken Sorenson3, Geoff Freeze1, 1Sandia National Laboratories, 2Pacific Northwest National

Laboratories, 3Sandia National Laboratories, Retired, December 23, 2019, DOI: 10.2172/1592862 https://www.osti.gov/servlets/purl/1592862

Thermal Profiles (Priority 1) — Degradation mechanisms for materials in dry cask storage systems (DCSSs) are temperature dependent. Industry models used to calculate temperatures tend to predict temperatures higher than directly measured. Ongoing work to close this gap includes identifying uncertainties, biases, and sensitivities that can improve the realism of the models. Corresponding validation experiments will also be executed. Recent models of a vertically-oriented dry cask simulator predicted temperatures within —1-20°C of the measured values. Improved modeling of the demonstration cask from the HBU Spent Fuel Data Project (EPRI 2014c) predicted peak cladding temperature (PCT) within 30°C. In addition, testing is planned for a horizontally-oriented dry cask simulator to support measurement and modeling of temperature profiles.

Stress Profiles (Priority 1) — Structures, systems, and components (SSCs) such as cladding and assembly hardware may be subjected to stresses from external loads (forces, strains, accelerations, etc.) during storage and transportation. A number of transportation tests, including truck, rail, and ship, have been performed on surrogate assemblies, with massive amounts of strain and acceleration data captured for surrogate fuel, assemblies, baskets, casks, and cradles. Ongoing work includes modeling of cladding thinning and pinch loads and a 30 cm drop test.

Welded Canister Corrosion (Priority 1) — Three main parameters have been shown to affect stress corrosion cracking (SCC): environment (salt content, salt stability, humidity, and temperature); material (stainless steel (SS) 304/304L is used in dry storage canisters); and loading (high tensile stresses in weld zones could support through-wall SCC). Surface samples from canisters at several different sites indicated soluble salt deposition, but the concentrations varied widely, and the presence of corrosion-inducing chloride also varied widely. Four-point bend tests on SS 304L coupons loaded with sea salt did not indicate enhanced pitting densities as a function of stress. Ongoing work will continue to focus on the three main parameters. This includes (1) quantifying the brine stability of salts present in the environment, (2) understanding material and surface environment effects on electrochemistry and pit formation, and (3) tensile stress tests to identify characteristic features controlling pit-to-crack transition. A major push will be to evaluate pit formation and SCC initiation and growth rates (i.e., pit-to-crack transition) as a function of environmental parameters (salt load, temperature, and salt/brine composition), material properties (e.g., degree of sensitization, surface roughness, degree of cold work), and stress state and to investigate the consequences of gas and particle transport in through-wall cracks.

Drying Issues (Priority 2) — Anecdotal evidence and samples from the HBU Spent Fuel Data Project demonstration cask suggest that residual water (free and/or chemisorbed and/or physisorbed) remains in canisters after standardized drying/purging procedures. The presence of small amounts of water does not cause immediate concern, however, and additional testing and sampling is necessary to better understand the impacts, if any, of the residual water.

Monitoring (Priority 3) — The focus is on robotic- and sensor-based non-destructive examination (NDE) techniques to detect SCC of canister welds.

Cladding Hydride Effects (Priority 3) — Recent testing indicates that risks associated with hydride reorientation and embrittlement to pressurized water reactor (PWR) cladding integrity are low for current fuel designs, burnups, and reactor operational limits. More data on hydride effects for boiling water reactor (BWR) and Integral Fuel Burnable Absorber fuel (IFBA) cladding is needed.

Consequence of Canister Failure (Priority 3) — The focus is to develop technically defensible assessment of gaseous and particulate releases and radiological consequences through SCC breaches.

Fuel Transfer Options (Priority 3) — Data is needed to support facility design concept for opening a cask for inspection and transfer/repackaging.

Association of California Cities
Orange County
• Education
• Policy
• Advocacy

July 8, 2020

The Honorable Steve Padilla
Chair, California Coastal Commission
7575 Metropolitan Dr., #103
San Diego, CA 92108

Re: Support for SCE's Proposed Inspection and Maintenance Program

Dear Chair Padilla:

On behalf of the Association of California Cities – Orange County (ACC-OC) Board of Directors, I am writing to request that the California Coastal Commission (CCC) approve the Inspection and Maintenance Plan (IMP) as submitted by Southern California Edison and presented as item Th3a on the July 16, 2020 agenda.

ACC-OC represents the interests of Orange County cities on regional public policy issues. The San Onofre Nuclear Generating Station (SONGS) safely provided a clean, reliable energy source to thousands of Orange County residents for decades. It also created hundreds of jobs for Orange County residents and generated billions of dollars in revenue for the region.

Since 2013, SCE has worked diligently with federal, state and local officials to ensure the safe decommissioning of the SONGS facility. SCE has consistently shown a willingness to work with government agencies to protect the coastline and surrounding communities until the spent fuel can be safely transported.

ACC-OC supports CCC staff's recommendation to approve SCE's IMP. In particular, we appreciate that staff recommendations are premised on an analysis prepared by an independent contractor with expertise on these matters; and that SCE has agreed to all staff recommendations to improve upon the IMP. Once again, SCE has demonstrated its commitment to doing whatever it takes to maximize safety.

We at ACC-OC appreciate all the hard work that the CCC does to protect our state's iconic coastline.

Thank you for your consideration.

Association of California Cities
Orange County
• Education
• Policy
• Advocacy

Sincerely,

Diane Dixon
President, ACC-OC Board of Directors

cc:

California Coastal Commission Members
ACC-OC Board of Directors

Re: Southern California Edison proposed Inspection and Maintenance Program for SONGS ISFSI -- July 16, 2020 meeting Permit No. 9-15-0228 San Onofre Holtec

Len Hering RADM, USN (ret) <lrhering@aol.com>

Tue 7/14/2020 5:07 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: gregoryjaczko@gmail.com <gregoryjaczko@gmail.com>; donnagilmore@gmail.com <donnagilmore@gmail.com>; ggchappykale@yahoo.com <ggchappykale@yahoo.com>; bart@samuellawrencefoundation.org <bart@samuellawrencefoundation.org>; Kyle.Krahel@mail.house.gov <Kyle.Krahel@mail.house.gov>; gary@sanclementegreen.org <gary@sanclementegreen.org>; MLevin@mail.house.gov <MLevin@mail.house.gov>

John,

I realize that your responses to Donna's, Kale's and others e-mail over the past week is consistent with your requirement to acknowledge public comment but I must protest that it falls dismally short of acknowledging the significant lack of research conducted by the CCC staff in that not one item from these extremely prejudicial reports have been mentioned for consideration in informing the individuals whom must ultimately vote on this issue. It is clear to me that after reading the posted staff report, which I thought you might consider amending based on the public comments you have received in the past 10 days , has solely relied upon the incomplete and inaccurate conclusions that LPI has provided. It is clear that staff considers LPI as the definitive expert even though they were paid to provide the information by the partitioner, SCE ,and not the DOE, ASME or even the Coastal Commission Itself.

It is unfathomable to me that the CCC Staff concluded that LPI is 100% correct and the true experts, those within the Department of Energy, are in no way to be considered by the CCC as either credible or deserving direct serious mentioned within the staff report. The DOE report sent to you clearly spells out the risks and directly contradicts many of the points that prejudice the formulation of assumptions provided by LPI. By definition, it is the duty of Staff to insure a thorough and complete analysis is provided those voting members of the Commission and that differences such as those identified by various parties throughout the course of the past week are provided, examined, researched and ultimately reported so that consideration prior to the voting process informs and educates the commission prior to their casting a vote. Having to deal with this in court is not the way to solve this problem. The very assumptions you provide to the Commissioners in the recommendation to proceed are predicated on false assumptions based on an incomplete analysis of the materials available on the subject.

The DOE report, of Dec 2019 clearly contradicts at least 4 of the assumptions you profess to being satisfied. Your staff report fails to mention any of them and you dismiss the importance of those contradictions to the outcome of the risk being judged. The significant issues regarding the canister, it's inspection, potential repairs and its long term storage are glossed over as if they are mere and minor issues to the overall safety of the community at large. Your assessments of compliance are based on proposed regulations and therefore itself seriously flawed. The transportation of the material and the safe containment ,should a breach occur, is simply left to chance. Where I learned Nuclear Safety; when it comes to a nuclear accident you must always assume the worst and hope for the best, your report removes the chance that one critical alternative is being dismissed and eliminated as part of the solution. The analysis required of SCE in your prior ruling is, by most, determined to be elementary at best yet you deal with them as definitive without alternatives.

I had seriously hoped you and your staff would have taken the time to properly analyze the materials provided you these past 10 days and adjust your recommendations accordingly. Trust me when I say that had you retracted your report and subsequently amended it after a more thorough analysis was done and you had come to the same recommendation, I would not have seen the need to write this letter. You failed to believe that the DOE or anyone within the public might have any significant knowledge worth consideration. Your actions have proven that to be the case.

on behalf of the citizens in San Diego County and southern California, I hope you consider these issues seriously and recommend delaying the vote until you can properly assess and provide an inclusive and fully vetted report to the commission prior to their vote.

L.R. Hering, RADM,USN (ret)
Co-Chair, S.O.N.G.S. Task Force Report
lrhering@aol.com

-----Original Message-----
From: Weber, John@Coastal <john.weber@coastal.ca.gov>
To: Donna Gilmore <donnagilmore@gmail.com>
Cc: Len R. Hering <lrhering@aol.com>; Gregory Jaczko <gregoryjaczko@gmail.com>
Sent: Mon, Jul 6, 2020 9:24 am
Subject: Re: Southern California Edison proposed Inspection and Maintenance Program for SONGS ISFSI -- July 16, 2020 meeting Permit No. 9-15-0228 San Onofre Holtec

Thank you for the comment, Donna. It will be included in the set of comments provided publically.

I hope you remain well.

-John

From: Donna Gilmore <donnagilmore@gmail.com>
Sent: Friday, July 3, 2020 4:50 PM
To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Len R. Hering <lrhering@aol.com>; Gregory Jaczko <gregoryjaczko@gmail.com>
Subject: Re: Southern California Edison proposed Inspection and Maintenance Program for SONGS ISFSI -- July 16, 2020 meeting Permit No. 9-15-0228 San Onofre Holtec

This December 2019 DOE Technology Gap report identifies unresolved technology issues such as inability to adequately inspection and repair thin-wall canisters and other technology gaps that will impact the ability to transport the San Onofre canisters away from coastal risks.

The DOE Technology Gap report conflicts significantly with the LPI, INC 6/12/2020 "Independent" Third Party Review report.

I recommend the Coastal Commission staff review and resolve the technology gaps identified in this DOE report that conflict with the LPI report before the Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co) moves forward. I expect you will want to rewrite your staff recommendations based on this.

I have researched these issues in depth and can confirm the information in the DOE report is more reliable than LPI report.

Separating facts from what I would call "wishful thinking" by LPI, is critical before any final recommendations are made by the Coastal Commission staff.

I may be able to help address any questions you have regarding the conflicting information and conclusions between the two reports. Feel free to contact me anytime.

Gap Analysis to Guide DOE R&D in Supporting Extended Storage and Transportation of Spent Nuclear Fuel: An FY2019 Assessment (Final Report), December 23, 2019, SAND-2019-15479R 681990 DOI: 10.2172/1592862

https://www.osti.gov/biblio/1592862/

LPI, Inc report, June 12, 2020
https://documents.coastal.ca.gov/reports/2020/7/Th3a%20July%2016/Th3a-7-2020-Appendix%20B.pdf

July 16, 2020 CCC meeting information
https://coastal.ca.gov/meetings/agenda/#/2020/7

Thanks,

Donna Gilmore
SanOnofreSafety.org
949-204-7794
donnagilmore@gmail.com

-------- Original message --------
From: "Weber, John@Coastal" <john.weber@coastal.ca.gov>
Date: 6/19/20 11:14 AM (GMT-08:00)
To: "Weber, John@Coastal" <john.weber@coastal.ca.gov>
Subject: Re: Southern California Edison proposed Inspection and Maintenance Program for SONGS ISFSI

All -

A quick update to let you know that this item has been scheduled for Thursday, July 16, as you can see on the Commission's July agenda available on the Commission's web site: https://coastal.ca.gov/meetings/agenda/#/2020/7.

To submit written materials for review by the Commission, either email (via EORFC@coastal.ca.gov) or submit such materials to Commission staff by 5 pm on the Friday before the hearing. Staff will then distribute your materials to the Commission. Such materials received after this time will not be distributed to the Commission.

Thanks very much -

John

From: Weber, John@Coastal
Sent: Friday, June 12, 2020 3:13 PM
To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Subject: Southern California Edison proposed Inspection and Maintenance Program for SONGS ISFSI

Dear Interested Parties,

Southern California Edison's proposed Inspection & Maintenance Program (IMP) for the San Onofre Generating Station's Independent Spent Fuel Storage Installation (SONGS ISFSI) is scheduled for the Coastal Commission's July 2020 meeting. Staff decided to post the staff report early to give the interested public extra time to review the staff recommendation and technical reports associated with the proposed IMP. You can find the staff report and its associated exhibits and appendices posted on the Coastal Commission's webpage at https://www.coastal.ca.gov/.

The agenda for the July meeting will be posted online Friday, June 19. At that time, you will be able to see which day this matter will be scheduled for a public hearing and its agenda item number. We also encourage you to review the Coastal Commission's Virtual Hearing Procedures also posted on the Commission's webpage (click on "Meetings") if you wish to provide public testimony for this item or any other item at the July meeting.

If you have questions, please email me at john.weber@coastal.ca.gov.

Thank you,

John

_____
John Weber
California Coastal Commission
45 Fremont Street #2000
San Francisco, CA 94105
415-904-5245

http://www.coastal.ca.gov/

cid:image002.jpg@01D0B33B.CB672000

Every Californian should conserve water. Find out how at:


SaveOurWater_Logo
SaveOurWater.com · Drought.CA.gov

(No subject)

Berton Moldow <bmoldow@gmail.com>

Tue 7/14/2020 7:43 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>

Condition Compliance for Permit No. 9-15-0228 I have read copies of three e-mails forwarded to your attention regarding false claims made regarding the Holtec thin walled canisters being employed at San Onofre Generating Station for storage of high level nuclear waste. I find it difficult to believe that any one reading these emails could come to any conclusion other than that these canisters are totally inadequate of the task at hand. I believe Donna Gilmore through her research has proven that these canisters fail to meet the specifications intended. The potential economic loss to Souther California should just one of these casts explode would be devastating to property values for miles around and in particular the coast of Southern California. Witness the areas surrounding Chernobyl or Fukushima. It is high time that someone on the Coastal Commission correct this situation and reject any further permit requests.

Sincerely yours,

Berton Moldow
3503A Bahia Blanca W.
Laguna Woods, CA 92637

Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co). San Onofre, Comment

Donna Gilmore <donnagilmore@gmail.com>

Wed 7/15/2020 12:37 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Len Hering <lrhering@aol.com>; Gregory Jaczko <gregoryjaczko@gmail.com>

No seismic analysis for partially cracked canisters has been addressed by SCE or LPI.
Regarding acceptable margins for flaws/cracks, ASME is very specific on this. For example, it must take into consideration seismic risks and crack growth rate. I do not see these addressed by SCE or LPI. SCE has not evaluated seismic risks for even a partial crack.

The referenced ASME Section XI IWB3641(e) in NUREG-1927 Rev. 1 (ML16179A148) requires evaluation of flaws and comparison to acceptance criteria for service limits to determine the acceptability of the component for continued service. The service limits take into account loadings to which the component is subjected, including design-basis accident conditions. Therefore, the evaluation of a cracked canister (to determine if it can remain in service) would take into account the design-basis **seismic event**. Further information on the service conditions and service limits is provided in NRC Regulatory Guide 1.57 (ML12325A043)
http://pbadupws.nrc.gov/docs/ML1232/ML12325A043.pdf

Standard Review Plan for Renewal of Specific Licenses and Certificates of Compliance for Dry Storage of Spent Nuclear Fuel, NUREG-1927 Rev 1
https://www.nrc.gov/docs/ML1617/ML16179A148.pdf

With this growing list of deficiencies in the LPI and SCE reports, I recommend this item be withdrawn from the agenda until the Coastal Commission staff can adequately address these issues. There is no urgency to rush a decision. It's important that the staff and Coastal Commissioners have the most accurate and complete information on this important issue before a decision is made.

I would be more than happy to work with the Coastal Commission staff on the issues I have provided.

Thanks,

Donna Gilmore
SanOnofreSafety.org
949-204-7794

Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co). San Onofre, Comment

Donna Gilmore <donnagilmore@gmail.com>

Wed 7/15/2020 1:20 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>; Len Hering <lrhering@aol.com>; Gregory Jaczko <gregoryjaczko@gmail.com>
Cc: Tom English <tdenglish3@sbcglobal.net>; 'Subrata Chakraborty PERSONAL' <sc.oxygen17@gmail.com>

The LPI raises a serious issue regarding risks of gouging from unloading operations, but does not provide analysis regarding if this can be resolved. In fact, due to the poorly engineered Holtec canister downloading system that is more like Tarzan swinging in the trees, it is not possible to precisely control the lowering of canisters into the narrow cavities without unavoidable metal to metal scraping and gouging of stainless steel thin-wall canister walls against the carbon steel MPC Guide Ring (now being referred to as a Shield Ring). The NRC has numerous documentation on this. Procedure changes made by SCE and Holtec do not resolve this issue. Evidence provided upon request.

> Page 30 of LPI report states:
> *"In addition, it is not clear whether efforts have been made to minimize galling (gouging) and scratches during unloading operations based on the information provided for LPI's review. It is recommended to assess how unloading operations for future removal of MPCs can be improved to minimize wear depths."*

At the time the Coastal Commission approved the permit for this San Onofre ISFSI Holtec UMAX system, they and the public were not aware that every canister downloaded was being gouged, scraped and scratched the entire length of the canister walls -- accelerating corrosion and cracking of these canisters. If it wasn't for a concerned safety worker (whistleblower) at San Onofre, we would not have know about the inferior Holtec canister downloading system that lacks precision. Edison was aware of this problem from the beginning, yet continued loading and damaging the canisters.

David Fritch at CEP meeting: https://youtu.be/fnM9rfhWmic
David Fritch transcript:
https://sanonofresafety.files.wordpress.com/2018/08/davidfritchcep08-09-2018transcriptdg.pdf

Also, the photos being shown of the Holtec ISFSI do not clearly show the huge air vents in the lids of the system. These lids already show corrosion from the harsh coastal environment and the huge air vents allow this corrosive moist air to continually expose the canister and other internal parts of the system to accelerated corrosion. Notice also the seagull poop that was an unexpected "gift" to these canisters. The metal sprays you can see on the lids are there to discourage the seagulls from corroding the canisters and lids. Please share this photo with the Coastal Commissioners. I recommend using it in future documents regarding this San Onofre Holtec UMAX system.
https://sanonofresafety.files.wordpress.com/2019/02/sanonofreholtecumax-lidrustingsce.jpg?w=656&h=393

Donna Gilmore
SanOnofreSafety.org

July 15, 2020

To: John Ainsworth, Executive Director
Alison Dettmer, Senior Deputy Director
Kate Huckelbridge, Deputy Director, Energy, Ocean Resources, and Federal Consistency
John Weber, Senior Environmental Scientist

Re: July 16 California Coastal Commission hearing

Thank you for the opportunity to present tomorrow morning at the hearing, regarding your recommended approval of SCE's Inspection and Maintenance Plan (IMP).

I wanted to be sure you were aware that four of us will be presenting as part of a group, the Coalition for Nuclear Safety: Bart Zeigler, Cathy Iwani, Alice McNally and me, and not just as 'individuals". We've all registered as speakers and indicated the group's name, but it wasn't clear from the confirmation emails received on this that we would be confirmed as a group.

Also, following (pg. 2) are the comments I'll be making indicating the key concerns I/we have over your current apparent recommendations to the Commissioners to approve the IMP plan is is. I had left a voicemail asking if it would be possible to have a phone meeting to discuss some of these concerns, and would still like to have that if possible, even if it's after the meeting. It's important that there is a clear understanding by the public of the CCC's thinking on this issue that will have such a long-standing impact on our coast and environment. It's also important, I think, that there is more opportunity for meaningful discussion by your team and key public interest groups such as ours, on an ongoing basis. This would also help ensure your team is having good input from all sides on this, rather than primariliy just Edison's.

Please feel free to contact me by email or phone any time.

Thank you for all you do to help provide the best protection possible to our pristine coastline and surrounding environment.

Regards,

Dave Rice
Coalition for Nuclear Safety
Daverice1@cox.net
714.315.5700

Comments by Dave Rice, Coalition for Nuclear Safety, to California Coastal Commission, July 15, 2020

Hello, my name is Dave Rice, I'm a private citizen living in south OC, and have been working with the Coalition for Nuclear Safety and other groups represented here on this important problem. We are not a group of crazy left-wing wacko's… we are science, education and business professional volunteers here to fight back against an untenable situation that our Federal Government has put us all in, including all of you with the Coastal Commission.

Your "Special Condition 7" states that "fuel storage canisters MUST remain in a physical condition sufficient to allow **BOTH** on-site transfer and off-site transport for the duration of the approval, until October 2035" (a term you set due to your concerns over predicted sea level rise).

- While Edison may be arguing that they can move the canisters to the current location of the cooling pools once they're dismantled, there's NO WAY they can justify moving them offsite in their current condition… for MANY reasons… including inability to properly inspect or repair.
- The Nuclear Waste Technical Review Board's 2019 report says: "SNF canisters holding 37 assemblies, used both at San Onofre and most other sites in the US, will be too hot to move until the year 2100, **unless repackaged"**
- There is also no rail car or rail line that can safely handle the current size of the Holtec canisters.

The ONLY remedy to this is for Edison to commit to installing a suitable "hot cell" to be used for this repackaging purpose, in order to meet the CCC's actual requirements. To properly transport the waste, the fuel assemblies must be repackaged into smaller, thicker casks that are truly transportable, and will offer better protections (built-in radiation monitoring, ability for repairs and repacking).

PLEASE amend your staff's recommendation for approving this inadequate plan that Edison has proposed, and **make this "hot cell" required** as a part of the approved plan should the cooling pools be dismantled. Otherwise, the plan is clearly out of scope, and will not meet your stated requirements.

Also: the Settlement terms from Citizens Oversight lawsuit call for Edison to develop a conceptual transportation plan to transport SONGS SNF to an offsite storage. It is irresponsible for CCC to approve the current IMP as is without also having this thoroughly vetted transportation plan.

Thank you.

Comments regarding the Coastal Commission hearing July 16, 9 AM

RJohnson <r66nj@yahoo.com>

Wed 7/15/2020 2:14 PM

To: Ainsworth, John@Coastal <John.Ainsworth@coastal.ca.gov>; Dettmer, Alison@Coastal <Alison.Dettmer@coastal.ca.gov>; Huckelbridge, Kate@Coastal <Kate.Huckelbridge@coastal.ca.gov>; Weber, John@Coastal <john.weber@coastal.ca.gov>

One of the worst decisions ever made by the state of California was to allow the construction of two nuclear power plants on our seashore. This was partially rectified in 1976 with the famous state law that prohibited any more nuclear power plants until the issue of nuclear waste is solved.

Almost a half-century later it is not still not solved. Even worse, there is no solution in sight. What could be worse? Now making permanent decisions such as destroying the fuel pools which could prove to be a disaster when the canisters fail. Important decisions affecting the long-term future should not be made on the basis of short-term expediency and the limited know-how of today's nuclear technology. Using our fast-changing technology and limited understanding of the long-term consequences is no way to deal with the horrible legacy that got us to this point. Our record is bad – let's not compound the mistakes and make it worse. We do not want to repeat the past and pass on to future generations the mountains of lethal nuclear waste and all the financial and environmental issues that come with it. What should be upper most in the minds of the Coastal Commissioners is what is best for the California coast for the coming decades and centuries. What should be last in the minds of the commissioners is what is best for Southern California Edison.

May everyone be remined again of the California Coastal Act:

30001. The Legislature hereby finds and declares:
(a) That the California coastal zone is a distinct and valuable natural resource of vital and enduring interest to all the people and exists as a delicately balanced ecosystem.
(b) That the permanent protection of the state's natural and scenic resources is a paramount concern to present and future residents of the state and nation.
(c) That to promote the public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural environment, it is necessary to protect the ecological balance of the coastal zone and prevent its deterioration and destruction.
(d) That existing developed uses, and future developments that are carefully planned and developed consistent with the policies of this division, are essential to the economic and social well-being of the people of this state and especially to working persons employed within the coastal zone.
(Amended by Stats. 1979, Ch. 1090.)

The language above clearly instructs the Coastal Commission to act in the interest of the health, safety, and welfare for the public and for the entire coastal ecosystem. Coastal Development Permit 9-15-0228 clearly does the opposite. The short-term financial interests of Southern California Edison requested in this permit should be resoundingly rejected by the Commission. Instead, the Commission should reaffirm its commitment to the California coast, the marine environment, the public interest, and all of the goals spelled out in the California Coastal Act which the Coastal Commission is sworn to defend.

If there is any lesson to be learned by the history of nuclear power, it is that it can be extremely dangerous to both people and the environment. Anyone can look at the catastrophe at Chernobyl and how it contaminated much of northern Europe. Those concerned with the

marine environment should study how the events at Fukushima continue to result in ocean contamination today even after a decade.

Let's look even further back at what was supposed to be the "solution" for the safe storage of nuclear waste: the Runit Dome on the Eniwetok Atoll. After 40 years it is now a disaster with no solution in sight. What they constructed was poorly understood at the time. They did not withstand the marine environment and rising seas. Are we to believe that SCE fully understands all the dangers and can guarantee nothing will go wrong for the indefinite future? Or will this turn out to be another poorly understood technology which will also not withstand the test of time? But now we are not talking about a 2 square mile island in the Pacific with no population. We are talking about hundreds of miles of California coastline and populations in the tens of millions.

The sheer amount of nuclear waste being housed is staggering: 1,773 **tons** (not pounds), one of the largest concentrations of nuclear waste in the entire country. Remember that it took only 14 **pounds** of plutonium to destroy the city of Nagasaki. True, the San Onofre waste is not highly enriched but if enriched it would release the radioactive equivalent of about 17,000 atom bombs.

Since there are no plans to remove this waste in the foreseeable future, and since the canisters will become more fragile and difficult to move in decades to come, we have to assume that the California coast may become a nuclear waste dump for the rest of the century or longer. We have to take precautions now for unforeseen problems and worst-case scenarios for many years to come. The history of San Onofre (with the worst accident record of any NPP in the country) is a history of mistakes and poor decisions. There is ample reason to believe that this will continue. We cannot hastily adopt or depend upon what cost-conscious engineers hope might work as of July of 2020.

Sea level rise, storm flooding, and tsunami risks all pose serious threats to San Onofre. Read the front page story today in the *Orange County Resigter:* "Newport Beach flooding was a preview of things to come." A new report predicts that the 3 days of high tide flooding in 2019 will triple by 2030 and may increase more than 10-fold by 2040. The report says that "there is growing testimony that the state has been woefully inadequate in addressing the issue." The recent high tides washed out parking lots at San Onofre State Beach, a worrisome issue because the canisters now sit just a few feet above sea level. If you think the seawall will protect the ISFSI, look at the recent attached photo showing waves splashing near the top of the seawall. Anyone can bring a tape measure and see that the 14 ft. seawall is totally inadequate (and is not the 30 ft. seawall that SCE claims).

Since there is no drainage in the air cooling space surrounding the canisters, there is a serious overheating danger if air cooling ceases. The canisters already have internal temperatures hotter than the hottest setting in your oven. The air vents would be quickly filled not just with pristine seawater but also with mud, sand, gravel, and debris which would quickly cake into concrete-like stucco. How many days would it take to dig and blast out around all 73 canisters? A week? A month? Six months? The canister manufacturer (Holtec, Inc.) did not examine this in their Final Safety Analysis Report on the Hi-Storm UMax Canister Storage System: (https://www.nrc.gov/docs/ML1619/ML16193A339.pdf). They studied what would happen with loss of air cooling only for a little more than a day. Please see table 4.6.7 which shows that fuel cladding temperatures would rise to 964 degrees F within 32 hours. What would they be after a week or a month with no cooling? No one knows. Would the canisters

cannisters breach? No one knows. Will the canisters soften, buckle, bend, or split? No one knows.

Industry engineers defend the thin canisters and tell us that there is no danger from lack of air cooling or even from the heat of tens of thousands of gallons of burning jet fuel. They say nothing will happen until the melting point of steel which is about 2700F. But MIT engineering professor Thomas Eager wrote in *Journal of the Minerals, Metals, and Materials Society* that steel loses 50% of its strength at only 1200 degrees, hundreds of degrees lower than the 1517F temperature of burning jet fuel. The World Trade Center towers collapsed at temperatures far below the melting point of steel. And the 4 inch thick high-strength steel at the World Trade Center was 6 times thicker than the thin canisters at San Onofre. Read all about what happens to steel at high temperatures: https://science.howstuffworks.com/engineering/structural/grade-of-steel-used-in-world-trade-center.htm and https://www.scientificamerican.com/article/fahrenheit-2777/

Another unexamined threat is the ambient temperature outside the ISFSI in a lack of cooling scenario. Some estimate that the ambient temperature might be 200F, too hot for any personnel or machines to get anywhere near the canisters. No robots exist to clear concrete-like stucco from the air vents. There is no technology, not even any thought on how to do this. Yet we continue to rely on the Holtec assumption that the air chambers surrounding 73 canisters can be cleared in 32 hours. The danger from cessation of canister cooling is discussed in some detail in this recent hearing before the NRC: https://youtu.be/i35rhGtznUg?t=762

This is but one of the many extremely challenging scenarios that the industry dismisses as “beyond design basis events.” They do not like to consider such events. It is quickly noticed by anyone reading your agenda that Edison does not mention such events and the Coastal Commission seems to have gone along with this. The worst possible events that might happen are being totally ignored.

In addition to earthquakes, tsunamis, and wild fires, there are all kinds of high explosives such as bunker-busting RPGs which can penetrate 2 feet of steel or 5 feet of reinforced concrete. Think of what a truck bomb did to the Oklahoma City Federal Building and 324 other buildings within a 16 block radius. Bunker busting missiles are for sale on the world arms market. They have a range of 200 miles and are designed to be concealed in standard shipping containers. Over 11,000 such containers pass by San Onofre every day. What about suicide airplane crashes from any of the 19 airports in the area? Consider that the A 380 holds about 85,000 gallons of high-octane jet fuel. Also keep in mind that the 911 terrorists had a nuclear power plant on their list of possible targets. All of these very possible scenarios are being totally ignored.

It is too easy for the Coastal Commission to say that they will ignore major dangers like these because that is the jurisdiction of some other bureaucracy. The Coastal Commission is the one issuing the permits. Is it going to simply ignore worst case scenarios and limit their evaluation to best case scenarios? The stated mission of the Coastal Commission is to protect the coastal environment and the people who live there. The huge quantities of plutonium and uranium on our beach present a very serious threat to the future of not only California and its beaches but also to the entire nation. May I call your attention to David Epstein, a Wall Street

analyst who writes in the *Bulletin of Atomic Scientists* that a terrorist attack on a nuclear power plant could trigger the collapse of world financial markets. The Coastal Commission may not care about that but they should care about the permanent contamination of hundreds of miles of California coast plus the contamination of much of Southern California for all species, not just marine species.

In conclusion, the Coast Commission should:

1. Deny permit 9-15-0228.
2. Insist that the fuel pools remain operative as a precaution.
3. Assume that sooner or later there will leaking canisters and that current technology will be inadequate.
4. Demand efforts improve transportability of nuclear waste and efforts to move nuclear waste away from coastal areas.
5. Insist that the domes remain standing and encourage moving the Holtec canisters inside. (That would leave only the Areva canisters still outside.) There are huge advantages of doing this including: (a) raising canisters well above sea level; (b) protecting the canisters from tsunami, flooding, and wildfire dangers; (c) protecting the canisters from terrorist attacks; (d) providing containment for radiation escape; (d) preventing radioactive rubble from being permanently encapsulated on the beach; (e) preventing thousands of truck and trainloads of radioactive rubble from being carted around California and other states.

Roger Johnson, PhD
Professor Emeritus
San Clemete, CA

Staff Addendum and ASME "Top Priority" Item

Kale Walker <ggchappykale@yahoo.com>

Wed 7/15/2020 3:19 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Donna Gilmore <donnagilmore@gmail.com>; Greg Jaczko <gregoryjaczko@gmail.com>; Hering R. Sr. <lrhering@aol.com>; Marv Lewis <marvlewis@juno.com>; Torgen Johnson <torgenjohnson@hotmail.com>

To: John Weber
Re: Staff Addendum

DOE Gap Analysis: LPI states, "As such, the IMP is evaluated for adequacy relative to structural integrity for on-site storage and off-site transport for approximately the 15 years of the CCC approval, not the extended period of operation, which is the focus of the DOE Gap Analysis document."
The short term (15 year) evaluation of this serious and long term challenge further invalidates the validity of the LPI Report.

ASME DRAFT Code: Staff's vague response was not reassuring, "It is staff's understanding that the revised version of this ASME guidance document has been approved and thus is no longer draft."
The Commission and the public deserve a verifying document, and a clarifying explanation of what the alleged Code Case does or does not regulate.

Please note: **ASME: Top Priority Item for 2020**
ASME BPV Standards Committee on Nuclear Inservice Inspection
Record #: 16-364, Group: TGSFSTC
https://cstools.asme.org/csconnect/Filedownload.cfm?thisfile=48413.pdf&dir=CommitteeFiles&44027.6998264
Topic: Develop requirements for metallic portions of Spent Fuel Storage and Transportation Containments
Comment: Existing Spent Fuel Storage Canisters are showing signs of degradation without any Code Requirements for examination, repair/replacement or evaluation of those canisters. With the development of requirements this will help the industry management these conditions. (Industry & Regulator)

Please also note: **Canisters at SONGS can not meet ASME N3 certification** for inservice pressure vessels, storage or transport.

In conclusion, CCC Staff has received a tsunami of technical information questioning the accuracy and viability of Edison's IMP (particularly from Donna Gilmore) over the last 10 days.
This information must be reviewed and given due consideration in order to make a responsible report and recommendation to the Commission. **Please recommend DELAY the VOTE.**

Thank you,
Kalene

> On Jul 13, 2020, at 7:24 AM, Kale Walker <ggchappykale@yahoo.com> wrote:
>
> Hi John,

Pit Corrosion and Sideways Pits is another example showing why the Coastal Commission must reject Edison's 'Visual Assessment' as a viable 'Inspection' plan.

The LPI Report admits (pg 10) that 'pit corrosion' is one of the most likely degradation mechanisms at SONGS.

A Visual Assessment with a camera can only view the surface of a canister - it can not view or characterize the degradation a 'Sideways Pit'. see image

https://www.nace.org/resources/general-resources/corrosion-basics/group-1/pitting-corrosion
Image from NACE (National Association of Corrosion Engineers)
<image1.jpeg>

Just one bad pit could cause canister failure.

Thank you for including this with my previous comments.
Kalene

> On Jul 10, 2020, at 3:45 PM, Kale Walker <ggchappykale@yahoo.com> wrote:
>
> Hi,
> I'm wondering if you received and reviewed my comment.
> Do you have any disagreements or questions? Please let me know before the meeting, so I have an opportunity to respond to questions Or disagreements.
> I'd appreciate a response before the meeting.
>
> To clarify and reiterate on the Corrosion Problem:
> I find it interesting that the LPI report mentions the shield ring, but never that it is made of carbon steel. I did a word-search of the LPI document, and it does not even mention the word 'carbon', yet it claims no disparate metals in the system.
>
> Carbon introduces a whole new mode of corrosion mechanisms to the canisters.
> 'Carbon steel stains' and 'iron oxides' are not minor problems.
> They indicate the presence of carbon particles on the stainless steel canisters - - a SIGNIFICANT trigger for stress corrosion cracking.
>
> Edison's report even references the problem with carbon in their Design Improvements section (pg 9). It states "Typically, canisters fabricated for spent fuel storage are constructed with stainless steel 304. **SCE's use of stainless steel 316L minimizes carbon**

content within the shell and weld material, which SIGNIFICANTLY minimizes the potential for SCC."

Using statistics and probability are not adequate methods to analyze this corrosion mechanism that has now been introduced to virtually every Holtec canister.
A Visual Assessment CANNOT find cracks (according to ASME) characterize flaws (length, width, depth, direction of cracks) or the propagation **crack growth rate**.

SCE's professional engineers who signed the Visual Assessment report made this clear that the visual assessment is NOT an inspection by ASME or any other code. LPI and SCE have NOT provided adequate evidence that the ISFSI containers can be inspected or maintained according to Condition 7 of their Coastal permit.

I look forward to hearing your feedback.
Kalene

On Jul 8, 2020, at 3:33 PM, Kale Walker <ggchappykale@yahoo.com> wrote:

Hello Mr. Weber,
I've been reading the documents regarding Edison's proposed Inspection Maintenance Program for the SONGS Holtec ISFSI.
https://www.coastal.ca.gov/meetings/agenda/#/2020/7
(Agenda item 3. Conditions of Compliance - July 17, 2020 meeting)

With only a partial review, I've found serious errors and misrepresentations in the reports.
The following problems undermine the credibility and validity of the LPI and Edison Reports (Appendix B and Appendix C)

Problem #1 – Draft ASME Code Case N-860
Both the Edison and LPI Reports reference Draft Code Case N-860 to validate the proposed inspection and repair plans.
Edison states, "SCE's inspections will be modeled after the American Society of Mechanical Engineers' (ASME) Draft Code Case N-860, which provides guidance for the inspection and maintenance of spent fuel canisters to manage potential degradation from SCC." (Appendix C pg 4)

The LPI report refers to the Draft Code numerous times with footnote [6], particularly in their recommendation for a '10% flaw allowance'. (Appendix B pg 4)
[6] ASME Code Section XI, Division 1 and 2, **Draft Code Case** N-860, "Inspection Requirements and Evaluation Standards for Spent Nuclear Fuel Storage and Transportation Containment Systems," Rev. 0ah, February 26, 2020.

But Code Case N-860 is NOT an approved code. It is a draft.
A draft document must not be considered a valid technical reference for assessing inspection or repair capabilities - or for basing recommendations. Contrary to Edison's claim that the draft is "currently being finalized and is expected to be approved by the end of 2020" (Appendix C pg 20), this February 1, 2019 report on the draft code states, "The new code case being developed for ASME Section III is currently at stage 2" of a 7 stage process. (see Table 5 on page 10)
https://www.researchgate.net/publication/339014285_Application_of_the_Advanced_Surface_Modification_Process_to_the_ASME_Code_Case_for_Sections_III_and_XI_of_Nuclear_Power_Plants/fulltext/5e38ca95299bf1cdb90aef18/339014285_Application_of_the_Advanced_Surface_Modification_Process_to_the_ASME_Code_Case_for_Sections_III_and_XI_of_Nuclear_Power_Plants.pdf?origin=publication_detail

There is no guarantee this draft will become Code - the industry has been trying to solve the problem of the inability to adequately inspect or repair stress corrosion cracks in these in-service pressure vessels for decades - with no adequate solution to date.

That LPI would recommend a Draft Code indicates they were not able to find an approved ASME Code, and represents a desperate attempt to find a way to validate Edison's unapproved inspection and repair plans. This is unacceptable by any professional standards.

Problem #2 - Inspection and Repair
Edison continues to mislead the Commission and the public by claiming they can "inspect" canisters for cracks - and characterize cracks. Documents obtained through FOIA (Freedom of Information Act) contain Edison's Visual Assessment Report which explicitly states, "This is NOT a formal 'inspection' or an activity qualified to ASME Sections Ill, V, XI or otherwise."
https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML19261A089 (attached image pg 124)

<image0.jpeg>
NRC senior inspector, Lee Brookhart stated that it's impossible to inspect or repair canisters. https://sanonofresafety.files.wordpress.com/2019/10/ccc-comments.pdf

And Edison's proposed nickel spray "repair" process has not been approved by the NRC or ASME, nor has it been demonstrated in an actual canister or tested to withstand pressure limits.

Problem #3 - Carbonic Corrosion

The LPI report clearly makes an incorrect statement regarding Carbonic Corrosion. The report states, "This degradation mechanism is seen as extremely unlikely (there are no dissimilar metals in contact for the UMAX canister system)." (Appendix B page 50)

In fact, a basic problem with the Holtec system is that stainless steel canister walls scrape and gouge against carbon steel guide rings and seismic restraints during canister downloading.

A valid and professional report on the SONGS proposed IMP would include a technical assessment by professional structural and material engineers of the potential introduction of new corrosion mechanisms and new corrosion sites caused by the carbon steel contamination.

Edison references carbon steel contamination numerous times in their Visual Assessment Report.
https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML19261A089 (pgs 121 - 138)
(attached image is from pg 136)
<image1.jpeg>
Not only did LPI not address the 'dissimilar metal' and carbon steel contamination issues, but they presented incorrect information as fact.
This calls into question the validity of the entire LPI report.

The Commission must not accept a report with faulty information as a credible expert assessment.
A flawed LPI report does not satisfy Special Condition 19 of the Decommissioning Permit. Please revise your staff report and do not recommend approval.

Thank you for reviewing these serious issues.
I would appreciate your feedback BEFORE the July 16, 2020 meeting.

Sincerely,
Kalene Walker
760-712-2799

Paul Blanch
135 Hyde Rd.
West Hartford, CT 06117
pmblanch@comcast.net
860-236-0326
Cell 860-922-3119

I oppose permit No. 9-15-0228 Item Th3a, Thursday, July 16, 2020, 9 AM

Cynthia Wootton <wootton-clark@outlook.com>

Wed 7/15/2020 4:27 PM

To: speakerrequest@coastal.ca.gov <speakerrequest@coastal.ca.gov>; kate.hukelbridge@coastal.ca.gov <kate.hukelbridge@coastal.ca.gov>; Ainsworth, John@Coastal <John.Ainsworth@coastal.ca.gov>; executive.staff@coastal.ca.gov <executive.staff@coastal.ca.gov>; Weber, John@Coastal <john.weber@coastal.ca.gov>; ExecutiveStaff@Coastal <ExecutiveStaff@coastal.ca.gov>; allison.dettmer@coastal.ca.gov <allison.dettmer@coastal.ca.gov>

Re: Proposed Inspection and Maintenance Program CDP No. 9-15-0228 San Onofre Nuclear Generating Station (SONGS)
Item Th3a, Thursday, July 16, 2020, 9 AM

I do want to lodge my opposition via this email to Southern California Edison's Coastal Development Permit 9-15-0228 on the basis that it would allow Edison to remove cooling pools for spent nuclear fuel which are used to cool down the waste before it is transferred to the stainless steel canisters.
If the pools are removed there will be no "Plan B" if the canisters get damaged and the fuel needs to be transferred temporarily before being stored in a new canister. These canister could be damaged by earthquakes, tsunamis, terrorism, corrosion and other accidents.
We need to keep the cooling pools and keep people safe!
Thank you for registering my opposition.

Respectfully, Cynthia Wootton
I am writing you as a concerned San Diego County Resident
619-708-7032

Sent from my iPad

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

UF-HLW Used Fuel and High-Level Waste Program _____UF-HLW 2020-001

Date: July 15, 2020

To: Chair Steve Padilla
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105
EORFC@coastal.ca.gov

Subject: California Coastal Commission July 16 Meeting related to Inspection and Maintenance Program for Fuel Storage Canisters at San Onofre Nuclear Generating Station

Chair Padilla and Commissioners,

At the request of San Onofre Nuclear Generating Station (SONGS), EPRI is provide its perspective related to mitigation and repair technologies that could be used for age-related degradation that could potentially occur in the future at the SONGS independent spent fuel storage installation.
The recommendations contained in this letter are based on various R&D studies that have been performed over the past decade to evaluate potential degradation mechanisms for canisters [1], the recently-approved ASME Code Case N-860 [2], and the content from recently-published EPRI Reports 3002010621 [3], 3002013130 [4], and 3002019677 [5]. EPRI report 3002013130 is of particular relevance to the topic of this letter and evaluated the state of several promising mitigation and repair technologies as of its date of publication (December 2018). This report has been made publicly available to aid in technology development, interactions with regulatory bodies, and to fulfill EPRI's public benefit mission. Since its date of publication, additional work has been performed to advance the capabilities of several of the identified technologies. Some of the technologies identified in this original report include:

- Cold spray (referred to as "metallic overlay" by SONGS)
- Arc Welding
- Friction Stir Welding
- Low Plasticity Burnishing
- Laser Peening

A brief overview of the attributes of each of these technologies is included in the table below. Some of the challenges the technologies face in demonstrating these capabilities are related to the physical limitations of the techniques while other items are related to the current maturity of the technology or its ability to be deployed with existing tools and techniques which are subject to change in the future as capabilities are developed (e.g. the attribute "has been field deployed for repairing a dry storage canister" could be reached in the near future for several of these technologies).

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Table 1 – Comparison of the 5 mitigation and repair technologies proposed in EPRI Report 3002013130 [4] with the current status of each in 5 key areas for applicability to dry storage canister mitigation and repair operations.

	Cold Spray	**Arc Welding**	**Friction Stir Welding**	**Low Plasticity Burnishing**	**Laser Peening**
Able to be used for mitigation	Y	N	Y	Y	Y
Able to be used for Repair	Y	Y	Y	N	N
Can be applied in situ	Y	Y	Not currently	Y	Not currently
Has been field deployed for repairing a dry storage canister	Y	N	N	N	N
Corrosion resistance is improved	Y	N	Y	Y	Y

Since the December 2018 publication of EPRI report 3002013130, EPRI has continued to evaluate a number of additional technologies and techniques that could potentially be used as mitigation and/or repair strategies for managing age-related degradation in dry storage systems housing used nuclear fuel. Additional technologies that were identified and are under current investigation for potential future use for dry storage systems that are not included in the original report include:

- Liquid Metal Coatings
- Atomic Layer Deposition (ALD)
- Inorganic Coatings
- Plasma Spray Coatings

It is anticipated that results from these studies will be available in the next 1-2 years and will also be published in reports that will be made publicly-available for free, in support of EPRI's public benefit mission and for regulatory information and interactions.
Recently, EPRI published EPRI Report 3002019677 related to inspection, mitigation, and repair options that could be used by one of its international members interested in effective long-term aging management of dry storage systems. A quote from this report is included below:

> Today, high quality remote robotic nondestructive inspection and canister repair and mitigation technologies are available to address potential compliance issues [7, 8, 18] which were not envisaged when the original licenses/CoCs were approved years ago. Many of these mitigation and repair technologies can be implemented by utilizing the robotic platforms developed for deploying the inspection tools. One mitigation/repair technology that has shown significant promise related to both canister surface mitigation and repair is known as cold spray [7]. This technique deposits layers of particles that can be engineered to have similar or better properties than the base metal that is coated with the cold spray material. A video detailing early efforts of how cold spray could be implemented to the field is shown in the following video:

https://youtu.be/G8tpHwzn2Ws. Based on the success of this and other demonstrations, significant other efforts were performed to continue the development of this technique, including the deposition process. Subsequent efforts led by a U.S.-based utility are detailed in the following video: https://www.songscommunity.com/news/releases/crucial-milestone-achieved-for-decommissioning-san-onofre-nuclear-plant [songscommunity.com]. These efforts include enhancements that add a motion control stage integrated with the robotic motion to apply a consistent, controlled patch of a pre-defined size and shape.

While cold spray is a mitigation and repair technology that could be applied in a wide variety of applications and for a wide variety of degradation mechanisms, utilities and vendors may elect to use other mitigation and/or repair technologies as they continue to mature and as additional studies on their capabilities and limitations are completed.
It is important to note that while numerous technologies have been identified to perform mitigation, repair, or mitigation and repair actions, depending on the system design, access restrictions, types of potential degradation, and other factors, one or more of these technologies may be preferred or most suitable for a specific application. These factors should be analyzed on a case-by-case basis for each implementation of mitigation and repair for dry storage systems.

If you or the commission has any follow-up questions, you may contact Randy Stark, EPRI Fuels and Chemistry Director (rstark@epri.com, 650-855-2122) or myself.

Sincerely,

Jeremy Renshaw
Program Manager, Used Fuel and High-Level Waste
Electric Power Research Institute
jrenshaw@epri.com, 704-595-2501

References:

1. *Aging Management Guidance to Address Potential Chloride-Induced Stress Corrosion Cracking of Welded Stainless Steel Canisters.* EPRI, Palo Alto, CA: 2017. 3002008193.
2. ASME, 2020, "Examination Requirements and Evaluation Standards for Spent Nuclear Fuel Storage and Transportation Containment Systems," ASME Code Case N-860.
3. *Inspection and Delivery System Development and Field Trials for Dry Canister Storage System Evaluation.* EPRI, Palo Alto, CA: 2017. 3002010621.
4. *The Role of Spent Fuel Pools for Independent Spent Fuel Storage Installations (ISFSIs) and Decommissioning*. EPRI, Palo Alto, CA: 2020. 3002019677.
5. *Welding and Repair Technology Center: Extended Storage Collaboration Program Canister Mitigation and Repair Subcommittee-Industry Progress Report.* EPRI, Palo Alto, CA: 2018. 3002013130.

Th3a -Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co). San Onofre, Comment

Mary Beth Brangan <mbbrangan@gmail.com>

Wed 7/15/2020 4:58 PM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Len Hering <lrhering@aol.com>; Gregory Jaczko <gregoryjaczko@gmail.com>

The mandate from the Coastal Commission regarding the high level radioactive waste at San Onofre is: "To address concerns related to coastal hazards and to ensure that fuel storage canisters would remain transportable, the Commission required that Southern California Edison (SCE) submit an Inspection and Maintenance Program (IMP) for Commission review and approval. The IMP was required to ensure that canisters remain in a physical condition sufficient to allow both on-site transfer and off-site transport for the duration of the approval, until October 6, 2035." (staff report)

However, as per the following from the Nuclear Waste Technical Review Board's 2019 Report "Preparing for Nuclear Waste Transport", unless repackaged with fewer assemblies per cask, the CoC would prohibit canisters containing 37 assemblies each, as is the case at San Onofre, to be transported until the year 2100!

This is because the excessive heat and radioactivity from so many assemblies of high burnup fuel in one canister will require cooling until the year 2100 to adequately reduce residual decay heat.

In order to fulfill the CCC's mandate to be transportable by the year 2035, (or indeed, before 2100) repackaging will be required. To enable repackaging, a hot cell must be built.

Even if the canisters were maintained perfectly and no repairs were ever needed, the current canisters are not able to be transported before the year 2100, long past significant sea rise and other foreseeable hazards will endanger the fragile situation of the 73 canisters of high level high burnup radioactive waste at San Onofre.

With this important omission in the LPI and SCE reports, I recommend this item be withdrawn from the agenda until the Coastal Commission staff can adequately address these issues. There is no urgency to rush a decision. It's important that the staff and Coastal Commissioners have the most accurate and complete information on this important issue before a decision is made.

A hot cell is an absolute necessity if San Onofre canisters are to be moved before the year 2100. A hot cell will allow the canisters to be repackaged into thicker casks that will be maintainable, monitorable and repairable.

Mary Beth Brangan
Ecological Options Network
mbbrangan@gmail.com
415-868-1900

pg. 77 (109 of 150) Nuclear Waste Technical Review Board: Preparing for Nuclear Waste Transportation Technical Issues that Need to Be Addressed in Preparing for a Nationwide Effort to Transport Spent Nuclear Fuel and High-Level Radioactive Waste

https://www.nwtrb.gov/docs/default-source/reports/nwtrb_nuclearwastetransport_508.pdf?sfvrsn=6

"DOE has examined the trend in SNF dry storage at nuclear power plant sites (Williams 2013). On average, during 2004–2013, the nuclear utilities discharged SNF that has higher burnups (approximately 45 GWd/MTU) than previously discharged SNF and, therefore, is thermally hotter and more radioactive. In addition, the nuclear utilities are loading SNF into larger dry-storage casks and canisters to improve operational efficiency and reduce cost. The largest of these canisters now holds as many as 37 PWR assemblies or 89 BWR assemblies. As a result, these larger casks and canisters are hotter than earlier dry-storage casks and canisters; therefore, they will take longer to cool sufficiently to meet transportation requirements.DOE estimated that if SNF was repackaged from large casks and canisters into smaller standardized canisters (and using standard assumptions about the operating lifetime of the U.S. fleet of nuclear reactors), DOE could remove SNF from all nuclear power plant sites by approximately 2070. However, if no repackaging occurs, some of the largest SNF canisters storing the hottest SNF would not be cool enough to meet the transportation requirements until approximately 2100 (Williams 2013)."

--
Mary Beth Brangan
Co-Director, EON

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www.eon3.net
https://www.youtube.com/eon3

Public Comment on July 2020 Agenda Item undefined 3a - Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co).

Marilyn Fuss <marilynfuss6@gmail.com>

Wed 7/15/2020 10:32 PM

To: Energy@Coastal <EORFC@coastal.ca.gov>

To the Coastal Commission, or members who read follow-up commentary turned in after July 10, 2020:

The National Oceanic and Atmospheric Administration officially tells us this week of flooding on the Atlantic and Gulf coasts. As Siberia sizzles and glaciers melt, we are not immune from sea level rise here on the West Coast, which you are entrusted with protecting as the Coastal Commission. We also have much more threat from Tsunamis and other seismic events in this part of the world. All this imperils San Onofre nuclear generating station's contents, as well as this precious coast of ours, its people, and its ecosystem.

As the structurally significant edifice that enclosed the operating reactor is dismantled and removed, what will remain is a pad of numerous nuclear waste canisters, 5/8-inch thick, right on the beach vulnerable to all external forces, prone notably to corrosion from within. This is not a sustainable situation month-to-month, let alone for an uncertain number of years. Safeguards must be considered,

including moving the canisters inland and within rock, in zones which are not seismically active. 'Hot cells' should be on hand, in any case, to serve as stop-gap solutions in case of emergency.

This Commission needs to work hard to recognize this massive threat to avoid a Chernobyl or Fukushima-type calamity. The entire state needs to realize the enormity of a poorly-chosen power source, which we must literally clean up with no delay.

Thank you for making this space available.

Sincerely, Marilyn Fuss

member, SoCal 350.org,

Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co.) San Onofre comment

Bruce Campbell <madroneweb@aol.com>

Thu 7/16/2020 6:52 AM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>

July 15-16, 2020

Re: Condition Compliance for Permit No. 9-15-0228 (Southern California Edison, San Diego Co.) San Onofre comment

Dear John Weber and to whom it may concern at the California Coastal Commission and otherwise:

By October 6, 2020 (or before), the INSPECTION & MAINTENANCE PROGRAM for the ISFSI at San Onofre will be submitted to the Coastal Commission for its review by "the Permittee". The timing of this IMP submission to the Commission was moved up by two years as part of the settlement agreement of the Citizens Oversight lawsuit regarding San Onofre.

Seeing that your near future decision will have as "long-lived" implications as any other that you may make as a coastal commissioner or otherwise in your professional life, why not take a breath and allow the IMP to be submitted to the Commission by early October (in order to help inform commissioners as to whether they should approve the IMP and declare it in accord with the Special Conditions adopted earlier by the commission relating to the CDP for San Onofre site's ISFSI)?

I implore the commissioners to not give up the regulatory power which you have in regards to the San Onofre site – partially stemming from **the court decision in PG&E vs. California Energy Commission back in 1983 which declared that "THE COMMISSION RETAINS AUTHORITY UNDER THE COASTAL ACT TO REGULATE OTHER ASPECTS OF DEVELOPMENT AT THE SAN ONOFRE NUCLEAR GENERATING STATION, INCLUDING THE SITING OF A DRY STORAGE CASK FACILITY." (The Coastal Commission can even seek to avert a major nuclear accident which would cause a severe economic impact by lowering property values and leading a huge number of people to flee southern California. Please become empowered – at least wait until October and do some reading of the IMP itself which should be submitted by the 6th of that month.)**

You read that correctly – the Coastal Commission is empowered to regulate "THE SITING OF A DRY STORAGE CASK FACILITY"! So not only does the Coastal Commission have the power to regulate such a facility (except in regards to radiological matters), but **I want to make the point** (to be logical and abide by basic definitions) **when one is looking at "THE SITING OF A DRY STORAGE CASK FACILITY", it is NECESSARY TO HAVE ACTUAL "DRY STORAGE CASKS" AT A FACILITY DECLARED TO BE "A DRY STORAGE CASK FACILITY".**

The sad truth is that since before the fateful decision of the Commission on October 6th, 2015, Southern California Edison has been leading the way to convince people that apples are oranges **by pulling the old "BAIT-and-SWITCH" by substituting the term "canister" (those thin overstuffed radwaste containers) for the term "cask" despite the Special Conditions adopted under CDP 9-15-0228 mentioning the superior radwaste receptacle known as a "cask"** which are used by many civilized countries around the world.

Without delving into this, one might think no big deal. However, ever since Holtec executive Dr. Singh admitted at the Community Engagement Panel that his company's canisters "cannot be inspected, re-packaged, or transported", it has been clear that the main ploy at work at San Onofre is stoking fears of a spent fuel pool fire in order to rush through an overpacked, poorly-contained radwaste system using "canisters" for an alleged 20-year period, and then soon thereafter haul the waste away to a safer site. However, especially the really hot "high burn-up spent fuel waste" in overpacked canisters has been determined to need to sit and cool until at least the year 2100, yet SCE is pretending that there will be transport (even of Holtec's canisters not designed for such) of radwaste containers from San Onofre as soon as 2035 or else by the 2049-2051 time frame at least in the paperwork since 2015.

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*

I want to point out that I saw one mention in the formal paperwork of a "cask" which would be used when fishing out spent fuel rod assemblies from spent fuel pools and helping them along to their next destination some yards/meters down the line. I believe that the aforementioned receptacle is distinct from either the basic thin over-packed Holtec "canisters" currently used at the ISFSI at San Onofre, and from thick transportable casks which are the norm for radwaste storage in much of the world and which were used in nuclear industry terminology in this country to give people the idea that the industry is looking after our safety. But then, upon Holtec clearly taking the "lead" in radwaste disposal, so-called interim storage, and even now decommissioning *(having merged with a Canadian company convicted of bribery to form Comprehensive Decommissioning International, which, not surprisingly, is not comprehensive at all proposing to only clean the Indian Point, NY, reactor site down to a depth of a few feet -- thus avoiding radioactive groundwater which also feeds the nearby Hudson River),* **the NRC is allowing the utilities to run wild seeking to assure people with a concept of a transportable thick cask for radwaste storage, but then pulling the old "BAIT-and-SWITCH" by substituting thin overpacked Holtec canisters which are the container that Holtec's Dr. Singh admitted could not be inspected, re-packaged, or transported, but which were rushed into the ISFSIs at the San Onofre site under the guise that their use was a pre-requisite in order to have a chance of moving the real hot spent fuel rod waste away from San Onofre.**

The alleged independent company, **LPI, that evaluated the IMP for SCE seeks to assure people and commissioners that the thin overpacked Holtec canisters are of sufficient integrity due to a few reasons including "thickness".** Really? **While much of the world has 14 to 18-inch-thick stainless steel casks in which to store and haul their radwaste, this company is claiming that the 5/8 of an inch thick Holtec canisters suffice for the task partly due to their "thickness".** It shows that Holtec allies realize a serious weak point and try to claim the opposite while including the term along with a few other items so that it would not stand out unless noted as ironic by astute readers due precisely to the lack of thickness of Holtec canisters.

Also, in the paperwork prepared for the commission relating to the CDP for the ISFSI at San Onofre in both 2015 and 2020, SCE was making not only somewhat exaggerated / suspect claims, but notably bogus approximate time lines before certain activities would happen – including removing non-transportable Holtec canisters from the San Onofre site. They made claims such as some Holtec canisters at the ISFSI could be moved by 2035, and also that 2049 should be about the end of a storage phase until the canisters can be hauled off-site and accepted at a Dept. of Energy facility.
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One reason that the Coastal Commission needs to wait to make a decision until the IMP itself is submitted to the Commission on or before October 6, 2020, is that more information is required to better inform commissioner decisions on whether there are really serious inspection and maintenance measures planned at the ISFSI at San Onofre, or whether they appear to be token measures perhaps taken reluctantly due to prodding from an attorney.

For instance, I was shocked at "Table 1" in regards to how little "robotic camera inspections" would be attempted at the ISFSI at the San Onofre site. I was appalled to see that, despite a large amount of "modules" at the San Onofre ISFSI which contain I am not sure how many thin "canisters" which in turn are overstuffed with often 37 spent fuel rod assemblies apiece, that the entirety of the "robotic camera inspections" through 2035 would be to inspect a mere two canisters each year in the years 2024, 2029, and 2034, and no other canisters in any year until ISFSI operators need to return to the CCC to get a new amendment in regards to what to do on the San Onofre site in regards to the ISFSI radwaste containers. The only other planned inspections by robotic inspection cameras are of the "test canister". This is a Holtec canister which is heated up to the temperature which would be expected if there was a bunch of radwaste inside such canister. However, despite not being an expert in radioactive metallurgy, I bet there are changes in the thin overpacked Holtec canisters due to the radionuclides disintegrating inside them that are not measurable when one is "testing" the heated empty Holtec canister. The pathetically few attempts at robotic camera inspections proposed under the yet-to-be-approved IMP clearly indicate that safety is not a major concern of the investor-owned utility SCE or of the manufacturer of the canisters which are over-stuffed with spent fuel rod assemblies. THE FEW PROPOSED ROBOTIC CAMERA INSPECTIONS INDICATE THAT THOSE INVOLVED WITH THE ISFSI WOULD RATHER KICK BACK, COLLECT PROFITS, AND OCCASSIONALLY EVEN DO A TASK WHICH COULD INFORM DECISION-MAKERS ABOUT SIGNIFICANT DECISIONS IMPACTING THE GLOBE FOR GENERATIONS. I can think of one reason, however, to do very few proposed robotic camera inspections. That is, the results may not be much seeing that the Holtec canisters were manufactured to provide a low-cost alternative for cheap-skate utilities. But, that doesn't mean that there should not be many attempts to carefully inspect various areas of the ISFSI with robotic cameras.

As far as extent of some radwaste containers at San Onofre, I note that the initial ISFSI (approved around the beginning of the century) contained 51 fuel storage modules filled with spent fuel, with room for 38 more. The new ISFSI proposed by SCE would have a capacity of 75 fuel storage modules. (And remember a certain amount of canisters within the module, while each canister is overstuffed with often 37 spent fuel rod assemblies.) **Plans to inspect just a few canisters with robotic cameras before 2035 is a total outrage – unless it was concluded after many attempts that such robotic camera inspection would do no good because the Holtec canisters cannot be inspected according to Holtec's Dr. Singh.**

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I object to the proposed action by the CCC due to the blatant "BAIT-and-SWITCH" of promising thick transportable casks, and instead delivering thin canisters apparently designed to be overstuffed with 37 spent fuel rod assemblies apiece. Adopting what CCC staff is advising would greatly weaken the power of the Commission to regulate a number of aspects of development related to the San Onofre site. DO NOT GIVE UP ON YOUR FINE "SPECIAL CONDITIONS" – THOSE CONDITIONS REQUIRED A "CASK" RATHER THAN HOLTEC CANISTERS.

I want to comment on potential and likelihood for cracks in Holtec's thin radwaste canisters, and how that relates to the tiny amount of proposed testing of canisters. It does make sense to see if a robotic camera can inspect the canisters – even if it is a futile attempt because no one could figure out how to inspect Holtec canisters apparently designed not to be able to be inspected. So, inspect carefully while trying not to damage the already thin canisters which do not need scratches which could lead toward a crack all the way through a Holtec canister in 16 years.

My main emphasis in regards to inspection is the promised CASKS were ignored, while thin canisters which Holtec has determined should be overstuffed with up to 37 spent fuel rod assemblies appeared in the place of the term "cask". While I have not heard about scratches being a particular threat if one was dealing with an actual thick transportable cask, but it does make sense to check for scratches in very

thin Holtec canister varieties since a scratch can go all the way through the thin canister in 16 years (before the end of the first 20 years following the vote to permit the ISFSI).

I noticed a ridiculously simple conclusion at the end of the fairly brief paperwork on the IMP which indicated that the IMP outline was abiding by the Coastal Act in terms of protecting marine and visual resources, etc., when a brief examination of some of those items listed shows that the conclusion was erroneous. For instance, the paperwork submitted to the Commission back in 2015 mentions things like a possible lack of a permanent radwaste repository, or certain erosion or wave activity, or the degradation of casks (generally meaning canisters) could delay the movement of the radwaste canisters from leaving the San Onofre site. That paperwork notes that, "In either situation, retention of the ISFSI beyond 2051 would have the potential to adversely affect marine and visual resources and coastal access." And, of course, there have been multiple industry deceptions as to how long the "high burn-up" spent fuel rod assemblies will have to sit and cool off before any possibility of safely moving it offsite – and that is assuming it is in a transportable container and that such container has not degraded to prevent such transport.

The material to be presented to the Commission in October must make clear differentiations when you are referring to "casks" and when to "canisters", when you are inspecting the older ISFSI and when you are inspecting the newer ISFSI, and when you are contending with "high burn-up fuel" spent fuel rod assemblies or the basic kind of spent fuel rod assemblies produced in the 20th century.

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One of the great threats to the planet is the one-two punch of the very hot temperature and very radioactive "high burn-up" spent fuel rod assemblies, combined with the main so-called "solution" offered by the shady nuclear industry which is to stuff 37 spent fuel rod assemblies in a thin Holtec canister. One does not understand nuclear power /radwaste storage issue until one grasps that the new hotter radwaste produced at nuclear power facilities in the USA this century are much more problematic to store and transport, while the main company offering so-called radwaste solutions instead manufactures quite thin canisters and then advises that they be overstuffed with the hottest radwaste of all – the spent fuel rod assemblies from high burn-up fuel.

This paperwork before the Commission admits that "The SONGS spent fuel pools also contain a large number of "high burn-up" fuel assemblies, which produce greater amounts of radiation and heat and require more time to cool than regular fuel assemblies." Also, Special Condition # 2 under CDP 9-15-0228 would require info such as info on the "physical condition of the fuel storage casks" (but of course Holtec stuck the thin overstuffed canisters in there instead). Please recall that the Holtec canister is only certified for 20 years of use.

Back to that miniscule robotic camera inspection plan for canisters at an ISFSI at San Onofre, the paperwork regarding it gave such sketchy info about a tiny number of robotic camera inspections. But I realize that the IMP preliminary paperwork (we'll see about the more detailed paperwork) did not indicate things like: a) Will these very few robotic camera inspection attempts take place at just the most recent ISFSI at San Onofre, or could those very few inspections be divided between the ISFSIs?; b) Has it been determined whether it would be mostly "high burn-up" spent fuel rod assemblies?; c) In future discussions about possible off-site relocation of spent fuel rod assemblies from San Onofre, it should be made clear that there are differences between the radioactive waste produced during the 20th century and the radwaste produced with "high burn-up" fuel in the 21st century in terms of how long the waste needs to sit before being able to be transported (even if the container was designed for transport, let alone those canisters from Holtec which are not designed to be transported.

I will leave you with this: information which shall arrive at the CCC by October 6, 2020 will be important to evaluate to help commissioners determine the adequacy of the proposed IMP for the ISFSI at San Onofre. One would think that decision-makers would want to get the information as to whether fuel storage containers at the ISFSI "will remain in a physical condition sufficient to allow both on-site transfer and off-site transport" – though of course the Holtec canisters are not designed for transport. One can learn in October all evidence known regarding physical condition of the radwaste containers including susceptibility to degradation, including what container monitoring techniques will be used, and what measures will be taken if it is determined (which Holtec already did earlier) that the Holtec canisters cannot be transported.

Please reject the staff recommendation before you if it is voted upon today – since it is certainly sensible to vote on the actual IMP rather than on the skimpy outline of an IMP given the significance of the decision on celled organisms in southern California and beyond. Please wait to review the actual IMP in October 2020. Thank you for your consideration.

Sincerely concerned,

Bruce Campbell
10008 National Bl. # 163
Los Angeles, CA 90034

Samuel Lawrence Foundation

July 15, 2020

Chair Steve Padilla
California Coastal Commission
Sent via email Stephen.Padilla@coastal.ca.gov

Dear Chair Padilla and Coastal Commissioners,

We strongly urge you to oppose Southern California Edison's Coastal Development Permit 9-15-0228 for Proposed Inspection and Maintenance Program at San Onofre Nuclear Generating Station.

The Coastal Commission staff report lacked measures to ensure the protection of our coast and cities along the California coast. Removing the spent fuel pools at San Onofre without a validated handling facility on-site is an irresponsible decision. The spent fuel pools are the last option for dealing with a damaged canister.

Our constituents are requesting the following criteria be included in any permit:

- Require a plan for damaged nuclear waste storage canisters not fit for transportation
- Require applicant to construct a handling facility on-site to mitigate damaged canisters
- Retain spent fuel pools, until a validated handling facility is built (i.e. hot cell)

Sincerely,

Mayor Serge Dedina, Imperial Beach

Council Member Andrea Marr, Costa Mesa

Council Member Jill Galvez, Chula Vista

Council Member Tony Kranz, Encinitas

(Separate letter submitted by Mayor and Council Member of Del Mar)

I was logged in (unmuted) and raised my hand 20 times!

cathy iwane <cathyiwane@yahoo.com>

Thu 7/16/2020 11:52 AM

To: Weber, John@Coastal <john.weber@coastal.ca.gov>
Cc: Dave Rice <daverice1@cox.net>; Alice McNally <alimcnally8@gmail.com>; Bart Ziegler <bart@samuellawrencefoundation.org>; westone47@gmail.com <westone47@gmail.com>

Dear Commissioner,

I am Cathy Iwane registered to speak for two minutes with Coalition for Nuclear Safety. Per the screenshots below, please know that I was on the zoom conference call since 9am this morning. Jeff Staben on your staff sent our group a NEW & different link yesterday (other than the one we all previously had been sent as individual speakers BEFORE JEFF SPOKE WITH OUR REPRESENTATIVE, Dave Rice)
This new link is pictured below; however it's misleading; there was never a place to input a password. When you announced not finding me, (despite Dave texting me that you had found me) logged out of the meeting from my iPad, and then logged in via my cellphone. Login asked for something (not my password) + my email. I then thought I was logged in as I was clearly watching (see screenshot below)

Thank you for your efforts today. Please accept my 2 minute comments for the record here:

Honorable Commissioners,

I'm Cathy Iwane, a private citizen living in Del Mar, San Diego after evacuating my family from Japan due to the Fukushima triple meltdowns. This issue is deeply personal to me. I work with the Coalition for Nuclear Safety and other local groups.

Edison's management plan for storing 3.6 million pounds of nuclear waste at San Onofre must absolutely include an onsite handling facility before the spent fuel pools are torn down. Decommissioning the spent fuel pools without a validated onsite handling facility is irresponsible.

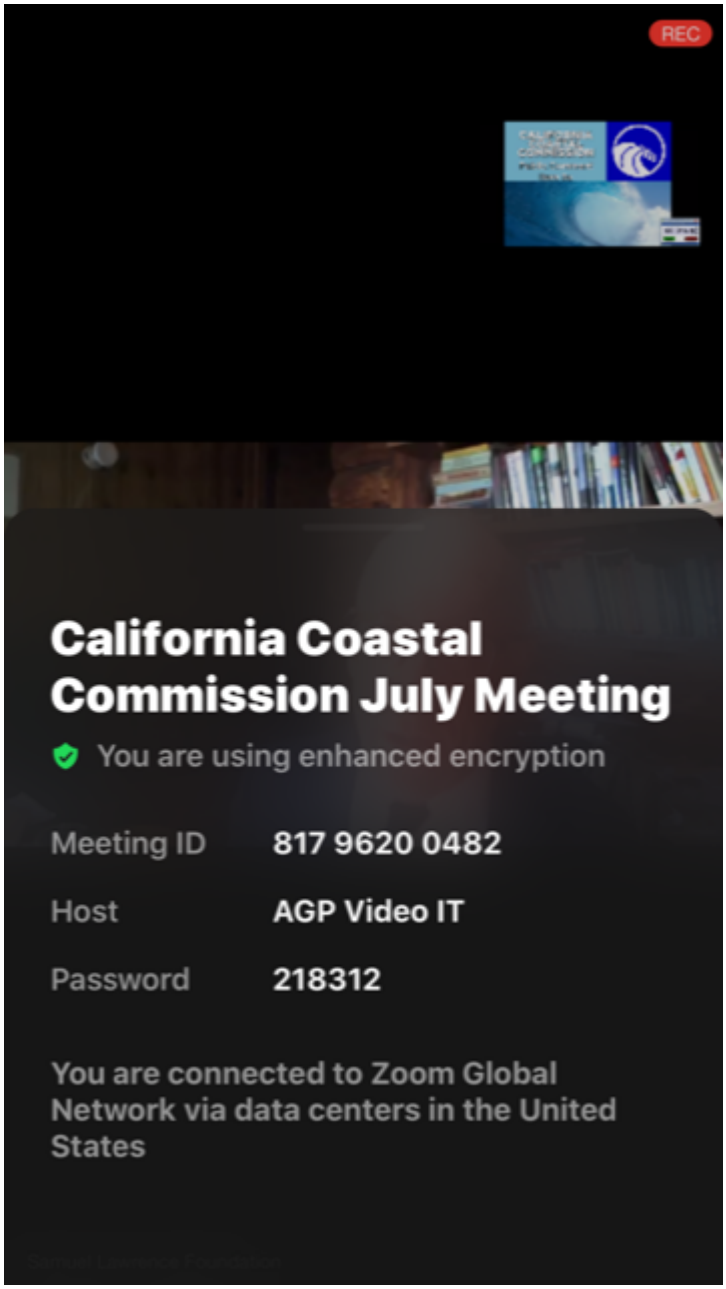
Why? Edison has no emergency response plan, should a damaged canister breach by accident. In 2015, the NRC ELIMINATED the requirement for SONGS specific off-site emergency plans by approving the SONGS Permanently Defueled Emergency Plan.

And yet, in August 2018 Edison came within a quarter inch of letting a 52 ton canister free-fall 18 feet to the ground.

Retaining the spent fuel pools is the last option for dealing with a damaged canister & to repackage waste for offsite transportation. We know that onsite storage of spent fuel is expected for an indefinite period of time at SONGS. Yet, IMPORTANT TO THIS MEETING, Edison has no plan for damaged storage canisters NOT fit for offsite transportation. The canister repair procedure proposed by Edison has not been tested, nor is it approved by the NRC.

Commissioners, we support your mission to protect our coastal environment and future generations from potential widespread contamination. Vote NO on Edison's IMP, without adding a condition for saving the pools and building an on-site handling facility.

Thank you~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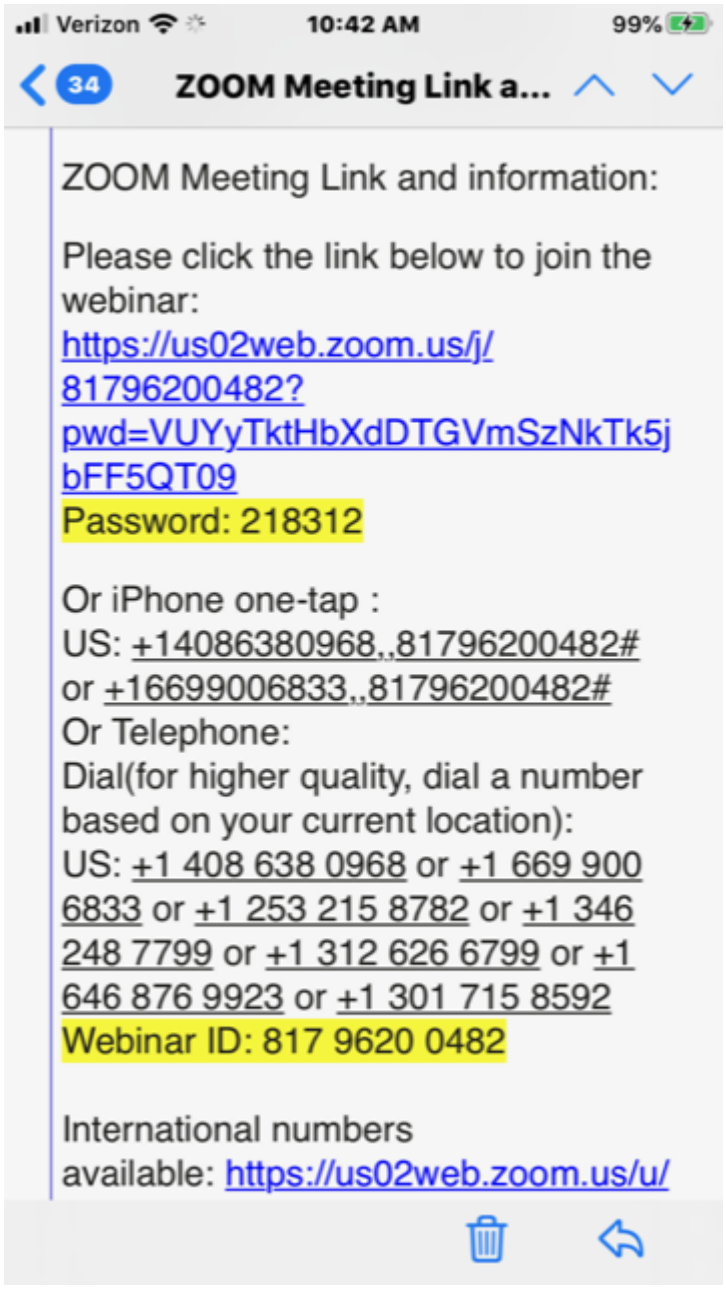
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