

NON-CONCURRENCE PROCESS COVER PAGE

The U.S. Nuclear Regulatory Commission (NRC) strives to establish and maintain an environment that encourages all employees to promptly raise concerns and differing views without fear of reprisal and to promote methods for raising concerns that will enhance a strong safety culture and support the agency's mission.

Employees are expected to discuss their views and concerns with their immediate supervisors on a regular, ongoing basis. If informal discussions do not resolve concerns, employees have various mechanisms for expressing and having their concerns and differing views heard and considered by management.

Management Directive, MD 10.158, "NRC Non-Concurrence Process," describes the Non-Concurrence Process (NCP), <http://nrcweb.nrc.gov:8600/policy/directives/catalog/md10.158.pdf>.

The NCP allows employees to document their differing views and concerns early in the decision-making process, have them responded to (if requested), and attach them to proposed documents moving through the management approval chain to support the decision-making process.

NRC Form 757, "Non-Concurrence Process" is used to document the process.

Section A of the form includes the personal opinions, views, and concerns of a non-concurring NRC employee.

Section B of the form includes the personal opinions and views of the non-concurring employee's immediate supervisor.

Section C of the form includes the agency's evaluation of the concerns and the agency's final position and outcome.

NOTE: Content in Sections A and B reflects personal opinions and views and does not represent official factual representation of the issues, nor official rationale for the agency decision. Section C includes the agency's official position on the facts, issues, and rationale for the final decision.

At the end of the process, the non-concurring employee(s):

☐ Concurred

☒ Continued to non-concur

☐ Agreed with some of the changes to the subject document, but continued to non-concur

☐ Requested that the process be discontinued

☐ The non-concurring employee(s) requested that the record be non-public.

☒ The non-concurring employee(s) requested that the record be public.

☐ This record is non-public and for official use only.

☒ This record has been reviewed and approved for public dissemination.



NCP PM 9/13/17
NCP-2017-012

NON-CONCURRENCE PROCESS

SECTION A - TO BE COMPLETED BY NON-CONCURRING EMPLOYEE

TITLE OF SUBJECT DOCUMENT NRR Response Letter to David Lochbaum Concerning Palo Verde License Amendments 199 and 200		ADAMS ACCESSION NO MI 17214A703
DOCUMENT SIGNER Brian E. Holian, A		SIGNER TELEPHONE NO (301) 415-1270
TITLE Acting Office Director	ORGANIZATION NRR	
NAME OF NON-CONCURRING EMPLOYEE(S) Roy K. Mathew		TELEPHONE NUMBER (301) 415-8324
TITLE Sr. Electrical Engineer	ORGANIZATION NRR/DE/EEOB	
<input type="checkbox"/> DOCUMENT AUTHOR <input type="checkbox"/> DOCUMENT CONTRIBUTOR <input type="checkbox"/> DOCUMENT REVIEWER <input checked="" type="checkbox"/> ON CONCURRENCE		
NON-CONCURRING EMPLOYEE'S SUPERVISOR John Lubinski		
TITLE Division Director	ORGANIZATION NRR/DE	
<input checked="" type="checkbox"/> I WOULD LIKE MY NON-CONCURRENCE CONSIDERED AND WOULD LIKE A WRITTEN EVALUATION IN SECTION B AND C <input type="checkbox"/> I WOULD LIKE MY NON-CONCURRENCE CONSIDERED, BUT A WRITTEN EVALUATION IN SECTIONS B AND C IS NOT NECESSARY.		
WHEN THE PROCESS IS COMPLETE, I WOULD LIKE THE NCP FORM: <input checked="" type="checkbox"/> PUBLIC <input type="checkbox"/> NON-PUBLIC		
REASONS FOR THE NON-CONCURRENCE, POTENTIAL IMPACT ON MISSION, AND THE PROPOSED ALTERNATIVES (use continuation pages or attach Word document)		
REASONS FOR THE NON-CONCURRENCE: Proposed response to UCS is factually incorrect and is not consistent with NRC requirements and the Commission's Policy. The staff did not follow the current guidance and requirements (BTP 8-8, GDCs, LOOP/LOCA, 50.46, 50.36), when approving the license amendments 199 and 200 for Palo Verde Unit 3 EDG AOT extensions.		
See attached for detailed comments.		
POTENTIAL IMPACT ON MISSION:		
The approval of the Palo Verde EDG emergency amendment is inconsistent with the NRC Mission, NRC Vision, NRC Safety Objectives, NRC Regulatory Effectiveness Strategies, NRC Openness Strategies, and the Principles of Good Regulation.		
The amendments (199 and 200) failed to provide reasonable assurance of plant safety. In the event of certain design basis accident the consequences would severely impact public health and safety, and the environment.		
THE PROPOSED ALTERNATIVES: Revise the response letter to address the comments and concerns. The approval of Palo Verde Amendments undermines the credibility of NRC regulation and interferes with the ability of staff to ensure licensees maintain minimum standards of safety as prescribed by Technical Specifications. The approval of the Palo Verde licensing actions to extend emergency diesel generator allowed outage times by 600 percent is, in my view, a major failure of the agency; and demonstrates a failure to understand and consistently implement regulatory precedent.		
Lessons-learned must be developed and all staff must be trained to avoid future non-conservative licensing actions.		
SIGNATURE 		DATE 9/12/17

NCP Attachment -Section A

Mr. David A. Lochbaum
Director, Nuclear Safety Project
Union of Concerned Scientists
P.O. Box 15316
Chattanooga, TN 37415

Dear Mr. Lochbaum:

On June 30, 2017,¹ you sent a letter to the U.S. Nuclear Regulatory Commission (NRC or the Commission) in which you discussed regulatory decisions that the NRC has recently completed related to a loss-of-coolant accident (LOCA) coincident with a loss of offsite power (LOOP). Specifically, you referenced the NRC's decisions regarding the following:

- 1) the issuance of Amendment No. 200² for Palo Verde Nuclear Generating Station, Unit 3 (Palo Verde) to extend the allowed outage time for an emergency diesel generator (EDG) (Palo Verde EDG amendment)
- 2) the termination of the proposed rulemaking to decouple LOOP from LOCA³ in accident analyses (LOOP/LOCA rulemaking)
- 3) an amendment request for Donald C. Cook Nuclear Plant, Unit No. 1 (D.C. Cook) to extend the allowed outage time for an EDG⁴ (D.C. Cook EDG amendment)

You stated that, due to ambiguous NRC guidance, these decisions were contradictory. You recommended that the Commission direct the NRC staff to identify and correct guidance shortcomings. In response to your letter, NRC Chairman Kristine Svinicki sent you a letter, dated August XX, 2017,⁵ and indicated that the NRC staff would send an additional letter with more information to address your specific concerns. I appreciate your perspectives and share your interest in ensuring that the staff makes sound regulatory decisions based on clear guidance.

As you are aware, the NRC has a risk-informed regulatory framework⁶ that considers defense-in-depth, risk insights, and safety margins. The NRC requires licensees to include

¹ Available in the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML17181A348.

² The NRC issued Amendment No. 200 at Palo Verde on January 4, 2017 (ADAMS Accession No. ML17004A020).

³ The Commission approved the discontinuation of the LOOP/LOCA rule in the Staff Requirements Memorandum to SECY-17-0013, dated April 21, 2017 (ADAMS Accession No. ML17110A512).

⁴ The licensee submitted the license amendment request for D.C. Cook on May 28, 2015 (ADAMS Accession No. ML15149A412).

⁵ Available in ADAMS under Accession No. ML17200D011.

⁶ Examples of guidance that implements this framework include Regulatory Guide (RG) 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (ADAMS Accession No. ML100910006); RG 1.177, Revision 1, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications" (ADAMS Accession No. ML100910008); and RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities" (ADAMS Accession No. ML090410014).

principal design criteria as part of an application for a construction permit.⁷ The general design criteria (GDC) in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," or a plant-specific equivalent, as incorporated into the current licensing bases of the plant, establish minimum requirements for the principal design criteria for a proposed facility. These criteria establish the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety; that is, structures, systems, and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public. The NRC also requires plants to be able to safely withstand ~~low probability and high consequence~~ events that are described in each plant's Updated Final Safety Analysis Report (i.e., design-basis accidents; for example, a LOCA coincident with a LOOP with the assumption of a single failure). Further, the NRC approved the technical specifications (TSs) for each plant, which established the limiting conditions for operation (LCOs)—the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a component described in the TSs is inoperable, the licensee enters the action statement and is required to take action in a certain amount of time (i.e., the allowed outage time). The licensee can request an extension to the allowed outage time based upon an evaluation of plant-specific defense-in-depth, risk insights, and safety margins. Generic Letter (GL) 80-30, "Clarification of the Term 'Operable' as it Applies to Single Failure Criterion for Safety Systems Required by TS," clarifies that the allowed outage time is a temporary relaxation of the single failure criterion. As a result, when in a TS action statement, single failures of the remaining operable components are not required to be postulated. This is the regulatory framework that the NRC uses to evaluate license amendment requests for proposed revisions to the allowed outage time in TSs.

With regards to the Palo Verde EDG amendment decision, you stated that the NRC failed to properly consider a single failure, as required by GDC 34, "Residual heat removal," and GDC 35, "Emergency core cooling," of Appendix A to 10 CFR Part 50, along with a LOCA and a LOOP. When the Palo Verde Unit 3 Train B EDG failed and the licensee entered the associated TS LCO, the licensee requested an extension to the allowed outage time to repair the EDG. As discussed in GL 80-30, single failure of the operable Unit 3 Train A EDG is not required to be considered because the licensee had entered the TS action statement for the Unit 3 Train B EDG. Further, the NRC staff assessed the impacts of the proposed change on GDC 34 and GDC 35 during its review, but acknowledges that it could have been more clearly documented in the safety evaluation. Nevertheless, the NRC staff did describe several of the key factors leading to its decision in the Palo Verde case in the safety evaluation, including:

- 1) the identification of the root cause of the EDG failure
- 2) the determination that the mode of failure was not common to the other EDGs
- 3) the determination that a LOCA was not a significant contributor to the increase in risk and that the risk assessment met the acceptance criteria in RG 1.177

Additionally, the licensee proposed a significant number of compensatory measures (e.g., deployment of three portable diesel generators, use of one diesel generator-driven flexible coping strategies (FLEX) makeup pump, suspension of discretionary maintenance and protection of key equipment, and use of other administrative controls) that provided additional

⁷ Similar requirements exist for combined licenses, design certifications, standard design approvals, and manufacturing licenses issued under 10 CFR Part 52.

Commented [MR1]: This statement is not consistent with NRC current regulations such as 10 CFR 50 Appendix A, 10 CFR 50.46, Palo Verde UFSAR Chapters 6.8, and 15 (i.e., all loss of coolant accident must be considered concurrent with LOOP irrespective of its risk significance. This is a design basis requirement. Note that the NRC Commission rejected the decouple LOOP from LOCA rule making effort.

Commented [MR2R1]:

Commented [MR3R1]:

Commented [MR4]: Agree. But, Generic letter 80-30 does not state that when a licensee requests a change to the TS, it does not have to consider single failure criteria for safety systems for mitigating LOCA. 10 CFR 50.36 (c)(2) states that Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met. It appears that the remedial action cannot satisfy accident mitigation when plant is operating for 62 days with only one emergency power source and if it fails for a number of reasons. Therefore, the safe operating mode for licensee to perform major repair of the EDG was during shutdown condition.

Commented [MR5]: This temporary relaxation only applies for the duration of the LCO that was approved in the Palo Verde TS. (i.e., This means that the temporary relaxation of NRC requirements for sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure is only for 10 days allowed by the approved TS and does not apply when staff is reviewing a LAR). The NRC staff has developed BTP 8-8 for deterministic review of AOT extensions (up to 14 days) based on industry requests for NRC guidance document ... [1]

Commented [MR6R5]:

Commented [MR7R5]:

Commented [MR8]: The requirement is 50.36. See above discussion.

Commented [MR9]: No. This is not true. The NRC approved the extension of an emergency diesel generator (EDG) allowed outage time from 10 days to 21 days to allow for continued troubleshooting and repair. Specifically, ... [2]

Commented [MR10]: See above response.

Commented [MR11]: NRC response to a 2.206 petition filed in January 2017 did not address inaccuracies in risk assessment. It was just ignored by stating that it is a separate issue. Specifically, staff did not factor the risk contribu ... [3]

Commented [MR12]: How can NRC make a statement that a LOCA was not a significant contributor to the increase in risk if the only operating diesel were to fail during design basis accident such as LOOP/LOCA? The staff failed to ... [4]

Commented [RM13]: Compensatory measures cannot meet design bases accident requirements.

assurance that defense-in-depth and safety margins were maintained. Based on these key factors, and in recognition that single failure criterion need not be addressed during this temporary situation for the Unit 3 Train A EDG, the NRC staff approved the one-time extension of the allowed outage time for the Unit 3 Train B EDG.

Your letter compared the D.C. Cook amendment request, which was withdrawn by the licensee,⁸ with the NRC staff's approval of the Palo Verde EDG amendment. You stated that a lack of clear guidance resulted in the NRC staff reaching contradictory decisions without objective factors leading to a consistent and repeatable decision. In a draft safety evaluation dated July 8, 2015,⁹ the NRC staff documented the basis for the planned denial¹⁰ of the D.C. Cook EDG amendment request. In the draft safety evaluation, the NRC staff concluded that several key factors led to the decision to deny the D.C. Cook EDG amendment request, including:

- 1) the licensee's inability to identify the root cause of the EDG failure
- 2) the licensee's inability to eliminate the possibility of a common cause failure on the other EDG
- 3) uncertainty as to whether the risk acceptance criteria of RG 1.177 were met, in part because the licensee had not established the technical acceptability of its probabilistic risk assessment model in accordance with RG 1.200

These key factors were sufficient for the NRC staff to deny the D.C. Cook request. During the course of the review, the NRC staff appropriately engaged the licensee in a discussion of the licensee's ability to mitigate the consequences of several events, including a LOCA coincident with a LOOP, assuming a single failure of the operable EDG. In these discussions, the NRC staff sought to establish whether adequate defense-in-depth and safety margins existed to support the amendment request. However, the NRC staff mistakenly asked the licensee how it met regulatory requirements for this accident sequence and documented the failure to meet this accident sequence as a basis for denial in the draft safety evaluation. As discussed earlier, the licensee is not required to protect against a design-basis accident assuming single failure of the operable EDG in accordance with GL 80-30. While the NRC staff may have misapplied the single failure criterion in the draft safety evaluation as a basis for denial, the staff appropriately denied the D.C. Cook EDG amendment request based on failure to meet the other key criteria.

As discussed above, the NRC staff consistently evaluated key factors to reach decisions for the Palo Verde and the D.C. Cook requests. Additionally, plant-specific design differences, as well as utilization and capabilities of temporary equipment, were factors in the decisions. Thus, the NRC staff pointed to objective factors that resulted in different outcomes for similar licensee requests.

You also discussed the Commission's termination of the proposed LOOP/LOCA rulemaking as

⁸ The NRC acknowledged the withdrawal of a license amendment request at D.C. Cook (ADAMS Accession No. ML15156A915).

⁹ Available in ADAMS under Accession No. ML15150A035.

¹⁰ The NRC staff informed the licensee in a teleconference on May 30, 2015, of its intention to deny the D.C. Cook EDG amendment request. The NRC offered the licensee an opportunity to withdraw the amendment request and the licensee formally withdrew the amendment request by letter dated June 1, 2015 (ADAMS Accession No. ML15154B045). As a result of the withdrawal, the draft denial safety evaluation was never finalized, did not receive management approval, and does not represent an official agency position.

Commented [MR14]: These compensatory measures only address LOOP and station Blackout scenarios. This does not help for accident scenarios. Accident scenarios cannot be met by the proposed compensatory measures because portable diesel generators and flex make-up pumps cannot meet the accident analysis assumptions.

Commented [MR15]: It looks like staff and NRC management approving the amendment is interpreting the 50.36 and GL 80-30 incorrectly.

When a licensee requests a change to the TS (extend the AOT), whether it is temporary or permanent, it does not mean that the licensee does not have to address the single failure criteria. The staff still has to ensure that extending the AOT from 10 days to 62 days is safe and it meets all design basis requirements. This is to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents. If the compensatory measures cannot provide sufficient defer ... [5]

Commented [MR16R15]:

Commented [RM17]: The footnote "As a result of the withdrawal, the draft denial safety evaluation was never finalized, did not receive management approval, and does not represent an official agency position." This is an incorrect statement. Also, this is not a draft SE. The DC ... [6]

Commented [RM18]:

Please note that for the Palo Verde first LAR, the staff approved Amendment No. 199 for 21 days for continued troubleshooting for common cause and root cause evaluations. ... [7]

Commented [RM19]:

This letter does not specify key deterministic factors the NRC staff to deny the DC Cook request. The deterministic conclusions documented in the SE states: The staff's conclusion was based on the following: ... [8]

Commented [MR20R19]:

Commented [RM21]: No. This is not a mistake. Please see the above response.

The plant must be able to withstand a LOOP/LOCA when operating with only one emergency diesel generator and ... [9]

Commented [RM22]: See the comments above. NRC has neither relaxed the requirements for accidents nor exempted the licensee from not meeting the requirements for accidents.

Commented [RM23]: No. The staff has not misapplied the single failure criteria and accident mitigation requirements.

Commented [RM24]: It is my opinion that the staff misapplied the deterministic requirements for Palo Verde approval of two LARs, because of senior management directed the staff to approve the amendments (see details in the DPOs filed by RIV staff and response filed for Di ... [10]

an example of the NRC staff's inconsistent decisions in considering LOOP and LOCA events. The proposed LOOP/LOCA rulemaking was not terminated because of safety concerns. The NRC published a *Federal Register* (FR) notice on June 20, 2017 (82 FR 28017), notifying the public that the LOOP/LOCA rulemaking had been discontinued because the current regulations (i.e., emergency core cooling system functional criteria) provide adequate protection of public health and safety. During the review of the proposed rulemaking, the NRC staff determined that plant-specific risk insights were necessary in order to proceed with this rulemaking, and the staff did not agree with an industry proposal for a generic risk assessment. The industry then stated the proposed rule would be too costly to implement. With no plans for the industry to implement the rulemaking on a large scale and given the NRC staff's conclusion that safety would be maintained, the Commission approved termination of the proposed LOOP/LOCA rulemaking.

The NRC has guidance in place for each of the processes described above (i.e., rulemaking, license amendments, risk-informed decisionmaking) to address scope, purpose, regulatory framework, extent of public participation, use of risk information, and other factors. In addition, the NRC staff periodically reviews the adequacy of existing guidance as well as decisions that involve significant resources and/or differing staff views to determine whether updates to NRC guidance are necessary. The NRC staff believes that additional effort is needed to both clarify risk-informed guidance and enhance staff knowledge and use of that guidance. The NRC staff is in the process of responding to Commission direction¹¹ to update the Commission on the staff's use of risk information in decisionmaking activities. In this paper, the NRC staff plans to include a discussion of staff actions, and will ensure that the paper highlights the steps taken to ensure risk-informed requests to extend TS allowed outage times meet clear risk criteria with appropriate consideration of safety margin and defense-in-depth. In addition, as a result of two differing professional opinions (DPOs)¹² filed by NRC staff regarding the Palo Verde EDG amendments and ongoing staff discussions, the Office of Nuclear Reactor Regulation is taking several actions that had been recommended by the DPO review panel. The actions include evaluating guidance to determine if clarification is required for: (1) acceptability of long-duration completion times for one-time extensions and (2) maximum allowed outage times, even when supported with risk information, to limit the amount of time operation without single failure protection is permitted. Also, the staff will determine if clarification is needed for Branch Technical Position 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions."¹³

NRC approvals to extend the TS allowed outage times increase the amount of time when a plant does not fully meet single failure protection. The question is not whether the NRC process should allow this, but to what extent it should be allowed. Early versions of TS, with more limited operating experience and less advanced risk insights, conservatively held equipment allowed outage times to shorter timeframes (e.g., 72 hours for an EDG). One would expect that with greater risk-informed knowledge and more plant-specific operating experience, the NRC is now better able to estimate a reasonable period of time for equipment to be allowed to be out of service. Moving in that direction, the NRC recently issued amendments¹⁴ for Vogtle Electric Generating Plant, Units 1 and 2, that modify the TS requirements to permit the use of risk-informed completion times, in accordance with Nuclear Energy Institute 06-09, Revision 0-A, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines."¹⁵ These amendments allow the licensee to extend certain

Commented [RM25]: If staff is trying to identify RMTS 4b as an example of extending AOTs, please note that it allows only for 30 days even from a risk-informed principle. This does not justify the NRC approval of LARs for Palo Verde for 62 days. This logic does not make much sense.

The bottom line is risk-informed methods cannot bring back a lost or inoperable power source for accident mitigation, if the only operable power source fails. The NRC staff has to recognize that plants are aging and components fail. Therefore, is it safe for Palo Verde to operate at full power with reduced safety margin and defense-in-depth for 62 days? The current deterministic guidance says "NO."

¹¹ Available in ADAMS under Accession No. ML17177A397.

¹² DPO Case File for DPO-2017-001 and DPO-2017-002 (ADAMS Accession No. ML17202G468).

¹³ Available in ADAMS under Accession No. ML113640138.

¹⁴ Available in ADAMS at Accession No. ML15127A669.

¹⁵ Available in ADAMS at Accession No. ML122860402.

completion times based on the total risk presented by the current plant configuration and actions that may be needed to respond to emergent conditions. The NRC is in the process of reviewing several similar risk-informed completion time amendments for other plants, including Palo Verde. The staff will continue to consider defense-in-depth and safety margins in completing the NRC's risk-informed safety reviews and determining whether a requested allowed outage time is too long. These principles, regarding appropriate use of risk insights, apply not only to the NRC's licensing reviews but also to oversight programs, including the inspection and assessment of plant performance.

Thank you for providing your perspectives on these recent LOOP/LOCA-related NRC decisions. I note that you have also provided additional, related views on the Palo Verde and D.C. Cook EDG amendments in several recent blog posts, which the NRC staff will further evaluate. Again, I appreciate and value your views on these matters and I agree that it is important for NRC guidance to be clear enough to result in predictable and consistent outcomes. Likewise, I agree that it is important for NRC staff to clearly document its safety decisions. I expect that the NRC staff's response to the DPO Panel recommendations and the Commission's recent direction will yield improvements in the regulatory processes and guidance that you seek in your letter.

Sincerely,

Brian E. Holian, Acting Director
Office of Nuclear Reactor Regulation

D. Lochbaum

- 6 -

SUBJECT: DAVID LOCHBAUM, DIRECTOR, NUCLEAR SAFETY PROJECT, UNION OF
CONCERNED SCIENTISTS, LETTER RE: TWO DECISIONS ISSUED BY THE
NRC STAFF REGARDING THE LICENSING BASIS FOR LOSS-OF-COOLANT
ACCIDENT AND A CONCURRENT LOSS OF OFFSITE POWER DATED

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RidsNrrDprPrab Resource

RidsNrrDra Resource

RidsNrrDraApla Resource

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RidsNrrDssSrx Resource

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RidsNrrOd Resource

RidsNrrPMDCCook Resource

RidsNrrPMPaloVerde Resource

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TCClark, EDO

LRegner, NRR

MWatford, NRR

RBeall, NRR

THilsmeier, NRR

TOrf, NRR

VGoel, NRR

ADAMS Accession Nos.:

Incoming: ML17181A348

Response: Chairman Letter ML17200D011; NRR Letter ML17214A703

*via email

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/PM*	NRR/DORL/LPL4/PM*	NRR/DORL/LPL4/LA
NAME	MWatford	SLingam	LRegner	PBlechman
DATE	7/20/17	7/27/17	7/27/17	7/20/17
OFFICE	QTE*	NRR/DORL/LPL4/BC*	NRR/DE/D*	NRR/DRA/D*
NAME	CHsu	RPascarelli	JLubinski	JGiitter (RFelts for)
DATE	8/10/17	8/4/17	8/8/17	8/4/17
OFFICE	NRR/DPR/D*	NRR/DSS/D*	NRR/DORL/D	OGC - NLO
NAME	LLund (GBowman for)	MGavrilas	ABoland	BMizuno
DATE	8/4/17	8/4/17	8/14/17	8/9/17
OFFICE	NRR/D(A)			
NAME	BHolian			
DATE	8/ /17			

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This temporary relaxation only applies for the duration of the LCO that was approved in the Palo Verde TS. (i.e., This means that the temporary relaxation of NRC requirements for sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure is only for 10 days allowed by the approved TS and does not apply when staff is reviewing a LAR). The NRC staff has developed BTP 8-8 for deterministic review of AOT extensions (up to 14 days) based on industry requests for NRC guidance document for performing major maintenance online rather than shutdown. The temporary relaxation of requirements specified in BTP is based on the fact that licensees perform major maintenance on the EDGs only once every 7-10 years to improve the reliability of EDGs.

The regulatory Position described in Regulatory Guide 1.93, "Availability of Power Sources" (Palo Verde licensing basis) states that If the affected source is restored within the time period specified in the plant-specific TS, unrestricted operation may resume. Conversely, if the conditions for continued power operation are met, but the source is not restored within the time period specified in the plant-specific technical specifications, the unit should be shut down.

No. This is not true. The NRC approved the extension of an emergency diesel generator (EDG) allowed outage time from 10 days to 21 days to allow for continued troubleshooting and repair. Specifically, the license amendment No. 199 was issued for continued troubleshooting for identifying common cause and root cause evaluations. (Refer LAR). Amendment 200 was approved for additional time (41 days) required to repair the EDGs to be functional and operable.

NRC response to a 2.206 petition filed in January 2017 did not address inaccuracies in risk assessment. It was just ignored by stating that it is a separate issue. Specifically, staff did not factor the risk contribution from OPC design vulnerability at Palo Verde because the licensee has not completed the corrective actions. NRC risk assessment of OPC shows as risk significant (ADAMS Accession No. ML17223A066). The accuracy of risk assessment which concluded that the risk assessment met the acceptance criteria in RG 1.177 is in error.

Please note that David Lochbaum letter dated August 22, 2017 states "The NRC simply cannot make proper risk-informed decisions by neglecting known and relevant risk factors. They have been lucky so far. I beg you and your office to compel the NRC staff to cease and desist its practice of neglecting known and relevant risk factors when making purportedly risk-informed decisions before their luck runs out and someone gets harmed.

How can NRC make a statement that a LOCA was not a significant contributor to the increase in risk if the only operating diesel were to fail during design basis accident such as LOOP/LOCA? The staff failed to consider all of the NRC requirements before an amendment is reviewed. Otherwise, NRC must show that Palo Verde has received exemptions from certain regulations.

It looks like staff and NRC management approving the amendment is interpreting the 50.36 and GL 80-30 incorrectly.

When a licensee requests a change to the TS (extend the AOT), whether it is temporary or permanent, it does not mean that the licensee does not have to address the single failure criteria. The staff still has to ensure that extending the AOT from 10 days to 62 days is safe and it meets all design basis requirements. This is to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents. If the compensatory measures cannot provide sufficient defense-in depth and safety margins for mitigating accident scenarios, then temporary relaxation of the single failure criteria is not acceptable and the staff should recommend that amendment be not approved.

The Commission did not authorize the use of **risk-based principles** to approve the license amendment for Palo Verde AOT extension.

Page - 3 - : [6] Commented [RM17]

Roy Mathew

09/10/2017 5:47:00 PM

The footnote "As a result of the withdrawal, the draft denial safety evaluation was never finalized, did not receive management approval, and does not represent an official agency position." This is an incorrect statement. Also, this is not a draft SE. The DC Cook SE was processed by DORL and EEEB staff (ML15154B045 and ML15149A443) as **official agency records**. Also, both NRR and regional senior managers were briefed and approval were received for communicating the results to the licensee.

Page - 3 - : [7] Commented [RM18]

Roy Mathew

09/10/2017 5:56:00 PM

Please note that for the Palo Verde first LAR, the staff approved Amendment No.199 for 21 days for continued troubleshooting for common cause and root cause evaluations.

Page - 3 - : [8] Commented [RM19]

Roy Mathew

09/10/2017 6:07:00 PM

This letter does not specify key deterministic factors the NRC staff to deny the DC Cook request. The deterministic conclusions documented in the SE states:

The staff's conclusion was based on the following:

- “(1) The SDGs, NDG, and the compensatory measures are not able to supply power to the ESF loads for accident mitigation within the time constraints of the accident analyses assumptions (UFSAR Chapter 14 requirements).
- (2) Neither the SDG nor any other power source (NDG and FLEX equipment) are credited in the accident analysis for accident mitigation.
- (3) LOOP with LOCA and a single failure are the licensing and design bases requirements for CNP and the licensee has not demonstrated whether the CNP Unit 1 can mitigate the consequences of these requirements.
- (4) Operating the plant for a period longer than specified in the NRC Branch Technical Position (BTP) 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions," is contrary to the requirements specified in 10 CFR 50.36(c)(2), "Limiting Conditions for Operation." This BTP states that the EDG Allowed Outage Time should be limited to 14 days to perform maintenance activities.
- (5) The proposed operating configuration with only one ESF emergency power source do not meet the requirements of 10 CFR 50.46 and the Cook Plant Specific Design Criterion 39, "Emergency Power." This is due to the fact that accident analysis assumes one train of emergency AC power is available given a worst-case single failure for all Chapter 14 accidents. Exemptions from these regulations are required to extend the CT for CNP TS for 65 days and the licensee has not requested one in accordance with 10 CFR 50.12.

The staff finds that the licensee did not provide adequate assurance that the extended CT could be utilized while maintaining adequate protection of public health and safety and common defense and security. Specifically, the licensee did not provide adequate assurance that the proposed compensatory measures including additional power sources will maintain the required safety functions during the proposed EDG CT extension period. Therefore, the staff concludes that there is not reasonable assurance that safe plant conditions will continue to be maintained; therefore, the proposed changes are unacceptable."

Page - 3 - : [9] Commented [RM21]

Roy Mathew

09/10/2017 6:16:00 PM

No. This is not a mistake. Please see the above response.

The plant must be able to withstand a LOOP/LOCA when operating with only one emergency diesel generator and if the only operable EDG fails or malfunctions. The regulations require that defense-in-depth and safety margins are maintained while plant is in operating mode.

Page - 3 - : [10] Commented [RM24]

Roy Mathew

09/10/2017 6:24:00 PM

It is my opinion that the staff misapplied the deterministic requirements for Palo Verde approval of two LARs, because of senior management directed the staff to approve the amendments (see details in the DPOs filed by RIV staff and response filed for Director's decision on DPOs)

The NRC staff did not follow the staff guidance provided in NUREG-0800, Standard Review Plan, Branch Technical Position (BTP) 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time (AOT) Extensions," in that the license amendment No. 199 was issued for continued troubleshooting, common cause and root cause evaluations and licensee amendment No. 200 was issued for completing the extensive repair.

BTP 8-8, specifies that the staff should not approve LARs for not more than 14 days. The 14 days was based on allowing licensees to performed extensive maintenance on EDGs every 7 to 10 years to increase the reliability of the EDGs.

Also, the current licensing basis for PVNGS TS Completion Time for electric power system is in accordance with Regulatory Guide (RG) 1.93, "Availability of Electric Power Sources." The staff did not review this licensing basis requirements.

NON-CONCURRENCE PROCESS

NCP-2017-012

SECTION B - TO BE COMPLETED BY NON-CONCURRING EMPLOYEE'S SUPERVISOR

TITLE OF SUBJECT DOCUMENT

NRR Response Letter to David Lochbaum Concerning Palo Verde License Amendments 199 and 200

ADAMS ACCESSION NO.

ML17214A703

NAME

John W. Lubinski

TITLE

Director

TELEPHONE NUMBER

(301) 415-3298

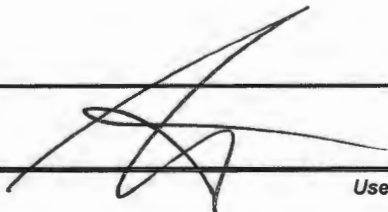
ORGANIZATION

NRR/DE

COMMENTS FOR THE NCP REVIEWER TO CONSIDER (use continuation pages or attach Word document)

See attached

SIGNATURE



DATE

9/20/17

Section B - COMMENTS FOR THE NCP REVIEWER TO CONSIDER

The submitter provided specific comments on the document and I provided my responses to each in the attached.

The following is a central issue provided by the submitter:

Neither the Generic letter 80-30 nor 50.36 states that when a licensee requests a change to the TS in accordance with 50.90, staff does not have to consider single failure criteria. The temporary relaxation of single failure or other requirements only apply for the duration of the LCO that was already approved in the Palo Verde TS (10 days). To approve Palo Verde EDG AOT extension and relaxing requirements again for another 52 days, staff must evaluate the Palo Verde LARs using NRC deterministic guidance provided in BTP 8-8 which limits the AOT extensions to a maximum of 14 days, Palo Verde licensing basis which includes commitment to Regulatory Guide 1.93, "Availability of Power Sources," and applicable regulations such as Appendix A to 10 CFR 50, 10 CFR 50.46, and 10 CFR 50.36. The staff erroneously approved amendments without sufficient regulatory and safety bases how Palo Verde met the NRC guidance and requirements. The regulations and Commission's risk-informed Commission Policy require that it should meet the licensee meets regulations, defense-in-depth, and safety margins are maintained while plant is in operating mode in addition to the risk principles.

I provide the following comments for the reviewer to consider in response to this issue.

10 CFR 50.36(c)(2) "Limiting conditions for operation" states that limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. It goes on to state that technical specifications for the limiting conditions must be established. These are established as limiting conditions of operation (LCOs) for specific equipment (note: the submitter refers to these as allowed outage times (AOTs)). Therefore, it is recognized that during an LCO, plants may not meet all design basis requirements. GL 80-30 provides additional information in this regard. GL 80-30 states, with respect to LCOs, that the specified time to action, usually called the equipment out-of-service time, is a temporary relaxation of the single failure criterion. GL 80-30 addresses the question that NRC may establish LCOs during which licensees would not meet design basis requirements if a single failure were to occur.

TSs for LCOs were established at initial plant licensing. When a licensee request an amendment to LCOs, the licensee is requesting a revised licensing basis with respect to the requirements of 50.36. The regulatory requirements for approving or denying the request are no different than for the initial LCOs. Therefore, staff can approve extensions to LCOs during which time the licensee would not meet design basis requirements if a single failure were to occur.

Licensing guidance, such as, BTP 8-8, is one way to meet regulatory requirements. However, it is not the only way. Licensees may proposal alternative approaches for meeting regulatory requirements. In doing so, I agree with the submitter that before approving an LCO extension the staff needs to ensure that safety is maintained. I believe the use of risk insights is appropriate in making this determination. When ensuring adequate safety margin and defense-in-depth, the staff needs to understand and evaluate the extent to which the plant can mitigate a design basis accident if a single failure were to occur.

Mr. David A. Lochbaum
Director, Nuclear Safety Project
Union of Concerned Scientists
P.O. Box 15316
Chattanooga, TN 37415

Dear Mr. Lochbaum:

On June 30, 2017,¹ you sent a letter to the U.S. Nuclear Regulatory Commission (NRC or the Commission) in which you discussed regulatory decisions that the NRC has recently completed related to a loss-of-coolant accident (LOCA) coincident with a loss of offsite power (LOOP). Specifically, you referenced the NRC's decisions regarding the following:

- 1) the issuance of Amendment No. 200² for Palo Verde Nuclear Generating Station, Unit 3 (Palo Verde) to extend the allowed outage time for an emergency diesel generator (EDG) (Palo Verde EDG amendment)
- 2) the termination of the proposed rulemaking to decouple LOOP from LOCA³ in accident analyses (LOOP/LOCA rulemaking)
- 3) an amendment request for Donald C. Cook Nuclear Plant, Unit No. 1 (D.C. Cook) to extend the allowed outage time for an EDG⁴ (D.C. Cook EDG amendment)

You stated that, due to ambiguous NRC guidance, these decisions were contradictory. You recommended that the Commission direct the NRC staff to identify and correct guidance shortcomings. In response to your letter, NRC Chairman Kristine Svinicki sent you a letter, dated August XX, 2017,⁵ and indicated that the NRC staff would send an additional letter with more information to address your specific concerns. I appreciate your perspectives and share your interest in ensuring that the staff makes sound regulatory decisions based on clear guidance.

As you are aware, the NRC has a risk-informed regulatory framework⁶ that considers defense-in-depth, risk insights, and safety margins. The NRC requires licensees to include

¹ Available in the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML17181A348.

² The NRC issued Amendment No. 200 at Palo Verde on January 4, 2017 (ADAMS Accession No. ML17004A020).

³ The Commission approved the discontinuation of the LOOP/LOCA rule in the Staff Requirements Memorandum to SECY-17-0013, dated April 21, 2017 (ADAMS Accession No. ML17110A512).

⁴ The licensee submitted the license amendment request for D.C. Cook on May 28, 2015 (ADAMS Accession No. ML15149A412).

⁵ Available in ADAMS under Accession No. ML17200D011.

⁶ Examples of guidance that implements this framework include Regulatory Guide (RG) 1.174, Revision 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (ADAMS Accession No. ML100910006); RG 1.177, Revision 1, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications" (ADAMS Accession No. ML100910008); and RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities" (ADAMS Accession No. ML090410014).

principal design criteria as part of an application for a construction permit.⁷ The general design criteria (GDC) in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," or a plant-specific equivalent, as incorporated into the current licensing bases of the plant, establish minimum requirements for the principal design criteria for a proposed facility. These criteria establish the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety; that is, structures, systems, and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public. The NRC also requires plants to be able to safely withstand ~~events~~ events that are described in each plant's Updated Final Safety Analysis Report (i.e., design-basis accidents; for example, a LOCA coincident with a LOOP with the assumption of a single failure). Further, the NRC approved the technical specifications (TSs) for each plant, which established the limiting conditions for operation (LCOs)—the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a component described in the TSs is inoperable, the licensee enters the action statement and is required to take action in a certain amount of time (i.e., the allowed outage time). The licensee can request an extension to the allowed outage time based upon an evaluation of plant-specific defense-in-depth, risk insights, and safety margins. Generic Letter (GL) 80-30, "Clarification of the Term 'Operable' as it Applies to Single Failure Criterion for Safety Systems Required by TS," clarifies that the allowed outage time is a temporary relaxation of the single failure criterion. As a result, when in a TS action statement, single failures of the remaining operable components are not required to be postulated. This is the regulatory framework that the NRC uses to evaluate license amendment requests for proposed revisions to the allowed outage time in TSs.

With regards to the Palo Verde EDG amendment decision, you stated that the NRC failed to properly consider a single failure, as required by GDC 34, "Residual heat removal," and GDC 35, "Emergency core cooling," of Appendix A to 10 CFR Part 50, along with a LOCA and a LOOP. When the Palo Verde Unit 3 Train B EDG failed and the licensee entered the associated TS LCO, the licensee requested an extension to the allowed outage time to repair the EDG. As discussed in GL 80-30, single failure of the operable Unit 3 Train A EDG is not required to be considered because the licensee had entered the TS action statement for the Unit 3 Train B EDG. Further, the NRC staff assessed the impacts of the proposed change on GDC 34 and GDC 35 during its review, but acknowledges that it could have been more clearly documented in the safety evaluation. Nevertheless, the NRC staff did describe several of the key factors leading to its decision in the Palo Verde case in the safety evaluation, including:

- 1) the identification of the root cause of the EDG failure
- 2) the determination that the mode of failure was not common to the other EDGs
- 3) the determination that a LOCA was not a significant contributor to the increase in risk and that the risk assessment met the acceptance criteria in RG 1.177

Additionally, the licensee proposed a significant number of compensatory measures (e.g., deployment of three portable diesel generators, use of one diesel generator-driven flexible coping strategies (FLEX) makeup pump, suspension of discretionary maintenance and protection of key equipment, and use of other administrative controls) that provided additional

⁷ Similar requirements exist for combined licenses, design certifications, standard design approvals, and manufacturing licenses issued under 10 CFR Part 52.

Commented [MR1]: This statement is not consistent with NRC current regulations such as 10 CFR 50 Appendix A, 10 CFR 50.46, Palo Verde UFSAR Chapters 6,8, and 15 (i.e., all loss of coolant accident must be considered concurrent with LOOP irrespective of its risk significance. This is a design basis requirement. Note that the NRC Commission rejected the decouple LOOP from LOCA rule making effort.

Commented [MR2R1]:

Commented [MR3R1]:

Commented [LJ4R1]: This is consistent. It states that the plant must meet all regulations when not in an LCO. No change recommended.

Commented [MR5]: Agree. But, Generic letter 80-30 does not state that when a licensee requests a change to the TS, it does not have to consider single failure criteria for safety systems for mitigating LOCA. 10 CFR 50.36 (c)(2) states that Limiting conditions for operation are the lowest ... [1]

Commented [LJ6R5]: GL 80-30 states the licensee receives a temporary relaxation of the single failure cri ... [2]

Commented [MR7]: This temporary relaxation only applies for the duration of the LCO that was approved ... [3]

Commented [MR8R7]:

Commented [MR9R7]:

Commented [LJ10R7]: This comment is addressed in my section B comments. In addition, BTP 8-8 is a guidance ... [4]

Commented [MR11]: The requirement is 50.36. See above discussion.

Commented [LJ12R11]: See above response. ... [5]

Commented [MR13]: No. This is not true. The NRC approved the extension of an emergency diesel generat ... [6]

Commented [LJ14R13]: The information highlighted is addressing amendment 200 and not amendment 199. A ... [7]

Commented [MR15]: See above response.

Commented [LJ16R15]: See response above. ... [8]

Commented [MR17]: NRC response to a 2.206 petition filed in January 2017 did not address inaccuracies in ri ... [9]

Commented [LJ18R17]: This letter is not responding to either the referenced 2.206 petition nor the August 22 ... [10]

Commented [MR19]: How can NRC make a statement that a LOCA was not a significant contributor to the i ... [11]

Commented [LJ20R19]: As discussed, the staff considered the risk associated with a single failure and ... [12]

Commented [RM21]: Compensatory measures cannot meet design bases accident requirements.

Commented [LJ22R21]: I agree that the compensatory measures may not meet all design bases accident ... [13]

assurance that defense-in-depth and safety margins were maintained. Based on these key factors, and in recognition that single failure criterion need not be addressed during this temporary situation for the Unit 3 Train A EDG, the NRC staff approved the one-time extension of the allowed outage time for the Unit 3 Train B EDG.

Your letter compared the D.C. Cook amendment request, which was withdrawn by the licensee,⁸ with the NRC staff's approval of the Palo Verde EDG amendment. You stated that a lack of clear guidance resulted in the NRC staff reaching contradictory decisions without objective factors leading to a consistent and repeatable decision. In a draft safety evaluation dated July 8, 2015,⁹ the NRC staff documented the basis for the planned denial¹⁰ of the D.C. Cook EDG amendment request. In the draft safety evaluation, the NRC staff concluded that several key factors led to the decision to deny the D.C. Cook EDG amendment request, including:

- 1) the licensee's inability to identify the root cause of the EDG failure
- 2) the licensee's inability to eliminate the possibility of a common cause failure on the other EDG
- 3) uncertainty as to whether the risk acceptance criteria of RG 1.177 were met, in part because the licensee had not established the technical acceptability of its probabilistic risk assessment model in accordance with RG 1.200

These key factors were sufficient for the NRC staff to deny the D.C. Cook request. During the course of the review, the NRC staff appropriately engaged the licensee in a discussion of the licensee's ability to mitigate the consequences of several events, including a LOCA coincident with a LOOP, assuming a single failure of the operable EDG. In these discussions, the NRC staff sought to establish whether adequate defense-in-depth and safety margins existed to support the amendment request. However, the NRC staff mistakenly asked the licensee how it met regulatory requirements for this accident sequence and documented the failure to meet this accident sequence as a basis for denial in the draft safety evaluation. As discussed earlier, the licensee is not required to protect against a design-basis accident assuming single failure of the operable EDG in accordance with GL 80-30. While the NRC staff may have misapplied the single failure criterion in the draft safety evaluation as a basis for denial, the staff appropriately denied the D.C. Cook EDG amendment request based on failure to meet the other key criteria.

As discussed above, the NRC staff consistently evaluated key factors to reach decisions for the Palo Verde and the D.C. Cook requests. Additionally, plant-specific design differences, as well as utilization and capabilities of temporary equipment, were factors in the decisions. Thus, the NRC staff pointed to objective factors that resulted in different outcomes for similar licensee requests.

You also discussed the Commission's termination of the proposed LOOP/LOCA rulemaking as

⁸ The NRC acknowledged the withdrawal of a license amendment request at D.C. Cook (ADAMS Accession No. ML15156A915).

⁹ Available in ADAMS under Accession No. ML15150A035.

¹⁰ The NRC staff informed the licensee in a teleconference on May 30, 2015, of its intention to deny the D.C. Cook EDG amendment request. The NRC offered the licensee an opportunity to withdraw the amendment request and the licensee formally withdrew the amendment request by letter dated June 1, 2015 (ADAMS Accession No. ML15154B045). As a result of the withdrawal, the draft denial safety evaluation was never finalized, did not receive management approval, and does not represent an official agency position.

Commented [MR23]: These compensatory measures only address LOOP and station Blackout scenarios. This does not help for accident scenarios. Accident scenarios cannot be met by the proposed compensatory measures because portable diesel generators and flex make-up pumps cannot meet the accident analysis assumptions.

Commented [LJ24R23]: I agree. Defense-in-depth and safety margin were considered in addressing the risk-informed evaluation and not to meet regulatory requirements with a single failure.

No change recommended.

Commented [MR25]: It looks like staff and NRC management approving the amendment is interpreting the 50.36 and GL 80-30 incorrectly.

When a licensee requests a change to the TS (extend (... [14]

Commented [MR26R25]:

Commented [LJ27R25]: This is addressed in my Section B comments.

Commented [RM28]: The footnote "As a result of the withdrawal, the draft denial safety evaluation was nev ... [15]

Commented [LJ29R28]: I recommend this footnote be reworded to clarify the purpose of the draft safety eva ... [16]

Commented [RM30]: Please note that for the Palo Verde first LAR, the staf ... [17]

Commented [LJ31R30]: This section is addressing the D.C. Cook amendment, not the Palo Verde amendme ... [18]

Commented [RM32]: This letter does not specify key deterministic factors (... [19]

Commented [MR33R32]:

Commented [LJ34R32]: The letter does not need to include all of the reasons the staff planned to deny the ... [20]

Commented [RM35]: No. This is not a mistake. Please see the above response. ... [21]

Commented [LJ36R35]: As noted in my Section B comments, plants are provided temporary relaxation f ... [22]

Commented [RM37]: See the comments above. NRC has neither relaxed the requirements for accidents nor ex ... [23]

Commented [LJ38R37]: See response above. ... [24]

Commented [RM39]: No. The staff has not misapplied the single failure criteria and accident mitigation ... [25]

Commented [LJ40R39]: As noted in my Section B comments, plants are provided temporary relaxation f ... [26]

Commented [RM41]: It is my opinion that the staff misapplied the deterministic requirements for Palo V ... [27]

Commented [LJ42R41]: As noted by the submitter, these concerns have already been addressed in response to ... [28]

an example of the NRC staff's inconsistent decisions in considering LOOP and LOCA events. The proposed LOOP/LOCA rulemaking was not terminated because of safety concerns. The NRC published a *Federal Register* (FR) notice on June 20, 2017 (82 FR 28017), notifying the public that the LOOP/LOCA rulemaking had been discontinued because the current regulations (i.e., emergency core cooling system functional criteria) provide adequate protection of public health and safety. During the review of the proposed rulemaking, the NRC staff determined that plant-specific risk insights were necessary in order to proceed with this rulemaking, and the staff did not agree with an industry proposal for a generic risk assessment. The industry then stated the proposed rule would be too costly to implement. With no plans for the industry to implement the rulemaking on a large scale and given the NRC staff's conclusion that safety would be maintained, the Commission approved termination of the proposed LOOP/LOCA rulemaking.

The NRC has guidance in place for each of the processes described above (i.e., rulemaking, license amendments, risk-informed decisionmaking) to address scope, purpose, regulatory framework, extent of public participation, use of risk information, and other factors. In addition, the NRC staff periodically reviews the adequacy of existing guidance as well as decisions that involve significant resources and/or differing staff views to determine whether updates to NRC guidance are necessary. The NRC staff believes that additional effort is needed to both clarify risk-informed guidance and enhance staff knowledge and use of that guidance. The NRC staff is in the process of responding to Commission direction¹¹ to update the Commission on the staff's use of risk information in decisionmaking activities. In this paper, the NRC staff plans to include a discussion of staff actions, and will ensure that the paper highlights the steps taken to ensure risk-informed requests to extend TS allowed outage times meet clear risk criteria with appropriate consideration of safety margin and defense-in-depth. In addition, as a result of two differing professional opinions (DPOs)¹² filed by NRC staff regarding the Palo Verde EDG amendments and ongoing staff discussions, the Office of Nuclear Reactor Regulation is taking several actions that had been recommended by the DPO review panel. The actions include evaluating guidance to determine if clarification is required for: (1) acceptability of long-duration completion times for one-time extensions and (2) maximum allowed outage times, even when supported with risk information, to limit the amount of time operation without single failure protection is permitted. Also, the staff will determine if clarification is needed for Branch Technical Position 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions."¹³

NRC approvals to extend the TS allowed outage times increase the amount of time when a plant does not fully meet single failure protection. The question is not whether the NRC process should allow this, but to what extent it should be allowed. Early versions of TS, with more limited operating experience and less advanced risk insights, conservatively held equipment allowed outage times to shorter timeframes (e.g., 72 hours for an EDG). One would expect that with greater risk-informed knowledge and more plant-specific operating experience, the NRC is now better able to estimate a reasonable period of time for equipment to be allowed to be out of service. Moving in that direction, the NRC recently issued amendments¹⁴ for Vogtle Electric Generating Plant, Units 1 and 2, that modify the TS requirements to permit the use of risk-informed completion times, in accordance with Nuclear Energy Institute 06-09, Revision 0-A, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines."¹⁵ These amendments allow the licensee to extend certain

Commented [RM43]: If staff is trying to identify RMTS 4b as an example of extending AOTs, please note that it allows only for 30 days even from a risk-informed principle. This does not justify the NRC approval of LARs for Palo Verde for 62 days. This logic does not make much sense.

The bottom line is risk-informed methods cannot bring back a lost or inoperable power source for accident mitigation, if the only operable power source fails. The NRC staff has to recognize that plants are aging and components fail. Therefore, is it safe for Palo Verde to operate at full power with reduced safety margin and defense-in-depth for 62 days? The current deterministic guidance says "NO."

Commented [LJ44R43]: This paragraph is providing examples of use of risk information to extend LCOs. It is not citing these examples as justification for approval of the Palo Verde amendment.

No change recommended.

¹¹ Available in ADAMS under Accession No. ML17177A397.

¹² DPO Case File for DPO-2017-001 and DPO-2017-002 (ADAMS Accession No. ML17202G468).

¹³ Available in ADAMS under Accession No. ML113640138.

¹⁴ Available in ADAMS at Accession No. ML15127A669.

¹⁵ Available in ADAMS at Accession No. ML122860402.

D. Lochbaum

- 5 -

completion times based on the total risk presented by the current plant configuration and actions that may be needed to respond to emergent conditions. The NRC is in the process of reviewing several similar risk-informed completion time amendments for other plants, including Palo Verde. The staff will continue to consider defense-in-depth and safety margins in completing the NRC's risk-informed safety reviews and determining whether a requested allowed outage time is too long. These principles, regarding appropriate use of risk insights, apply not only to the NRC's licensing reviews but also to oversight programs, including the inspection and assessment of plant performance.

Thank you for providing your perspectives on these recent LOOP/LOCA-related NRC decisions. I note that you have also provided additional, related views on the Palo Verde and D.C. Cook EDG amendments in several recent blog posts, which the NRC staff will further evaluate. Again, I appreciate and value your views on these matters and I agree that it is important for NRC guidance to be clear enough to result in predictable and consistent outcomes. Likewise, I agree that it is important for NRC staff to clearly document its safety decisions. I expect that the NRC staff's response to the DPO Panel recommendations and the Commission's recent direction will yield improvements in the regulatory processes and guidance that you seek in your letter.

Sincerely,

Brian E. Holian, Acting Director
Office of Nuclear Reactor Regulation

D. Lochbaum

- 6 -

SUBJECT: DAVID LOCHBAUM, DIRECTOR, NUCLEAR SAFETY PROJECT, UNION OF CONCERNED SCIENTISTS, LETTER RE: TWO DECISIONS ISSUED BY THE NRC STAFF REGARDING THE LICENSING BASIS FOR LOSS-OF-COOLANT ACCIDENT AND A CONCURRENT LOSS OF OFFSITE POWER DATED

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TClark, EDO

LRegner, NRR

MWatford, NRR

RBeall, NRR

THilsmeier, NRR

TOrf, NRR

VGoel, NRR

ADAMS Accession Nos.:

Incoming: ML17181A348

Response: Chairman Letter ML17200D011; NRR Letter ML17214A703

*via email

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/PM*	NRR/DORL/LPL4/PM*	NRR/DORL/LPL4/LA
NAME	MWatford	SLingam	LRegner	PBlechman
DATE	7/20/17	7/27/17	7/27/17	7/20/17
OFFICE	QTE*	NRR/DORL/LPL4/BC*	NRR/DE/D*	NRR/DRA/D*
NAME	CHsu	RPascarelli	JLubinski	JGitter (RFelts for)
DATE	8/10/17	8/4/17	8/8/17	8/4/17
OFFICE	NRR/DPR/D*	NRR/DSS/D*	NRR/DORL/D	OGC - NLO
NAME	LLund (GBowman for)	MGavrilas	ABoland	BMizuno
DATE	8/4/17	8/4/17	8/14/17	8/9/17
OFFICE	NRR/D(A)			
NAME	BHolian			
DATE	8/ /17			

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Agree. But, Generic letter 80-30 **does not state** that when a licensee requests a change to the TS, it does not have to consider single failure criteria for safety systems for mitigating LOCA. 10 CFR 50.36 (c)(2) states that Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met. It appears that the remedial action cannot satisfy accident mitigation when plant is operating for 62 days with only one emergency power source and if it fails for a number of reasons. Therefore, the safe operating mode for licensee to perform major repair of the EDG was during shutdown condition.

GL 80-30 states the licensee receives a temporary relaxation of the single failure criterion. Therefore, the licensee is not required to meet all regulations when also having a single failure.

I believe in determining safety impacts of the request, such as when evaluating risk insights, the staff does need to consider safety margin and defense in depth. In doing so, the staff needs to consider the level to which a plant can provide accident mitigation but not necessarily to the same level as when not in an LCO.

I recommend the third sentence of the next paragraph be modified to accurately address this point.

This temporary relaxation only applies for the duration of the LCO that was approved in the Palo Verde TS. (i.e., This means that the temporary relaxation of NRC requirements for sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure is only for 10 days allowed by the approved TS and does not apply when staff is reviewing a LAR). The NRC staff has developed BTP 8-8 for deterministic review of AOT extensions (up to 14 days) based on industry requests for NRC guidance document for performing major maintenance online rather than shutdown. The temporary relaxation of requirements specified in BTP is based on the fact that licensees perform major maintenance on the EDGs only once every 7-10 years to improve the reliability of EDGs.

The regulatory Position described in Regulatory Guide 1.93, "Availability of Power Sources" (Palo Verde licensing basis) states that If the affected source is restored within the time period specified in the plant-specific TS, unrestricted operation may resume. Conversely, if the conditions for continued power operation are met, but the source is not restored within the time period specified in the plant-specific technical specifications, the unit should be shut down.

This comment is addressed in my section B comments. In addition, BTP 8-8 is a guidance document for addressing one method of modifying LCOs and not a requirement for all LCOs.

No change recommended.

See above response.

No change recommended.

No. This is not true. The NRC approved the extension of an emergency diesel generator (EDG) allowed outage time from 10 days to 21 days to allow for continued troubleshooting and repair. Specifically, the license amendment No. 199 was issued for continued troubleshooting for identifying common cause and root cause evaluations. (Refer LAR). Amendment 200 was approved for additional time (41 days) required to repair the EDGs to be functional and operable.

The information highlighted is addressing amendment 200 and not amendment 199. Also, this issue was addressed in response to a DPO on amendment 199.

No change recommended.

Page - 2 -: [8] Commented [LJ16R15]	Lubinski, John	09/13/2017 6:38:00 PM
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See response above.

No change recommended.

Page - 2 -: [9] Commented [MR17]	Mathew, Roy	09/12/2017 4:52:00 PM
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NRC response to a 2.206 petition filed in January 2017 did not address inaccuracies in risk assessment. It was just ignored by stating that it is a separate issue. Specifically, staff did not factor the risk contribution from OPC design vulnerability at Palo Verde because the licensee has not completed the corrective actions. NRC risk assessment of OPC shows as risk significant (ADAMS Accession No. ML17223A066). The accuracy of risk assessment which concluded that the risk assessment met the acceptance criteria in RG 1.177 is in error.

Please note that David Lochbaum letter dated August 22, 2017 states "The NRC simply cannot make proper risk-informed decisions by neglecting known and relevant risk factors. They have been lucky so far. I beg you and your office to compel the NRC staff to cease and desist its practice of neglecting known and relevant risk factors when making purportedly risk-informed decisions before their luck runs out and someone gets harmed.

Page - 2 -: [10] Commented [LJ18R17]	Lubinski, John	09/13/2017 6:42:00 PM
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This letter is not responding to either the referenced 2.206 petition nor the August 22, 2017, letters. These are being addressed separately.

No change recommended.

Page - 2 -: [11] Commented [MR19]	Mathew, Roy	09/07/2017 4:59:00 PM
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How can NRC make a statement that a LOCA was not a significant contributor to the increase in risk if the only operating diesel were to fail during design basis accident such as LOOP/LOCA? The staff failed to consider all of the NRC requirements before an amendment is reviewed. Otherwise, NRC must show that Palo Verde has received exemptions from certain regulations.

Page - 2 -: [12] Commented [LJ20R19]	Lubinski, John	09/13/2017 6:39:00 PM
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As discussed, the staff considered the risk associated with a single failure and a LOOP/LOCA in making its decision. The staff also considered the extent to which the plant could mitigate such an event. Also, as already noted, the plant is not required meet the single failure criterion with a LOOP/LOCA during an LCO.

No change recommended.

Page - 2 -: [13] Commented [LJ22R21]	Lubinski, John	09/13/2017 6:43:00 PM
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I agree that the compensatory measures may not meet all design bases accident requirements when the plant also has a single failure. As noted, plants are not required to do so during an LCO.

No change recommended.

Page - 3 -: [14] Commented [MR25]	Mathew, Roy	09/07/2017 5:13:00 PM
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It looks like staff and NRC management approving the amendment is interpreting the 50.36 and GL 80-30 incorrectly.

When a licensee requests a change to the TS (extend the AOT), whether it is temporary or permanent, it does not mean that the licensee does not have to address the single failure criteria. The staff still has to ensure that extending the AOT from 10 days to 62 days is safe and it meets all design basis requirements. This is to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not

exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents. If the compensatory measures cannot provide sufficient defense-in depth and safety margins for mitigating accident scenarios, then temporary relaxation of the single failure criteria is not acceptable and the staff should recommend that amendment be not approved.

The Commission did not authorize the use of **risk-based principles** to approve the license amendment for Palo Verde AOT extension.

Page - 3 -: [15] Commented [RM28] Roy Mathew 09/10/2017 5:47:00 PM

The footnote "As a result of the withdrawal, the draft denial safety evaluation was never finalized, did not receive management approval, and does not represent an official agency position." This is an incorrect statement. Also, this is not a draft SE. The DC Cook SE was processed by DORL and EEEB staff (ML15154B045 and ML15149A443) as **official agency records**. Also, both NRR and regional senior managers were briefed and approval were received for communicating the results to the licensee.

Page - 3 -: [16] Commented [LJ29R28] Lubinski, John 09/13/2017 6:48:00 PM

I recommend this footnote be reworded to clarify the purpose of the draft safety evaluation. The intent of the sentence should be that the final Agency decision on the license amendment is only final when the person with appropriate authority signs the denial of the amendment request.

Page - 3 -: [17] Commented [RM30] Roy Mathew 09/10/2017 5:56:00 PM

Please note that for the Palo Verde first LAR, the staff approved Amendment No.199 for 21 days for continued troubleshooting for common cause and root cause evaluations.

Page - 3 -: [18] Commented [LJ31R30] Lubinski, John 09/13/2017 6:53:00 PM

This section is addressing the D.C. Cook amendment, not the Palo Verde amendment.

No changes recommended.

Page - 3 -: [19] Commented [RM32] Roy Mathew 09/10/2017 6:07:00 PM

This letter does not specify key deterministic factors the NRC staff to deny the DC Cook request. The deterministic conclusions documented in the SE states:

The staff's conclusion was based on the following:

- "(1) The SDGs, NDG, and the compensatory measures are not able to supply power to the ESF loads for accident mitigation within the time constraints of the accident analyses assumptions (UFSAR Chapter 14 requirements).
- (2) Neither the SDG nor any other power source (NDG and FLEX equipment) are credited in the accident analysis for accident mitigation.
- (3) LOOP with LOCA and a single failure are the licensing and design bases requirements for CNP and the licensee has not demonstrated whether the CNP Unit 1 can mitigate the consequences of these requirements.
- (4) Operating the plant for a period longer than specified in the NRC Branch Technical Position (BTP) 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions," is contrary to the requirements specified in 10 CFR 50.36(c)(2), "Limiting Conditions for Operation." This BTP states that the EDG Allowed Outage Time should be limited to 14 days to perform maintenance activities.
- (5) The proposed operating configuration with only one ESF emergency power source do not meet the requirements of 10 CFR 50.46 and the Cook Plant Specific Design Criterion 39, "Emergency Power." This is due to the fact that accident analysis assumes one train of emergency AC power is available given a worst-case single failure for all Chapter 14 accidents. Exemptions from these regulations are required to extend the CT for CNP TS for 65 days and the licensee has not requested one in accordance with 10 CFR 50.12.

The staff finds that the licensee did not provide adequate assurance that the extended CT could be utilized while maintaining adequate protection of public health and safety and common defense and security. Specifically, the

licensee did not provide adequate assurance that the proposed compensatory measures including additional power sources will maintain the required safety functions during the proposed EDG CT extension period. Therefore, the staff concludes that there is not reasonable assurance that safe plant conditions will continue to be maintained; therefore, the proposed changes are unacceptable."

Page - 3 -: [20] Commented [LJ34R32] Lubinski, John 09/14/2017 5:54:00 AM

The letter does not need to include all of the reasons the staff planned to deny the application. Also, as noted in my Section B comments, the third item listed by the submitter is not adequate justification for denial.

No change recommended.

Page - 3 -: [21] Commented [RM35] Roy Mathew 09/10/2017 6:16:00 PM

No. This is not a mistake. Please see the above response.

The plant must be able to withstand a LOOP/LOCA when operating with only one emergency diesel generator and if the only operable EDG fails or malfunctions. The regulations require that defense-in-depth and safety margins are maintained while plant is in operating mode.

Page - 3 -: [22] Commented [LJ36R35] Lubinski, John 09/14/2017 5:57:00 AM

As noted in my Section B comments, plants are provided temporary relaxation from the single failure criterion during an LCO.

No change recommended.

Page - 3 -: [23] Commented [RM37] Roy Mathew 09/10/2017 6:18:00 PM

See the comments above. NRC has neither relaxed the requirements for accidents nor exempted the licensee from not meeting the requirements for accidents.

Page - 3 -: [24] Commented [LJ38R37] Lubinski, John 09/14/2017 5:58:00 AM

See response above.

No change recommended.

Page - 3 -: [25] Commented [RM39] Roy Mathew 09/10/2017 6:22:00 PM

No. The staff has not misapplied the single failure criteria and accident mitigation requirements.

Page - 3 -: [26] Commented [LJ40R39] Lubinski, John 09/14/2017 5:58:00 AM

As noted in my Section B comments, plants are provided temporary relaxation from the single failure criterion during an LCO.

No change recommended.

Page - 3 -: [27] Commented [RM41] Roy Mathew 09/10/2017 6:24:00 PM

It is my opinion that the staff misapplied the deterministic requirements for Palo Verde approval of two LARs, because of senior management directed the staff to approve the amendments (see details in the DPOs filed by RIV staff and response filed for Director's decision on DPOs)

The NRC staff did not follow the staff guidance provided in NUREG-0800, Standard Review Plan, Branch Technical Position (BTP) 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time (AOT) Extensions," in that the license amendment No. 199 was issued for continued troubleshooting, common cause and root cause evaluations and licensee amendment No. 200 was issued for completing the extensive repair.

BTP 8-8, specifies that the staff should not approve LARs for not more than 14 days. The 14 days was based on

allowing licensees to performed extensive maintenance on EDGs every 7 to 10 years to increase the reliability of the EDGs.

Also, the current licensing basis for PVNGS TS Completion Time for electric power system is in accordance with Regulatory Guide (RG) 1.93, "Availability of Electric Power Sources." The staff did not review this licensing basis requirements.

Page - 3 -: [28] Commented [LJ42R41]

Lubinski, John

09/14/2017 6:00:00 AM

As noted by the submitter, these concerns have already been addressed in response to a DPO.

No change recommended.

NON-CONCURRENCE PROCESS

NCP-2017-012

SECTION C - TO BE COMPLETED BY NCP COORDINATOR

TITLE OF SUBJECT DOCUMENT

NRR Response Letter to David Lochbaum Concerning Palo Verde License Amendments 199 and 200

ADAMS ACCESSION NO.

ML17214A703

NAME

John W. Lubinski

TITLE

Director

TELEPHONE NUMBER

(301) 415-3298

ORGANIZATION

NRR/DE

AGREED UPON SUMMARY OF ISSUES (use continuation pages or attach Word document)

See attached

EVALUATION OF NON-CONCURRENCE AND RATIONALE FOR DECISION (use continuation pages or attach Word document)

See attached

TYPED NAME OF NCP COORDINATOR

John W. Lubinski

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SIGNATURE--NCP COORDINATOR

DATE

9/25/17

TYPED NAME OF NCP APPROVER

Brian E. Holian

TITLE

Acting Director

ORGANIZATION

NRR

SIGNATURE--NCP APPROVER

DATE

9/25/2017

Section C – EVALUATION OF NON-CONCURRENCE AND RATIONALE FOR DECISION

I agree with the replies by Mr. Lubinski to the specific comments provided by the submitter. In addition, I agree with the comments provided by Mr. Lubinski in Section B.

Below I have included my responses to each issue in the Summary of Issues.

Issue 1: The submitter states:

Page 2 of the response letter states "The NRC also requires plants to be able to safely withstand a set of low probability and high consequence events that are described in each plant's Updated Final Safety Analysis Report (i.e., design basis accidents; for example, a LOCA coincident with a LOOP with the assumption of a single failure)." LOOP/LOCA is design requirement that all operating reactors have to meet irrespective of its risk significance. The characterization of LOOP/LOCA as a set of low probability and high consequence event is neither stated in NRC regulations nor in Palo Verde licensing and design bases documents. This should be either corrected or applicable regulations and Commission's directions which indicate that it is a low probability event should be provided.

Response: The sentence quoted from the letter above is correct with respect to the requirement that plants must meet all design basis criteria coincident with a single failure when not in an LCO. The intent of the sentence was not to qualify probabilities or consequences of design basis accidents. Therefore, I modified the sentence to remove this phrase (see revised wording below).

Issue 2: The submitter states:

Neither the Generic letter 80-30 nor 50.36 states that when a licensee requests a change to the TS in accordance with 50.90, staff does not have to consider single failure criteria. The temporary relaxation of single failure or other requirements only apply for the duration of the LCO that was already approved in the Palo Verde TS (10 days). To approve Palo Verde EDG AOT extension and relaxing requirements again for another 52 days, staff must evaluate the Palo Verde LARs using NRC deterministic guidance provided in BTP 8-8 which limits the AOT extensions to a maximum of 14 days, Palo Verde licensing basis which includes commitment to Regulatory Guide 1.93, "Availability of Power Sources," and applicable regulations such as Appendix A to 10 CFR 50, 10 CFR 50.46, and 10 CFR 50.36. The staff erroneously approved amendments without sufficient regulatory and safety bases regarding how Palo Verde met the NRC guidance and requirements. The regulations and Commission's risk-informed Commission Policy require that it should meet the licensee meets regulations, defense-in-depth, and safety margins are maintained while plant is in operating mode in addition to the risk principles.

Response: I agree with the comments provided by Mr. Lubinski in Section B. I disagree with the submitter's statement that the staff must limit an AOT extension based on deterministic basis. BTP 8-8 is guidance, not a requirement. The staff has used, and should continue to use risk-insights in evaluating such submittals. I have added to the letter a reference to NRR's "Action plan: Risk-Informed Decision Making Licensing Revisions," which has several actions to ensure clear and consistent application and documentation on the use of risk-insights, which includes an evaluation of the need to clarify guidance documents.

Issue 3: The submitter states:

Page 2 of the response letter states: "Nevertheless, the NRC staff did describe several of the key factors leading to its decision in the Palo Verde case in the safety evaluation, including:

- 1) the identification of the root cause of the EDG failure
- 2) the determination that the mode of failure was not common to the other EDGs
- 3) the determination that a LOCA was not a significant contributor to the increase in risk and that the risk assessment met the acceptance criteria in RG 1.177"

The information is incorrect because amendment 199 was issued without identifying the root cause and common cause failure evaluations. The request for extending the AOT (first LAR) was for troubleshooting to identify/complete root cause and common cause failure evaluations. In addition, the risk evaluations did not consider LOOP/LOCA scenarios and additional risk contributions from OPC design vulnerability since the Palo Verde has not completed the plant modifications for OPC protection. This was identified in a 2.206 petition filed in January 2017. Also, the NRC risk assessment identifies OPC issue is risk significant (ADAMS Accession No. ML17223A066). The accuracy of risk assessment which concluded that the risk assessment met the acceptance criteria in RG 1.177 is in error. David Lochbaum letter dated August 22, 2017 states "The NRC simply cannot make proper risk-informed decisions by neglecting known and relevant risk factors. They have been lucky so far. I beg you and your office to compel the NRC staff to cease and desist its practice of neglecting known and relevant risk factors when making purportedly risk-informed decisions before their luck runs out and someone gets harmed."

Response: I agree with Mr. Lubinski's response to individual comments with respect to these issues. The concerns regarding amendment 199 were addressed in response to a separate DPO on amendment 199. Regarding open phase, the agency is responding to this generic issue with NRC Bulletin 12-01 issued on July 27, 2012, and with a plan to closeout this issue following inspections on individual plants. The Bulletin requires compensatory measures to be in place such as operator awareness and procedure modifications, to significantly reduce the risk associated with OPC until permanent measures are implemented.

Issue 4: The submitter states:

Page 3 of the response letter, footnote states "As a result of the withdrawal, the draft denial safety evaluation was never finalized, did not receive management approval, and does not represent an official agency position." This is a false statement. Also, this is not a draft SE. The DC Cook SE was processed and issued in accordance with NRR Office Instructions by both DORL and EEEB staff (See ADAMS Accession Nos. ML15154B045 and ML15149A443). These are official agency records. Also, both NRR and regional senior managers were briefed and approval were received for communicating the results to the licensee. These were documented in official agency records (emails and telephone conference calls).

Response: I agree with Mr. Lubinski's response to individual comments with respect to this issue. In response to the submitter's concerns, I removed a sentence from the footnote regarding "Finalization" of the safety evaluation as this detail was not necessary.

Issue 5: The submitter states:

Page 3 of the response letter states: "During the course of the review, the NRC staff appropriately engaged the licensee in a discussion of the licensee's ability to mitigate the consequences of several events, including a LOCA coincident with a LOOP, assuming a single

failure of the operable EDG. In these discussions, the NRC staff sought to establish whether adequate defense in depth and safety margins existed to support the amendment request. However, the NRC staff mistakenly asked the licensee how it met regulatory requirements for this accident sequence and documented the failure to meet this accident sequence as a basis for denial in the draft safety evaluation. As discussed earlier, the licensee is not required to protect against a design basis accident assuming single failure of the operable EDG in accordance with GL 80 30. While the NRC staff may have misapplied the single failure criterion in the draft safety evaluation as a basis for denial, the staff appropriately denied the D.C. Cook EDG amendment request based on failure to meet the other key criteria.

In DC Cook LAR review, staff followed all applicable NRC requirements and staff guidance, whereas for the Palo Verde amendment reviews (199 and 200) staff did not evaluate applicable NRC requirements, staff guidance, and licensing basis requirements as specified in Issue No. 2 specified above. The regulations and Commission's risk-informed Commission Policy require the licensee meets regulations, defense-in-depth, and safety margins are maintained while plant is in operating mode.

Specifically, DC COOK Safety evaluation conclusion states:

- "(1) The SDGs, NDG, and the compensatory measures are not able to supply power to the ESF loads for accident mitigation within the time constraints of the accident analyses assumptions (UFSAR Chapter 14 requirements).
- (2) Neither the SDG nor any other power source (NDG and FLEX equipment) are credited in the accident analysis for accident mitigation.
- (3) LOOP with LOCA and a single failure are the licensing and design bases requirements for CNP and the licensee has not demonstrated whether the CNP Unit 1 can mitigate the consequences of these requirements.
- (4) Operating the plant for a period longer than specified in the NRC Branch Technical Position (BTP) 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions," is contrary to the requirements specified in 10 CFR 50.36(c)(2), "Limiting Conditions for Operation." This BTP states that the EDG Allowed Outage Time should be limited to 14 days to perform maintenance activities.
- (5) The proposed operating configuration with only one ESF emergency power source do not meet the requirements of 10 CFR 50 .46 and the Cook Plant Specific Design Criterion 39, "Emergency Power." This is due to the fact that accident analysis assumes one train of emergency AC power is available given a worst-case single failure for all Chapter 14 accidents. Exemptions from these regulations are required to extend the CT for CNP TS for 65 days and the licensee has not requested one in accordance with 10 CFR 50.12.

The staff finds that the licensee did not provide adequate assurance that the extended CT could be utilized while maintaining adequate protection of public health and safety and common defense and security. Specifically, the licensee did not provide adequate assurance that the proposed compensatory measures including additional power sources will maintain the required safety functions during the proposed EDG CT extension period. Therefore, the staff concludes that there is not reasonable assurance that safe plant conditions will continue to be maintained; therefore, the proposed changes are unacceptable."

Response: I agree with the comments provided by Mr. Lubinski in Section B. The above discussion by the submitter is largely focused on the DC Cook submittal, which was not approved by the staff based on both deterministic and risk reasons. Amendment No. 200 for Palo Verde concluded that the one-time extension would continue to provide

reasonable assurance of adequate protection to public health and safety. As I noted in response to Issue No. 2, the staff is evaluating actions to ensure clear and consistent application and documentation on the use of risk-insights.

Issue 6: The submitter states:

Page 4 of the response letter states "One would expect that with greater risk informed knowledge and more plant specific operating experience, the NRC is now better able to estimate a reasonable period of time for equipment to be allowed to be out of service. Moving in that direction, the NRC recently issued amendments for Vogtle Electric Generating Plant, Units 1 and 2, that modify the TS requirements to permit the use of risk informed completion times, in accordance with Nuclear Energy Institute 06 09, Revision 0 A, "Risk Informed Technical Specifications Initiative 4b, Risk Managed Technical Specifications (RMTS) Guidelines."

If staff is trying to identify RMTS 4b as an example of extending AOTs, please note that it allows only for 30 days even from a purely risk-based decision making. The Palo Verde amendments do not justify the NRC approval of for 62 days. This logic does not make much sense. The NRC staff has to recognize that plants are aging and components fail. Therefore, was it safe for Palo Verde to operate at full power with reduced safety margin and defense-in-depth for 62 days? The current deterministic guidance and even risk-informed RMTS process says "NO." In addition, Lochbaum letters, DPOs, and 2.206, all points out the need for NRC to focus on safety to protect health and safety of the public rather than on economic pressures.

Response: I agree with Mr. Lubinski's response to individual comments with respect to this issue. The Risk Managed Technical Specifications reviews are mentioned in this letter to show overall staff progress in applying risk-insights. The 30-day limit on this program was deemed appropriate by staff, and does not limit a one-time extension that is submitted to the staff for a separate review.

In summary, in response to the noncurrence, I have made seven changes to letter:

1. I have modified the following sentence on Page 2 of the letter of the as follows:

The NRC also requires plants to be able to safely withstand a set of deterministic design basis accidents that are described in each plant's Updated Final Safety Analysis Report (e.g. a LOCA coincident with a LOOP with the assumption of a single failure).

2. I have modified part of the second paragraph on Page 2 of the letter as follows:

As discussed in GL 80 30, single failure of the operable Unit 3 Train A EDG is not required to be met while in the TS action statement for the Unit 3 Train B EDG. The NRC staff considered the extent to which the licensee could mitigate a design basis accident coincident with a single failure of the Unit 3 Train A EDG in order to ensure that defense-in-depth and safety margins are maintained, commensurate with the expected frequency and consequences of challenges to the system, in accordance with RG 1.177.

3. I have modified part of the third paragraph on Page 3 to now read as follows:

The NRC staff mistakenly documented the failure to meet this accident sequence (a LOCA coincident with a LOOP, assuming a single failure of the operable EDG) as a basis for denial in the draft safety evaluation.

4. I have modified footnote number 10 to now read as follows:

The NRC staff informed the licensee in a teleconference on May 30, 2015, of its intention to deny the D.C. Cook EDG amendment request. The NRC offered the licensee an opportunity to withdraw the amendment request and the licensee formally withdrew the amendment request by letter dated June 1, 2015 (ADAMS Accession No. ML15154B045).

5. I have modified part of the second paragraph and the associated footnotes on Page 4 to read as follows:

In addition, as a result of two differing professional opinions (DPOs) filed by NRC staff regarding the Palo Verde EDG amendments and ongoing staff discussions, the Office of Nuclear Reactor Regulation is taking several actions that had been recommended by the DPO review panel, as described in a risk informed decisionmaking Action Plan¹³. This Action Plan, which will be updated periodically, focuses staff on ensuring clear and consistent application and documentation on the use of risk insights. The actions include evaluating guidance to determine if clarification is required for: (1) acceptability of long duration completion times for one time extensions, (2) maximum allowed outage times, even when supported with risk information, to limit the amount of time operation without single failure protection is permitted, and (3) the appropriate use of large early release frequency in licensing and oversight. Also, the staff will determine if clarification is needed for other guidance documents (e.g., NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-water Reactor] Edition," including Branch Technical Position (BTP) 8 8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions."¹⁴

¹³ "Action Plan: Risk-Informed Decision-Making in Licensing Reviews," dated August 11, 2017 (ADAMS Accession No. ML17219A346)

¹⁴ Available in ADAMS under Accession Nos. ML070810350 and ML113640138, respectively.

6. I have modified part of the last paragraph on Page 5 of the letter as follows:

I expect that the NRC staff's implementation of the risk-informed decisionmaking Action Plan in response to the DPO Panel recommendations and the Commission's recent direction will yield improvements in the regulatory processes and guidance that you seek in your letter.

7. I have added the submitter to the concurrence block of the letter to document the nonconcurrence.