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COMMENT#: 105

From: Cochran, Justin@Energy [mailto:Justin.Cochran@energy.ca.gov]
Sent: Thursday, March 17, 2016 7:00 PM
To: NRCExecSec Resource <NRCExecSec.Resource@nrc.gov>
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Subject: [External_Sender] Chair Weisenmiller formal comments on Draft Regulatory Basis: Regulatory Improvements for Power Reactors Transitioning to Decommissioning (Docket ID: NRC-2015-0070)

Dear Secretary Vietti-Cook,

As mentioned in the previous submittal email sent on March 15, 2016 at 12:25 AM, the California Energy Commission has submitted the attached comments via the formal process using the *Federal rulemaking Web site*, <http://www.regulations.gov>. A tracking number was issued as a submission receipt. This letter provides the formal comments of the California State Energy Resources Conservation and Development Commission (Energy Commission) on the above-referenced Draft Regulatory Basis and supersedes the previously submitted letter as mentioned in the first submission email.

Thank you for your time and consideration. If your office has any questions, concerns, or require any further information, please do not hesitate to contact me.

Sincerely,

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March 17, 2016

Annette Vietti-Cook
Secretary
United States Nuclear Regulatory Commission
Washington, D.C. 20555-0001
ATTN: Rulemakings and Adjudications Staff.

RE: Amended Comment on the Draft Regulatory Basis: Regulatory Improvements for Power Reactors Transitioning to Decommissioning (Docket ID: NRC-2015-0070)

Dear Secretary Vietti-Cook:

This letter provides the formal comments of the California State Energy Resources Conservation and Development Commission (Energy Commission) on the above-referenced Draft Regulatory Basis and supersedes the previously submitted letter. The Energy Commission is California's primary energy policy and planning agency, with core functions that include evaluating and proposing mitigation for public health, safety, and environmental impacts of proposed thermal power plants, including nuclear reactors.

I am the Chair of the Energy Commission and the current California State Liaison officer to the United States Nuclear Regulatory Commission (NRC). I appreciate the opportunity to submit comments on this important subject and welcome the dialogue necessary for the development of a comprehensive draft regulatory basis for the decommissioning of nuclear power reactors.

The Energy Commission's Interest and Subject Matter Expertise

California law requires the Energy Commission to prepare a biennial *Integrated Energy Policy Report (IEPR)* that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety.¹ In fulfilling this legislative mandate, the Energy Commission regularly evaluates—and takes appropriate responsive action regarding—possible federal decision-making that would impact California's existing nuclear reactors, environmental resources, and public health and safety.² Section 25303, subdivision (c), of the California Public Resource Code provides, in pertinent part:

1 Cal. Pub. Resources Code, § 25301(a).

2 The Warren-Alquist Act designates the Energy Commission as the state's primary agency for energy policy and planning. Senate Bill 1389 (Bowen and Sher, Chapter 568, Statutes of 2002) requires that the Commission adopt and

In the absence of a long-term nuclear waste storage facility, the commission shall assess the potential state and local costs and impacts associated with accumulating waste at California's nuclear powerplants. The commission shall further assess other key policy and planning issues that will affect the future role of nuclear power plants in the state.

In 2008, the Energy Commission adopted the guidelines outlined in the report titled *Assessment of California's Nuclear Power Plants: AB 1632 Report*.³ At the time of the report, there were two operating nuclear power reactors, Pacific Gas and Electric's Diablo Canyon Power Plant (Diablo Canyon) and Southern California Edison's San Onofre Nuclear Generating Station (San Onofre), as well as two sites, Humboldt Bay and Rancho Seco, undergoing decommissioning. All four sites were, and still are, storing spent nuclear fuel (SNF) onsite. At the time of this writing, only Diablo Canyon is operating; San Onofre Units 2 and 3 are in the early stages of decommissioning, while San Onofre Unit 1, Humboldt Bay, and Rancho Seco are in later stages of the process. However, as discussed in the *2005 IEPR*⁴ and still of concern today, both Diablo Canyon and San Onofre have SNF stored in cooling pools and independent spent fuel storage installations (ISFSI).

An essential component of the AB 1632 report was the recognition that nuclear plants in California are vulnerable and the local geology is predisposed to seismic activity:

According to the California Seismic Safety Commission staff, there is a risk of a major earthquake in California on the order of 2 to 3 percent per year. According to the 2007 Working Group on Earthquake Probabilities, California faces a 99.7 percent chance of a magnitude 6.7 or larger earthquake during the next 30 years. The likelihood of an even more powerful quake of magnitude 7.5 or greater in the next 30 years is 46 percent.

Specific legislative findings of the AB 1632 report were outlined in former Energy Commission Vice Chair James D. Boyd's 2011 testimony to the NRC before the Environment and Public Works Committee Subcommittee on Air and Nuclear Safety in the U.S. Senate.⁵ Furthermore, a 2010 presentation by former Energy Commission Nuclear Policy Advisor, Barbara Byron⁶ underscored report findings that (1) the Hosgri Fault zone is the primary seismic hazard at

transmit to the Governor and Legislature a report of findings every two years in the *Integrated Energy Policy Report*.

³ *Assessment of California's Nuclear Power Plants: AB 1632 Report*, Commission Report, CEC-100-2008-009-CMF, Published November 2008. Retrieved from <http://www.energy.ca.gov/ab1632/>.

⁴ California Energy Commission, *2005 Integrated Energy Policy Report*, published November 2005, CEC-100-2005-007-CMF. Retrieved from http://www.energy.ca.gov/2005_energy/policy/.

⁵ James D. Boyd, former Vice Chair, California Energy Commission. Testimony to the U.S. Nuclear Regulatory Commission Before the Environment and Public Works Committee Subcommittee on Air and Nuclear Safety in the U.S. Senate, April 12, 2011. Retrieved from http://www.energy.ca.gov/nuclear/2011-04-12_James_Boyd_testimony.pdf.

⁶ Barbara Byron. "California's Policies and Recommendations for Advanced Seismic Research at Diablo Canyon," September 9, 2010. Retrieved from <http://www.nrc.gov/public-involve/conference-symposia/seismic-info/presentations/session6-byron.pdf>.

Diablo Canyon, (2) the geometry of faults bounding the San Luis-Pismo structural block is not understood sufficiently to rule out a San Simeon-type⁷ earthquake directly beneath the plant, (3) important data on Diablo Canyon's seismic hazard and plant vulnerabilities are incomplete, and (4) ground motion near a fault could be stronger and more variable than previously thought.

The AB 1632 report identified Diablo Canyon's proximity to multiple fault zones as a significant seismic vulnerability.⁸ Furthermore, the available seismic and geological data concerning the region encompassing San Onofre indicated that the site could experience larger and more frequent temblors than previously anticipated when the plant was designed.⁹ The AB 1632 report further explained that secondary seismic hazards such as landslides and tsunamis could affect facilities and emergency response. Even if an earthquake did not exceed the design basis, the effect upon support systems, structures, and components could pose a direct risk of injury and loss of life to plant workers and occupants, resulting in indirect hazards to the public.

The California Coastal Commission has also been engaged in seismic review of both Diablo Canyon and San Onofre, recently focusing on the licensing of the onsite ISFSI structures.¹⁰ Moreover, the California Public Utilities Commission (CPUC) is involved in the seismic assessment of Diablo Canyon through the Independent Peer Review Panel (IPRP), required by California law to conduct an independent review of enhanced seismic studies and surveys of Diablo Canyon Units 1 and 2, including the surrounding areas of the reactor site and areas of nuclear waste storage.¹¹

The Energy Commission made policy recommendations addressing facility vulnerabilities in the *2008 IEPR Update* that were incorporated in subsequent *IEPRs*.¹² Since adoption of the AB 1632 report guidelines, the Energy Commission has taken the lead role in assessing the local costs, impacts, and policy issues associated with California's active and decommissioning nuclear power plants along the state's seismically vulnerable coastline. The Energy Commission has taken a particular interest in NRC licensing activities related to plant decommissioning,

7 Magnitude 6.5 earthquake on December 22, 2003, located 6 miles northeast of San Simeon, California. Retrieved from <http://www.cisn.org/special/evt.03.12.22/>.

8 MRW & Associates, Inc. *AB 1632 Assessment of California's Operating Nuclear Plants*, final consultant report, CEC-100-2008-005-F, Published October, 2008. Retrieved from <http://www.energy.ca.gov/ab1632/>.

9 SCE, 2001, *San Onofre Nuclear Generating Station Units 2 and 3 Seismic Hazard Study of Postulated Blind Thrust Faults*, prepared by Geomatrix Consultants, GeoPentech, and Southern California Edison for the Nuclear Regulatory Commission, 26 December 2001, 165 pp.

10 California Coastal Commission. *Construction of SONGS Units 2 and 3 Temporary Spent Nuclear Fuel Facility*. San Diego. February 28, 2001a. Retrieved from <http://www.coastal.ca.gov/energy/E-00-014-3mmi.pdf>. And California Coastal Commission Appeal Staff. *De Novo Review of A-3-SLO-04-035: Diablo Canyon ISFSI Application*. San Luis Obispo. November 23, 2004. Retrieved from <http://www.coastal.ca.gov/energy/W11a-12-2004.pdf>. California Coastal Commission. *Application No. 9-15-0228 (Southern California Edison Co., San Diego Co.)*. Long Beach. October 6, 2015. Retrieved from <http://www.coastal.ca.gov/meetings/mtg-mm15-10.html>.

11 Assembly Bill 361 (Achadjian, Chapter 399, Statutes of 2015). Retrieved from

https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB361.

12 California Energy Commission. *2008 Integrated Energy Policy Report Update*, published November 2008, CEC-100-2008-008-CMF. Retrieved from http://www.energy.ca.gov/2008_energypolicy/.

specifically focusing on issues related to the long-term storage of SNF and high-level waste on site.¹³

Response to the Current Regulatory Approach for Decommissioning Power Reactor Licensees (REG)

The current regulatory approach used by the NRC to handle the decommissioning of nuclear power plant sites is divided into multiple regulatory guides applied to plants that are neither generic nor standardized.¹⁴ It is essential that new decommissioning regulations recognize that nuclear plants throughout the United States are unique in both design and location. The size and correspondingly diverse geological and environmental conditions of the United States support the need for a regulatory process that is site-specific, flexible, transparent, responsive, and fundamentally based upon a commitment to safety. The proposed rulemaking should include recognition of state authority and expertise in matters related to non-radiological activities during the decommissioning process.

REG-2b: “Should the regulations be amended to require NRC review and approval of the PSDAR before allowing any ‘major decommissioning activity,’ as that term is defined in §50.2, to commence? What value would this add to the decommissioning process?”

Yes, NRC review and approval of the Post-Shutdown Decommissioning Activities Report (PSDAR) should be required before allowing any “major decommissioning activity” to occur. NRC review and approval of the PSDAR would allow comment from stakeholders and the public. This is essential, given that each local community, as well as state and local services will be affected by decommissioning and bear the brunt of any regional, environmental, and economic impacts. **Value is added to the decommissioning process in the form of increased public engagement, confidence, and support.** An open approach that is explicitly inclusive, adaptive, arranged, and informed can provide flexibility while maintaining the community (public) trust and confidence required in supporting a 60-year decommissioning process. NRC review and approval of the PSDAR would provide an opportunity to identify future issues and conflicts through the use of external resources, which in turn would allow for early solutions and a more efficient decommissioning process. It is critical that all affected levels of state government maintain a meaningful role in important decisions during the decommissioning process. Involvement of state and local government in the review and approval process could be exercised effectively and in a way that helps protect the interests of and gain the confidence of affected communities and citizens, while supporting the licensee’s efforts.

13 Letter to Secretary of U.S. Nuclear Regulatory Commission from the California Energy Commission regarding, San Onofre Nuclear Generating Station (SONGS) - License Amendments Regarding the Revision to Emergency Plan and Emergency Action Levels (TAC Nos. MF3838 through MF3843). NRC Accession Number ML15135A304.

14 U.S. Nuclear Regulatory Commission. REGULATORY GUIDE 1.184, DECOMMISSIONING OF NUCLEAR POWER REACTORS, October 2013 Revision 1. NRC Accession Number ML13144A840.

REG-3a: “Should the current role of the States, members of the public, or other stakeholders in the decommissioning process be expanded or enhanced, and how so?”

Yes, the current role of the States, members of the public, and other stakeholders in the decommissioning process should be expanded and enhanced. It is essential, to include entities that are likely to be involved in or directly affected by the decommissioning process. As pointed out in the *Blue Ribbon Commission on America’s Nuclear Future Report to the Secretary of Energy* (BRC Report), successful siting decisions are more likely to occur if preceded by a complex, extended set of negotiations between the implementing organization and the affected entities.¹⁵ The NRC and licensee would promote necessary transparency, flexibility, and responsiveness, by including stakeholders at every level of the decommissioning process. **Therefore, one of the first steps of the decommissioning process should be formation of an independent, expanded community engagement panel composed of state and local government representatives, community representatives, and affected stakeholders.** This panel could then provide essential input as the licensee and NRC develop a decommissioning plan. The Diablo Canyon Independent Safety Committee (DCISC) is a successful example of a licensee and the state working together for the public good and, ultimately, to the benefit of all parties involved.¹⁶

REG 3c: “For most decommissioning sites, the State and local governments are involved in an advisory capacity, often as part of a Community Engagement Panel or other organization aimed at fostering communication and information exchange between the licensee and the public. Should the NRC’s regulations mandate the formation of these advisory panels?”

Yes, the new NRC regulations should mandate the formation of an independent, expanded decommissioning advisory panel. As stated above, the inclusion of entities or stakeholders that are likely to be involved or directly affected by decommissioning is essential. During the rulemaking, state agencies and representatives will serve the public interest. Post-rulemaking, state-appointed experts will serve and represent the public as part of an expanded, independent decommissioning advisory panel. A 2014 report by Sandia National Laboratories points out that a defined method of public participation was critical in the successful siting of nuclear waste facilities in Finland, France, and Sweden.¹⁷ While the concerns and procedures for siting a waste repository are distinct from developing a decommissioning rulemaking, the success of the public’s inclusion in the more socially onerous waste facility siting process illustrates the benefits of a defined method of public participation. Inclusion is essential to build public trust and support for power reactor site decommissioning.

15 *Blue Ribbon Commission on America’s Nuclear Future, Report to the Secretary of Energy*, January 2012. Retrieved from <http://energy.gov/ne/downloads/blue-ribboncommission-americas-nuclear-future-reportsecretary-energy>.

16 Diablo Canyon Independent Safety Committee, <http://www.dcisc.org/about/general-information.php>.

17 Laura Price, Rob Rechard. *Progress in Siting Nuclear Waste Facilities: Fuel Cycle Research & Development*, Sandia National Laboratories, Sept. 2014, FCRD-NFST-2014-000628, SAND2014-18223R.

Further evidence supporting the advantages of a defined method of public participation is the recent posting in the *Federal Register* by the Department of Energy, requesting comments on implementing a consent-based siting process to establish an integrated waste management system.¹⁸ As advised in *REG-3a*, **the formation of an expanded decommissioning advisory panel that is engaged at the earliest stages of decommissioning is essential to develop a consent-based, adaptive, staged process intended to maintain the public trust and support while assisting the licensee through an extended and potentially controversial process.**

Another recommendation in the BRC Report was consideration of a legally binding agreement among government entities, affected stakeholders, and the licensee that promotes confidence in each party's ability to protect its interest through direct involvement in the decommissioning via an advisory panel. In California, both the DCISC and the IPRP¹⁹ are successful examples of a working relationship between a nuclear licensee and an advisory panel. In the case of the DCISC, community trust is maintained in the form of state-appointed recognized experts that review and report on relevant safety issues and topics related to Diablo Canyon. As for the IPRP, state-appointed panel experts interact with their federal and licensee counterparts to review seismic studies in support of the public trust. Notably, the new panel created under the NRC should be economically independent, unlike current advisory panels that rely on support from the licensee. Financial support for the panel should be allocated through a fund that is not dependent on any entity that is potentially beholden to external interests.

Response to Emergency Preparedness Requirements for Decommissioning Power Reactor Licensees (EP)

The Energy Commission has expressed concern that blanket approval of EP exemptions for California's nuclear plants would unreasonably reduce the safeguards necessary to ensure public health and safety. The current EP exemptions diminish the licensee's obligation to inform state emergency response organizations and the public in the event of an emergency.¹³ **Reliable and redundant communications are critical in coordinating a rapid response in the event of a radiological emergency.** Furthermore, responding emergency entities need appropriate support in the form of equipment and training. The current EP exemptions reduce a state's ability to effectively respond to an emergency by discontinuing the federal requirement for support to state planning and monitoring activities. Until the risk of a radiological release has been significantly reduced by the storage of spent fuel in an approved dry ISFSI or permanently removed from the state, the Energy Commission sees no basis for the current generic method of granting EP exemptions. Under the new regulations, it is important that the NRC Commissioners remain the sole arbiter for all license modifications to emergency planning for plants undergoing decommissioning and not defer decision making authority to NRC staff as long as SNF remains on site.

18 U.S. Department of Energy. "Design of a Consent-Based Siting Process for Nuclear Waste Storage and Disposal Facilities," December 23, 2015, Docket ID DOE_FRDOC_0001. Retrieved from http://www.regulations.gov/#!documentDetail;D=DOE_FRDOC_0001-3000.

19 Independent Peer Review Panel, <http://www.cpuc.ca.gov/PUC/energy/nuclear.htm>.

Emergency planning efforts must include provisions and protocols that address incidents such as a fire, transportation, spill, or other industrial accidents that release radioactive material into the environment. This planning must be in place until radioactive materials are removed and final site decontamination is complete. Moreover, it is critical that the State Department of Public Health or similar regulatory agency be involved in the development and approval of the emergency plan to ensure compliance with the state's radiological health laws and regulations.

EP-2a: "Rulemaking may involve a tiered approach for modifying EP requirements based on several factors, including, but not limited to, the source term after cessation of power operations, removal of fuel from the reactor vessel, elapsed time after permanent defueling, and type of long-term onsite fuel storage. (a) What tiers and associated EP requirements would be appropriate to consider for this approach?"

A tiered approach to decommissioning enables the development of a site-specific process, promoting EP levels defined by a site specific risk profile. Each nuclear power reactor has unique environmental and safety vulnerabilities arising from factors that include the local region and the plant design, exacerbated by the failure to standardize designs for Generation II reactors.²⁰ A generic method that will not completely address the unique array of issues that each plant will face cannot be the basis for new regulations. Consequently, an appropriately designed tiered approach offers the flexibility needed to maximize safety during decommissioning, while allowing plant operators and the licensee to proceed through the process with a minimum of amendment applications.

An appropriately designed tiered approach should be defined by safety and concerns over the impact decommissioning will have on the local environment and community. Tiers should be determined by safety concerns defined by site-specific regional factors; therefore, the boundaries of the initial tiers should be defined by the goal of providing the significant reduction of a radiological release via accident, natural disaster, or human intervention. For example, in California, seismic concerns require the rapid movement of spent fuel from cooling pools to a secure dry storage facility as recommended in the Energy Commission's *IEPR*²¹ and supported by the CPUC.²² Therefore, one of the qualifiers for a site to move from the first tier to the next should be completion of this process. The effect of decommissioning on state and local communities should also be considered in tier design. As decommissioning continues, site responses will shift from onsite response teams to regional state and local response teams. This will require additional training and equipment, effectively taxing local and state resources.

20 Ted Nordhaus, Jessica Lovering, Michael Shellenberger. *How to Make Nuclear Cheap: Safety, Readiness, Modularity, and Efficiency*, The Breakthrough Institute, Version 2.0, June 2014. Referencing: MacKerron, "Nuclear costs: Why do they keep rising?" doi: 10.1016/0301-4215(92)90006-N, and Nathan Hultman, "The political economy of nuclear energy," *Wiley Interdisciplinary Reviews: Climate Change* 2, No. 3 (2011): 397-411, doi:10.1002/wcc.113.

21 California Energy Commission. *2013 Integrated Energy Policy Report*, February 2014, pg. 225-229. Retrieved from http://www.energy.ca.gov/2013_energypolicy/index.html.

22 CPUC letter from President Picker to Christopher Johns, President of Pacific Gas and Electric, Diablo Canyon License Extension, May 27, 2015.

Moreover, seasonal conditions will cause fluctuations in local response capabilities. Hence, inclusion of state and local agencies in the decommissioning process is critical to maintain the integrity of site safety and ensure adequate emergency response.

While spent fuel remains in the cooling pools, the transmission of information from the emergency response data system (ERDS) of the facility to the host state and NRC should be maintained at the same level as an operating reactor. Stringent notification requirements must stay in place until all spent fuel has been removed from the site. After spent fuel is moved to a dry storage ISFSI, the licensee, in coordination with the NRC, local responding emergency agencies, and affected state agencies could discuss the appropriate modification of emergency communication protocols.

EP-2b: "What factors should be considered in establishing each tier?"

The primary factor in establishing each tier must be protection of the health and safety of the citizenry. Minimizing the risk of a radiological accident must be the primary consideration at all stages of decommissioning. Inclusion of the local community, which will likely experience the greatest consequences of an accident, and the state in decommissioning, is essential to maintaining the integrity of the process and supporting the licensee's efforts. Moreover, inclusion of state and local experts increases the potential of a positive outcome through investment of affected stakeholders. The unique set of safety and environmental concerns defined by the facility location requires a site-specific focus during the development of a decommissioning plan. A site-specific approach requires regulatory guidance that is versatile so that region-specific issues can be adequately addressed through the inclusion of affected state agencies and stakeholders.

The secondary factor in establishing each tier should be long-term environmental impacts. As decommissioning progresses, the local community and the state will ultimately bear the economic and environmental costs. Decommissioning should be designed to minimize risks to the local environment. Under the current regulations, the decommissioning of a nuclear power facility cannot be completed due to the lack of a federal waste repository.²³ Mandatory onsite storage is in direct conflict with the California Coastal Commission's policies and commitment to protecting, preserving, and enhancing California's coast and ocean for present and future generations. Furthermore, onsite storage forces the citizens of California to needlessly bear the environmental risks associated with the long-term storage of SNF along the state's seismically active coastline.

EP-2c: "What type of basis could be established to support each tier or factor?"

The basis set for each tier should be designed to maximize safety; minimize environmental damage; minimize economic impacts; support an efficient, expedient process; and promote

23 Nuclear Waste Policy Act of 1982. Retrieved from <http://energy.gov/downloads/nuclear-waste-policy-act>.

transparency, flexibility, and responsiveness. Decommissioning as defined by 10 CFR 50.2 means:

...to remove a nuclear facility from service and reduce residual radioactivity to a level that permits (1) release of the property for unrestricted use and termination of the license, or (2) release of the property under restricted conditions and termination of the NRC license.

Risks to the local environment associated with decommissioning are a significant and justifiable concern of the State of California. At the time of this writing, Humboldt Bay, Rancho Seco, and San Onofre are at various stages in the decommissioning process within California. The Energy Commission expects a strict adherence to the letter and intent of the National Environmental Policy Act (NEPA). A fundamental requirement of NEPA is that federal agencies take a thorough and comprehensive “hard look” at reasonably foreseeable environmental impacts.²⁴ In particular, the Energy Commission expects the NRC, in compliance with NEPA, to take a “hard look” at site-specific environmental impacts associated with the decommissioning process.

Site-specific assessments are critical for plant sites in regions known to be vulnerable to natural events; for instance, when compared to other nuclear power plants in the United States, sites located along the California coast are particularly susceptible to seismic events and related phenomena as indicated by the Electric Power Research Institute.²⁵ Moreover, the California Environmental Quality Act (CEQA)²⁶ may require state regulatory agencies to perform an environmental impact assessment during various stages of decommissioning. As previously mentioned, the early inclusion of state agencies in the process will help minimize opposition while assisting the licensee through an extended and potentially controversial process.

Since each facility is unique, the basis set for each tier needs to be flexible enough to incorporate the variation in site-specific vulnerabilities. Hence, the inclusion of state and local experts is critical in developing a site-specific decommissioning plan. The following actions should be part of the basis set of the first tier while spent fuel remains in the cooling pools:

- Maintain 10-mile emergency planning zone with consideration for reduced exercise and demonstration requirements.
- Establish site-defined annual review requirements for on-site and off-site EP plans.
- Maintain facility ERDS at a status level approved by relevant state agencies.

EP-4a: “Should § 50.54(q) be modified to recognize that nuclear power reactor licensees, once they certify under § 50.82, ‘Termination of License,’ to have permanently ceased operation and

²⁴ *Baltimore Gas and Elec. Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 97-98. See also *State of New York, et al. v. Nuclear Regulatory Commission and United States of America (New York)*, 681 F.3d 471, 481 (D.C. Cir. 2012).

²⁵ John Richards et al. Electric Power Research Institute, NTF 2.1 Spent Fuel Pool Evaluations, NRC Meeting on Recommendations 2.1 July 15, 2015. NRC Accession Number ML15197A008.

²⁶ California Environmental Quality Act. Retrieved from <http://resources.ca.gov/ceqa/>.

permanently removed fuel from the reactor vessel, would no longer be required to meet all standards in § 50.47 and all requirements in Appendix E? If so, describe how.”

A blanket reduction of the standards in § 50.47 and all requirements in Appendix E should not be the default action upon the permanent removal of fuel from the reactor vessel. Until the United States, through its authorized agency, has approved a means for permanent and terminal disposition of high-level nuclear waste, spent fuel will continue to be stored in California for many decades to come, if not indefinitely.²⁷ Because spent fuel will be partially stored on-site in wet storage at two locations for the immediate future, the Energy Commission has concerns that approval of a generic decommissioning process at this time would unreasonably diminish the current safeguards necessary to ensure public health and safety. Emergency preparedness is vital along the California coast due to the complex and dynamic seismic environment.

The Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3), predicts the likelihood that California will experience a magnitude 8 or larger earthquake in the next 30 years at approximately 7%.²⁸ Supporting California’s seismic concerns, NRC staff pointed out an important observation of the Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants (NUREG-1738) in an August 16, 2002, memorandum to the U.S. Nuclear Regulatory Commission²⁹:

...staff could not preclude the possibility of a zirconium fire beyond the time determined by the air-cooling criterion. Specifically, the study concluded that it is not possible to define a generic decay heat level (and, therefore, decay time) beyond which a zirconium fire cannot occur. This is because the geometry of the spent fuel assemblies, the associated air-cooling flow paths, and the resultant heat transfer rates are not predictable following a major dynamic event (such as a beyond-design-basis earthquake or severe sabotage), that could rupture and drain the [Spent Fuel Pool] SFP. As a result, the study concluded that the possibility of a zirconium fire cannot be dismissed even many years after final reactor shutdown.

In the same August 16, 2002, memorandum, NRC staff identified the consequences from a large radiological release due to a zirconium fire would likely result in a significant number of latent cancers and large losses of property.²⁹ A consistent concern of the State of California is the resistance of the NRC to fully consider circumstances and risks unique to California's coastal nuclear plants: risks associated with and exacerbated by the local seismicity. As NRC staff make

²⁷ In 1976, the California Legislature approved an amendment to the Warren-Alquist State Energy Resources and Development Act, Cal. Pub. Res. Code Section 25524.2, which conditions the certification of new nuclear power plants upon existence of a federally approved waste disposal technology for high-level nuclear waste.

²⁸ Field, E.H., and 2014 Working Group on California Earthquake Probabilities, 2015, UCERF3: A new earthquake forecast for California’s complex fault system: U.S. Geological Survey 2015–3009, 6 p., <http://dx.doi.org/10.3133/fs20153009>.

²⁹ Memorandum to the Commissioners of the NRC from William D. Travers, Executive Director for Operations, regarding the STATUS OF REGULATORY EXEMPTIONS FOR DECOMMISSIONING PLANTS (WITS 200100085, WITS 199900133, WITS 199900072). NRC Accession Number ML030550706.

clear in the above referenced documents, the post-event conditions following a major dynamic event, such as a beyond-design-basis earthquake or tsunami, are **not predictable**. Because of the unpredictable nature of geological activity, the Energy Commission continues to express its concerns over existing EP exemptions. **The Energy Commission believes there is no justification for granting the current EP exemptions to California's nuclear plants until spent fuel is permanently transferred from wet-cooling pools to a certified dry-cask ISFSI or removed from the state.** The new regulations must include a process that adapts EP exemptions to a site-specific risk profile.

Response to Questions Related to Decommissioning Trust Funds (DTF)

DTF-1: "Should the regulations in §§ 50.75 and 50.82 be revised to clarify the collection, reporting, and accounting of commingled funds in the decommissioning trust fund, that is in excess of the amount required for radiological decommissioning and that has been designated for other purposes, in order to preclude the need to obtain exemptions for access to the excess monies?"

The long-term storage of SNF is of great concern in California because sites located along the coast are particularly susceptible to earthquakes and related phenomena. **Due to the uncertainties and issues involving the storage of spent nuclear fuel on site for decades to come, it is recommended that the NRC require separate trust funds for the continued storage of SNF.** Moreover, the spent fuel trust fund should be designed such that it supports and promotes the transfer of spent fuel to dry cask storage in an approved ISFSI in regions where warranted, such as the seismically active California coast. A separate trust fund designed to cover costs associated with the long-term storage of spent fuel, transfer to dry storage casks, and the construction and maintenance of on-site ISFSI should be part of the new rulemaking until the federal government fulfills its obligations concerning SNF. Processes in the new regulations should allow decommissioning trusts used for activities and projects beyond those necessary for radiological decontamination and decommissioning to be commingled.

DTF-2a: "What changes should be considered for §§ 50.2 and 50.82(a)(8) to clarify what constitutes a legitimate decommissioning activity?"

Although the NRC is primarily concerned with the radiological aspects of decommissioning nuclear power reactors, the licensees include additional expenses for activities in the decommissioning cost estimates. **All of these planned costs may be eligible for trust fund withdrawals, since the funding of the trust is based on the decommissioning cost estimates.** The CPUC has been required to issue decisions to clarify what specific costs are considered eligible for trust fund recovery in California. For instance, current NRC regulations include employee training and assistance as valid decommissioning expenses, while severance is not specifically included. The CPUC authorized severance as a decommissioning expense for San Onofre Units 2 and 3, eligible to be paid from the nuclear decommissioning trust funds of Southern California Edison and San Diego Gas & Electric Company. Severance is one item that the NRC should consider adding to the regulations. A full list of eligible items could be

developed in the early stages of trust fund planning by coordinating with the relevant state regulatory agency.

Response to General Questions Related to Decommissioning Power Reactor Regulations (GEN)

GEN-1: “What regulatory changes should be considered that address the performance or condition of certain long-lived, passive structures and components needed to provide reasonable assurance that they will remain capable of fulfilling their intended functions during the decommissioning period?”

ISFSI maintenance and monitoring cycles should be defined by site-specific conditions. ISFSIs, like operating reactors, have unique environmental and regional factors that influence the operating life cycle. Each region will face a set of unique challenges influenced by weather and geological risks. Therefore, **monitoring and maintenance cycles should be predicated on system reliability constraints affected by regional weather and geological risks or incidents.** As mentioned in *EP-2a*, a tiered approach provides site flexibility and allows each site to customize the decommissioning process, enabling a licensee to tailor the ISFSI maintenance and monitoring cycle to the local environment. **State and local inclusion is essential in developing a site-specific maintenance and monitoring program.** In the later stages of decommissioning, state and local agencies will be the primary first responders in emergency incidents; therefore, their inclusion in this process is critical. A site is unavailable for repurposing until the removal of all radioactive waste and materials has been completed; consequently, the local community and the state may be required to protect, monitor, maintain, and support an economic “dead zone” beyond the planned 60-year decommissioning period.

In a letter to the NRC concerning the Proposed Waste Confidence Decision and Rule for Continued Storage of Spent Nuclear Fuel – Draft Generic Environmental Impact Statement,³⁰ the Energy Commission expressed three particular concerns of long-term storage deemed critical to the health and safety of the public: (1) there is no rule requiring a licensee to store spent fuel in a dry cask ISFSI, (2) NRC regulations do not identify a maximum time for storing spent fuel in a pool or cask, and (3) there are no dry transfer systems at nuclear power plant sites located in the United States. **The Energy Commission considers the following items as essential components in the development of a regulatory basis for SNF storage and transport:**³¹

- Development of waste management strategies or measures to reduce risks of extended SNF storage

30 Letter to Secretary of U.S. Nuclear Regulatory Commission from the California Energy Commission regarding U.S. Nuclear Regulatory Commission (NRC) Proposed Waste Confidence Decision and Rule for Continued Storage of Spent Nuclear Fuel – Draft Generic Environmental Impact Statement (Docket ID NRC-2012-0246). NRC Accession Number ML13359A006.

31 Letter to Cindy Bladely, Chief RADB U.S. Nuclear Regulatory Commission from the California Energy Commission regarding, U.S. Nuclear Regulatory Commission (NRC) Update of the Waste Confidence Decision and Rule - Notice of Intent (NOI) to Prepare a Draft Environmental Impact Statement (EIS) (Docket ID NRC-2012-0246). NRC Accession Number ML13010A133.

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- Development of site-defined regulations outlining timely transfer of SNF to a dry cask ISFSI
- Study of degradation of SNF and impacts of aging on casks and the associated ISFSI
- Site-specific environmental and economic impacts of long-term SNF storage and transportation.
- Development of a tested and reliable system for onsite dry transfer in the event of a cask breach or failure.
- Studies/considerations of impacts to social and economic resources from extended SNF storage and transportation (for example, the adequacy of Price-Anderson Act liability coverage in the event of a severe accident or incident, long-term reliability of institutional or corporate management of waste, and so forth)
- Periodic updates as new and significant information is developed regarding the risks of long-term SNF storage, the repackaging of SNF for transportation where not already packaged in transportable casks, and transportation.

Decommissioning regulation should not be a generic waste management rule, but rather a site-specific approach that is informed by general guidance from the NRC.

We appreciate the opportunity to comment on the draft regulatory basis and request that you consider these comments prior to amending the current regulations. Please send any future notices, correspondence, and documents related to these comments to Justin Cochran, Ph.D., Senior Nuclear Policy Advisor, California Energy Commission, MS-36, 1516 Ninth Street, Sacramento, CA, 95814-5512, or via e-mail at Justin.Cochran@energy.ca.gov.

Sincerely,



ROBERT B. WEISENMILLER
Chair and State Liaison Officer to NRC

CC:

Jason B. Carneal, United States Nuclear Regulatory Commission
Robert P. Oglesby, California Energy Commission
Justin Cochran, California Energy Commission