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~~MAY CONTAIN SOME SENSITIVE UNCLASSIFIED NON-SAFEGUARDS INFORMATION~~
~~WITHHOLD PER JULY 1, 2009 PROTECTIVE ORDER~~

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of
South Texas Project Nuclear Operating Co.
Application for the South Texas Project
Units 3 and 4
Combined Operating License

Docket Nos. 52-012, 52-013

BRIEF IN SUPPORT OF INTERVENOR'S APPEAL OF ATOMIC SAFETY AND LICENSING BOARD'S ORDER OF JANUARY 29, 2010

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Introduction

This is an appeal from the ASLB's decision denying admission of contentions related to the requirements of 10 C.F.R. § 50.54(hh)(2)[1] that COL applicants demonstrate effective mitigative strategies for dealing with explosions and fires of magnitudes sufficient to cause the loss of large areas (LOLA events) in a nuclear power plant.[2]

Issues Presented

1. Did the ASLB abuse its discretion in determining there is no legal basis to require Applicant to discuss the damage states to which the mitigation strategies are to apply?
2. Did the ASLB abuse its discretion in determining that Applicant need not consider radiation dose projections or a quantitative radiation impact study as part of its mitigative strategies?
3. Did the ASLB abuse its discretion in determining that Applicant need not consider circumstances related to plant outages in developing effective mitigative strategies?

Standard of Review

The standard of review for contention admissibility is abuse of discretion. *In the Matter of Texas Utilities Electric Company, et al.* (Comanche Peak Steam Electric Station, Unit 1) 25 N.R.C. 912, 931 (1987) (reversal requires that no reasonable person could have reached board's result).

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[1] 10 C.F.R. § 50.54 (hh)(2) provides: "Each licensee shall develop and implement guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with loss of large areas of the plant due to explosions or fire, to include strategies in the following areas: (i) Fire fighting; (ii) Operations to mitigate fuel damage; and (iii) Actions to minimize radiological release."

[2] This brief is filed pursuant to the ASLB Protective Order of July 1, 2009. Intervenors doubt whether there is any information in this brief that is Sensitive Unclassified Non-Safeguards Information (SUNSI) and that should be withheld from the public pursuant to the Protective Order. However, in an abundance of caution and recognizing the possibility that this brief could be considered a document "related" to the Applicant's mitigative strategies, the Intervenors have filed this pleading as a non-public document. July 1, 2009 ASLB Protective Order, paragraphs 2, 10. See also ASLB Order, January 29, 2010, pp.3-17.

Procedural Background

This appeal has its origins in 10 C.F.R. § 52.80(d)[3] that requires COL applicants to include strategies for mitigating large explosions and fires.[4] The Intervenors filed an omission contention in their Petition to Intervene related to the absence in the COLA of the mitigative strategies required under 10 C.F.R. § 50.54(hh).[5] Applicant's response to the contention was an addendum to its Environmental Report and Mitigative Strategies Report dated May 26, 2009.[6] The contention was determined to be moot based on Applicant's submittal of its mitigative strategies.[7]

On August 14, 2009, the Intervenors filed seven new contentions of omission based on the Applicant's mitigative strategies.[8] Applicant and Staff filed answers to these contentions on September 4 and 8, 2009, respectively. Intervenors filed their response to the answers on September 15, 2009. Thereafter, on November 13, 2009, the Board convened oral arguments at NRC headquarters in Rockville, Maryland.[9]

The Board issued its decision denying admission of the new contentions on January 29, 2010.

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[3] 10 C.F.R. § 52.80 requires the COL to include "[A] description and plans for implementation of the guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under the circumstances associated with the loss of large areas of the plant due to explosions or fire as required by § 50.54(hh)(2) of this chapter.

[4] 10 C.F.R. § 50.54(hh)(1) deals with post-notification procedures and is not at issue in this appeal. See fn. 1 supra. for the text of subpart (2)that is germane to this appeal.

[5] Petition to Intervene, April 21, 2009, pp. 13-23

[6] "Section 50.54(hh)(2) focuses on ensuring that the nuclear power plant's licensees will be able to implement ffective mitigative measures for large fires and explosions including (but not explicitly limited to) those caused by the impacts of large commercial aircraft. (74 Fed. Reg. 13958)

[7] ASLB Order, Docket Nos. 52-012-COL & 52-013-COL, August 27, 2009, pp.8-11.

[8] Intervenors' Contentions Regarding Applicant's Submittal Under 10 C.F.R. § 52.80 and 10 C.F.R. § 50.54(hh)(2) and Request for Subpart G Hearing, August 14, 2009 (New Contentions)

[9] ASLB Order, January 29, 2010, p.3.

Arguments and Authorities

A. Legal basis for contentions of omission

The contentions at issue are related to material omissions of information. 10 C.F.R. § 2.309(f)(1)(v) requires the Intervenors to provide a concise statement of the facts that support their positions and upon which they intend to rely at the hearing. However, the requirements of 10 C.F.R. § 2.309(f)(1)(v), that require specification of facts or expert opinion supporting the contention, are not applicable to contentions of omission beyond identifying the omitted information required under the regulation in question. *Pa'ina Hawaii, LLC* (Materials License Application), LBP-06-12, 63 NRC 403, 414 (2006). Thus, for a contention of omission, the Intervenors' burden is to show the facts necessary to establish that the application omits information that should have been included. The facts relied on need not show that the facility cannot be safely operated, but rather that the application is incomplete. *Catawba Nuclear Station, Units 1 and 2*, CLI-02-28, 56 NRC 373, 383 (2002).

B. The Applicant's mitigative strategies omit any discussion of the spectrum of damage events to which the strategies apply. (Contention MS-1)[10,11]

The mitigative strategies are deficient because of they do not address the numbers and magnitudes of the fires and explosions that would be expected, for example, from the impact of a large commercial airliner(s). Without such references there is an inadequate basis to determine whether the proposed mitigative strategies are adequate to comply with 10 C.F.R. § 50.54(hh)(2). In order to evaluate the effectiveness of mitigative strategies the Applicant must be required to describe the spectrum of damage footprints both quantitatively and qualitatively, including composite damage footprints, that are

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[10] The ASLB concluded that this contention was inadmissible because there is no legal basis to require the Applicant to address the full spectrum of damage states and/or the impact of a large aircraft. Order, Jan 29, 2010, p 23.
[11] The Intervenors referenced these new mitigative strategies contentions by MS-1 – MS-7. However in this appeal, only MS-1, MS-3, and MS-6 are at issue.

reasonably expected with initiating events such as an airstrike(s) and include descriptions of anticipated physical damage including failure of structural steel, shock damage, fire damage, fire spread, radiation exposures to emergency responders and the public.[12]

10 C.F.R. § 50.54(hh)(2) requires that the Applicant assume there will be a loss of large areas of the plant due to fires/explosions (LOLA events). The regulation does not specify the numbers and magnitudes of the fires and explosions that the Applicant is to consider. However, the Federal Register notice that announced the final adoption of 10 C.F.R. § 50.54(hh)(2) does require that the mitigative strategies response procedures consider aircraft attacks as an example[13] for determining the scale of fires/explosions that would be assumed to occur and therefore addressed by the requirements of 10 C.F.R. § 50.54(hh)(2).[14] Notwithstanding this explicit example the Applicant argues that "[N]one of the statements in the SOC suggests that an applicant must evaluate aircraft impacts and identify damage states."[15] The SOC directive requires considerations of both the magnitude of fires and explosions by using the adjective "large" and the spectrum of damage states by requiring that the mitigative measures be "effective."[16]

Initiating events are not necessarily limited to a single aircraft attack and could include multiple aircraft attacks in close temporal proximity with a coordinated ground attack intended to further compromise reactor containment, core cooling and/or spent fuel pool cooling and/or to disrupt efforts to

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[12] New Contentions, p. 3
[13] "Section 50.54(hh)(2) focuses on ensuring that the nuclear power plant's licensees will be able to implement effective mitigative measures for large fires and explosions including (but not explicitly limited to) those caused by the impacts of large commercial aircraft." (74 Fed. Reg. 13958)
[14] "*Mitigative Strategies and Response Procedures for Potential or Actual Aircraft Attacks.* These requirements appear in new § 50.54(hh). Section 50.54(hh)(1) establishes the necessary regulatory framework to facilitate consistent application of Commission requirements for preparatory actions to be taken in the event of a potential or actual aircraft attack and mitigation strategies for loss of large areas due to fire and explosions." 74 Fed. Reg. 13927-13928.
[15] Applicant Answer, September 4, 2009, p. 14.
[16] 74 Fed. Reg. 13958.

suppress fires and initiate other mitigative measures.[17] But the Applicant's mitigative strategies discuss no damage assumptions or scenarios and the absence of such makes effective evaluation of the efficacy of the mitigative strategies impossible. [18]

The Extensive Damage Mitigation Guides (EDMG) specifically anticipate "broad spatial impacts" and "combinations of failures" that are otherwise unquantified.[19] Again, the mitigation strategies do not discuss such combinations of failures; and to the extent broad spatial impacts are anticipated there is no attempt to describe such in either quantitative or descriptive terms. Without this discussion there is no means to determine whether the mitigative responses are adequate to deal with fires and explosions with "broad spatial impacts" and "combinations of failures."[20]

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[17] South Texas Project is conducting exercises that assume as many as four aircraft target the reactors and two actually impact the plant. NRC Public Meeting, June 3, 2009, Bay City, TX discussing the NRC's assessment of STP's safety performance in 2008. NRC Dockets 52-034 and 52-035, Comanche Peak June 10-11, 2009 Oral Argument Tr. pp.304-306. Video of entire meeting available at http://vimeo.com/6595361 (Part 1) and http://vimeo.com/6599294 (Part 2). Also referenced at fn.1 in Intervenors' Response to Staff and Applicant Answers to New Contentions, September 15, 2009.

[18] In contrast, the DCD for Units 3 and 4 utilizes a fire model to describe flame heights and diameters. While this model was developed before the adoption of 10 C.F.R. § 50.54(hh)(2) its significance lies in the recognition that such a model is necessary to establish mitigation measures that are scaled to the magnitude of the fires that could occur. No such model is offered in support of the mitigative strategies. See DCD, section 3.13.3.2.

(b)(4)

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[20] Broad spatial impacts arguably could include fires and explosions in more than one unit. Combinations of failures arguably could include loss of core cooling, containment integrity and loss of spent fuel containment/cooling in multiple units. Because these terms are not self-defining they should be construed conservatively to maximize protection of the public interest. 42 U.S.C. 2133(d).

(b)(4)

ccordingly, there is no way to determine whether Applicant's proposed mitigative strategies are actually adequate to address the numbers and magnitudes of fires and explosions that could reasonably be expected from, for example, the impact(s) of a large commercial airliner(s) into a nuclear power plant(s).[23]

Descriptions of the effects of aircraft impacts into nuclear plants have been made in other contexts.[24] NEI 07-13 (the draft regulatory guidance for the aircraft impact design regulation, 10 C.F.R. §

(b)(4)

[22] NEI 06-12, Rev. 2, p.1

[23] The initiating events, irrespective of cause, are considered beyond-the-design-basis for new nuclear plants. Mitigative Strategies Report, p. 1. Beyond-design-basis "is used as a technical way to discuss accident sequences that are possible but were not fully considered in the design process because they were judged to be too unlikely. As the regulatory process strives to be as thorough as possible, 'beyond design-basis' accident sequences are analyzed to fully understand the capability of a design." NRC Glossary. However, whether certain initiating events are within the original design basis is rendered irrelevant for purposes of application of 10 C.F.R. § 50.54(hh)(2). The regulatory objective now is to determine whether the mitigative response strategies are adequate notwithstanding that nuclear power plants have not been designed to withstand such impacts and the effects of large scale fires and explosions were not considered in the original designs.

[24] "Since September 11, 2001, the Commission has used state-of-the art technology to assess the effects of aircraft impacts on nuclear power plants. As part of a comprehensive review of security for NRC-licensed facilities, the NRC conducted detailed, site-specific engineering studies of a limited number of nuclear power plants to assess potential vulnerabilities of deliberate attacks involving large, commercial aircraft. In conducting these studies, the NRC consulted national experts from several Department of Energy laboratories using state-of-the-art structural and

50.150) specifically differentiates between the requirements of 10 C.F.R. § 50.150 and the requirements of 10 C.F.R. § 50.54(hh). The guidance document for 10 C.F.R. § 50.150 states:

> Given the number of variables in performing the required assessments, there is a range of uncertainty in the results obtained from the application of this guideline. There is obviously also an uncertainty associated with the characteristics of the aircraft impact itself. For these reasons, the methodologies described in this document are intended to provide "best estimate" results, consistent with the requirements of the final rule (10 C.F.R. 50.150) to use realistic analyses.
>
> Treatment of uncertainties (hot shorts, spurious actuations, actual fire spread, shock effects, and estimated physical damage footprint) would overly complicate the assessments and are best addressed through 10 C.F.R. 50.54 (h)(h) [sic] which requires all new plants to develop mitigation strategies to address loss of large areas of the plant due to fire or explosion from any cause.[25]

However, the Applicant's mitigative strategies discusses none of the uncertainties, such as the "hot shorts, spurious actuations, actual fire spread, shock effects and estimated physical damage footprint," that NEI 07-13 anticipates will be done as a function of compliance with 10 C.F.R. § 50.54(hh)(2).[26]

Notably, NEI 07-13 describes some of the anticipated effects of an aircraft impact including damage footprint assessments.[27] The significance of these descriptions, as related to the subject mitigative strategies, includes the anticipated efficacy of Phase 1 fire suppression efforts when there are multiple fires, major structural damage, station blackout, breach of containment integrity, loss of core cooling capacity and the loss/compromise of spent fuel pool cooling that could all occur simultaneously. Such a scenario and combination of failures is not unrealistic under the damage footprint descriptions in NEI 07-13.[28] However, the Applicant's mitigative strategies make no projections as to the number or magnitude of explosions that could impair core cooling, containment or spent fuel pool cooling. Also, its mitigative

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fire analyses. The agency also used realistic predictions of accident progression and radiological consequences." 74 Fed. Reg 28119. (Emphasis added)

[25] NEI 07-13, Rev. 7, May 2009 (public version), pp. 2-3 (emphasis added)

[26] Id.

[27] NEI 07-13, pp.29-36.

[28] Id.

strategies make no projections as to the number or severity of fires that may have to be suppressed simultaneously in order to restore or maintain containment integrity, core cooling spent fuel pool integrity/cooling. These omissions render it impossible to make any conclusions regarding the adequacy of the mitigative strategies required under 10 C.F.R. § 50.54(hh).

The Applicant is to establish by a preponderance of the evidence 'reasonable assurance' that public health, safety and environmental concerns are protected. *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-616, 12 NRC 419, 421 (1980). Without baseline assumptions about the number and magnitude of fires and explosions there is no reasonable assurance that the mitigative strategies will be adequate. The Commission has discretion to deal with compliance with its regulatory requirements on a case-by-case basis. Whether the mitigative strategies proposed herein by the Applicant provide adequate protection under the Atomic Energy Act are determinations "where the Commission should be permitted to have discretion to make case-by-case judgments based on its technical expertise and on all the relevant information, rather than by a mechanical verbal formula or a set of objective standards." *Union of Concerned Scientists v. Nuclear Regulatory Commission*, 880 F.2d 552, 558 (D.C. Cir. 1989). However, the Commission cannot be expected to make a reasonable case-by-case determination without an adequate starting point. In this case, that means a description in quantitative and/or qualitative terms of the spectrum of damage states to which the mitigative strategies apply.

The Applicant has argued that the Intervenors have interchangeably used the terms "damage states" and "numbers and magnitude of fires and explosions."[29] Actually, the two terms are not intended to be used interchangeably. "Damage states" are caused by the "numbers and magnitude of fires and explosions." The two have functional differences and are not intended to be used interchangeably, notwithstanding the Applicant's assertion to the contrary.

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[29] Applicant Answer p. 9, fn. 35.

The Applicant also incorrectly asserts that the Intervenors confuse the aircraft impact design rule, 10 C.F.R. § 50.150, with the fires and explosions rule at 10 C.F.R. § 50.54(hh)(2). The Applicant misapprehends the Intervenors' purpose in discussing both rulemakings. The two rulemakings are intended to be complementary and are inextricably related, because both are responses to the threat environment that recognizes the need to evaluate nuclear plant vulnerabilities to attack.[30] But they are distinct to the extent that the fires and explosions rulemaking under § 50.54(hh)(2) focuses on how the Applicant is to address the large loss of plant areas due to fires and explosions; the design impact rule under § 50.150 focuses on how the structural and functional aspects of the plant are designed to withstand the effects of initiating event(s).[31] Significantly, there is no attempt by the Applicant to take advantage of the description of damage footprints provided in the guidance for the impact rule, NEI 07-13, to describe how its so-called mitigative strategies would deal with the damage footprints described therein.[32] Accordingly, the Applicant's assertion and Board's conclusion that requiring a specification of the spectrum of damage states to establish effectiveness of the mitigative strategies would render the aircraft design rule unnecessary and redundant is mistaken.

The Applicant asserts that its mitigative strategies meet "performance-based standards."[33] The term "performance-based" should be measured against the strategic objective(s) intended to be realized, i.e. maintain/restore containment integrity, core cooling and spent fuel pool cooling under the spectrum of damage states that the strategies are to apply.[34]

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[30] 74 Fed. Reg. 13928

[31] See 74 Fed. Reg. 28112: "The applicant is required to use realistic analyses to identify and incorporate design features and functional capabilities to show, with reduced use of operator actions, that either the reactor core remains cooled or the containment remains intact, and either spent fuel cooling or spent fuel pool integrity is maintained."

[32] NEI 07-13 does not specify whether the damage footprints described therein include the spectrum of damage states that could occur from initiating events such as impacts of aircraft.

[33] Applicant Answer, p.10

[34] The term "strategy" is defined by *Webster's Dictionary* as "the science and art employed in the armed strength of a belligerent to secure the objects of war, especially the large scale planning and directing of operations in

For example, the Applicant and Staff maintain that there is no requirement to quantify or otherwise describe what is meant by "large areas of plant" assumed to be lost in large-scale fires and explosions.[35] The Applicant's approach is to embrace a "flexible" response that relieves it of any necessity to describe with any particularity, for example, whether it would be necessary to suppress one fire, two fires or ten fires simultaneously. Applicant does not consider whether the flexible responses could be compromised by combinations of failures, such as damaged pipes and pumps required for fire suppression and makeup water to restore cooling functions. A flexible response is understandable; however, the range of flexibility must be adequate to meet the spectrum of anticipated damage states. But the Applicant does not establish the effective range of its "flexible responses." Anything less than a showing by a preponderance of the evidence that the mitigative measures are effective under the spectrum of expected damage states fails to meet the objectives of 10 C.F.R. § 50.54 (hh)(2) and the Atomic Energy Act, 42 U.S.C. § 2133(d).[36]

The Applicant's attenuated approach undermines the intent of the Commission to require adoption of effective mitigation strategies.[37] It seems unlikely that the Commission would have devoted the

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adjustment to combat area, possible enemy action, political alignments, etc."[34] This definition of strategy is from the vernacular of military operations. Successful military operations require planning focused on the marshaling and deployment of adequate resources to achieve specified objectives. So too in the context of dealing with the effects of fires and explosions caused by, among other things, the impacts of a large commercial airliners. "Performance-based" standards are meaningless unless there is an understanding of what is to be achieved under the anticipated spectrum of damage states. Just as military operations are adjusted in relation to a "combat area" and possible enemy actions etc., operations to deal with fires and explosions must be adjusted to match the area involved and anticipate actions that will be required under the expected spectrum of damage states.

[35] See eg. Applicant Answer, pp.9-11 and Staff Answer, pp.7-8.

[36] Applicant ignores the plain language of 50.54(hh)(2) that uses the term "large" to describe the fires and explosions that the mitigative measures are intended to address. Conspicuously missing from NEI 06-12 and the Applicant's submittal is any description or definition what is meant by "large." Because there's no definition of what they mean by "large," there is no way to determine whether the mitigative measures will be "effective." 74 Fed. Reg. at 13958. Interpretations of statutes and regulations should not cause an "unreasonable and irrational loophole" that is contrary to "common sense" and undermines an underlying statutory/regulatory purpose. *Mackamaux v. Day Kimball Hosp.*, 654 F.Supp. 2d 112, (D. Conn., 2009). Not inferring a criterion that the mitigative strategies in question be effective would create an "unreasonable and irrational loophole" that is contrary to "common sense" and undermines the underlying regulatory purpose that "licensees will be able to implement effective mitigative measures."

[37] 74 Fed. Reg. 13926-13928.

resources necessary to carry out the rulemaking that yielded the fires and explosions regulation just to have it diluted by an artificially restrictive approach to developing mitigative strategies. *Druid Hills Civic Association, Inc., v. Federal Highway Administration*, 772 F. 2nd 700, 709 11th Cir. (1985). The refusal to address any damage state in the context of mitigative strategies is a material omission and acceptance of such by the Commission would be arbitrary and contrary to the requirements of the AEA, 42 U.S.C. § 2133(d). There can be no assurance that the health and safety of the public is adequately protected by the Applicant's mitigative strategies, because there is no attempt to either describe what those strategies are expected to address or demonstrate their effectiveness. *Ohio River Valley Environmental Coalition,Inc.v. Kempthorne*, 473 F.3d 94,102 (4th Cir., 2006) (Administrative Procedure Act directs review of agency action to determine if decision is product of consideration of relevant factors and whether a clear error of judgment has occurred.)

The Applicant argues, that it is excused from describing the full spectrum of damage states by pointing to a single comment and response in the Federal Register notice Statement of Considerations that announced the adoption of the fires and explosions regulation.[38] The subject comment sought to have the regulation describe the "types of fires and explosions" that should be anticipated and to "specify what areas of the plant are considered particularly susceptible to damage or distraction a fire or explosion."[39] The Intervenors are not contending that the mitigative strategies are inadequate because they fail to specify the "types of fires or explosions." Irrespective of the types of fires or explosions involved, a description of the nature and extent of the damage caused by fires and explosions is necessary to determine the adequacy of the mitigative measures. Therefore, the Commission's response to the subject comment is not determinative of whether the Applicant in this case has an obligation to describe the spectrum of damage states that its mitigative strategies are intended to address.

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[38] Applicant Answer, page 12.
[39] 73 Fed. Reg. 19445.

Applicant also argues that because the Commission has endorsed NEI 06-12 the Applicant may simply follow its prescriptive guidance and presumably, ignore the "high-level insights" related to the damage states that might render the prescriptive mitigative strategies ineffective. The Applicant cites one of the high-level insights that states it is not possible to predict various damage states because of their "endless combinations and permutations."[40] However, that statement must be read in conjunction with the further qualification that the mitigative measures may not ensure success under the full spectrum of damage states that might be encountered subsequent to the impact of large commercial airliners or other similar initiating events.[41] The Applicant wants the benefits of adopting the prescriptive measures in NEI 06-12 while rejecting its explicit limitations expressed in the disclaimers.[42]

The Commission recognized that NEI 06-12, which was developed to codify the B.5.b requirements for operating plants, was not adequate to address issues that might arise with regard to new reactors.[43] Specifically, the Commission said that new applicants "are required to develop and implement procedures that employ mitigative strategies similar to those employed by current licensees"-"similar" but not "identical."[44] Presumably for this reason, the Commission has stated its intent to provide Interim Staff Guidance 016 (ISG-016) in September 2009 to address 10 C.F.R. § 50.54(hh) compliance.[45]

Contrary to the argument of the Applicant, the Commission is not bound by NEI 06-12. A Commission endorsement of NEI 06-12 for operating reactors is not conclusive on the question of whether it is an acceptable means to address the requirements of 10 C.F.R. § 50.54(hh)(2) for new

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[40] Applicant Answer, page 16.
[41] NEI 06-12, Rev. 2, p.1
[42] The Board dismissed the significance of the "high –level insights" because they were discussed in the introduction to the report and not in the prescriptive measures section. ASLB Order, p. 22. Intervenors maintain that the "high-level insights" are noteworthy notwithstanding where the authors of NEI-06-12 decided to discuss them.
[43] 74 Fed. Reg. 13958
[44] 74 Fed. Reg. 13957
[45] 74 Fed. Reg. 13958 and September 2, 2009 Generic DCWG Meeting Slide for Interim Staff Guidance as of August 2009, ADAMS accession number ML092450022. Intervenors' access to ISG-016 related to 10 C.F.R. § 50.54(hh)(2) is addressed in the Board's Order at pp. 3-17. Hence, whether the Applicant's submittal is consistent with the anticipated ISG is unknown.

reactors. In *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit One) 28 NRC 275 (1988) the Commission discussed the limitations of such regulatory documents as follows:

> As we have often stressed, NUREG–0654 and similar documents are akin to "regulatory guides." That is, they provide guidance for the Staff's review, but set neither minimum nor maximum regulatory requirements. Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB–819, 22 NRC 681, 709–10 (1985), aff'd in part and review otherwise declined, CLI–86–5,23 NRC 125 (1986); Consumers Power Co. (Big Rock Point Nuclear Plant), ALAB–725, 17 NRC 562, 568 n. 10 (1983). Where such guidance documents conflict or are inconsistent with a regulation, the latter of course must prevail. On the other hand, guidance consistent with the regulations and at least implicitly endorsed by the Commission is entitled to correspondingly special weight. See, e.g., Limerick, 22 NRC at 711 & n. 40.[46]

The absence of any discussion in NEI-012 of the spectrum of damage expected from large fires and explosions inconsistent with the requirement of 10 C.F.R § 50.54(hh)(2) that specifies the mitigative strategies must be effective and consistent with the loss of large areas of a nuclear plant. Accordingly, NEI 06-12 should not be given any special weight for the purpose of assessing the efficacy of the Applicant's mitigation strategies.[47]

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[46] 28 NRC at 290.
[47] 28 NRC at 290.

C. The Applicant's commitment in the mitigative strategies to evaluate existing dose projection models to determine whether such are adequate "under the conditions envisioned for this event" is inadequate because there is no quantitative or qualitative description of the "event" nor is there a stated commitment to evaluate the dose projection models considering the any spectrum of damage states. (Contention MS-3) [48]

This omission contention is based on the failure of the Applicant to account for the damage states that occur as a result of a LOLA event in the context of radiation dose projections.[49] Intervenors incorporate by reference the arguments and authorities related to MS-1, *supra*, regarding the requirement to evaluate LOLA event damage states to determine the efficacy of the mitigative strategies.

Without an appropriately detailed and accurate model based on the spectrum of damage states to which the mitigative strategies apply the Applicant cannot demonstrate that its plan for mitigating LOLAs can be effectively executed without subjecting on-site responders to excessive radiation exposure.

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The mitigative measures will put emergency responders in situations that will result in major exposures when for example, dealing with spraying the spent fuel pool.[50]

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[48] The ASLB concluded that 10 C.F.R. § 50.54(hh)(2) does not require a dose projection or quantitative radiation impact study in the mitigative strategies. Order, Jan 29, 2010, p 26.

[49] This contention was supported by the Declaration of Edwin Lyman, Ph.D. August 14, 2009

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D. The mitigative strategies are deficient because they fail to differentiate between full power operations and outage conditions. (Contention MS-6)[51]

This omission contention maintains the mitigative strategies are deficient because they do not address effective means to deal with LOLA events during a reactor outage.[52] There are many differences during outages compared to full-power operation that may have a significant impact on the effective implementation of LOLA mitigative strategies. During outages, the risk of core damage is typically significantly higher than when the reactor is at full power. Important safety systems may be out of service for maintenance. The containment hatch may be open or the entire core may be off-loaded in the spent fuel pool, significantly increasing the pool heat load. In addition, there may be a large number of temporary contractor personnel on-site that could complicate emergency response and other mitigative strategies.

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These are arbitrary limitations because nothing in 10 C.F.R. § 50.54(hh)(2) suggests it applies only when the plant is at full power. Additionally, the mitigative strategies are not conservative related to outages. A reactor at 100% power assumes no equipment will be out of service and no hot spent fuel will be outside the reactor vessel.

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[51] The ASLB Order concluded that this contention was inadmissible because it lacked regulatory and factual support. Order, Jan. 29, 2010, p. 31.
[52] This contention was supported by the Declaration of Edwin Lyman, Ph.D. August 14, 2009
[53] NEI 06-12, Rev. 2 at pp.10, 11.

These assumptions are not valid during an outage and the mitigative strategies should account for these and other differences between the plant in an operational status and outage status.

Conclusion

Applicant's mitigative strategies discuss no damage assumptions or scenarios and the absence of such makes effective evaluation of the efficacy of the mitigative strategies impossible. The Commission cannot be expected to make a reasonable determination of the mitigative strategies without a description in quantitative and/or qualitative terms of the spectrum of damage states to which the mitigative strategies apply. Anything less than a showing by a preponderance of the evidence that the mitigative measures are effective under the spectrum of expected damage states fails to meet the objectives of 10 C.F.R. § 50.54 (hh)(2) and the Atomic Energy Act, 42 U.S.C. § 2133(d).

Respectfully submitted,

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February 9, 2010

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of
South Texas Project Nuclear Operating Co.
Application for the South Texas Project
Units 3 and 4
Combined Operating License

Docket Nos. 52-012, 52-013

CERTIFICATE OF SERVICE

I hereby certify that on February 9, 2010 a copy of the "Brief in Support of Intervenors' Appeal of Atomic Safety and Licensing Board's Order of January 29, 2010" was served by the Electronic Information Exchange on the following recipients:

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