

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Michael M. Gibson, Chairman
Dr. Gary S. Arnold
Dr. Randall J. Charbeneau

In the Matter of

SOUTH TEXAS PROJECT NUCLEAR
OPERATING COMPANY

(South Texas Project Units 3 and 4)

Docket Nos. 52-12-COL and 52-13-COL

ASLBP No. 09-885-08-COL-BD01

July 2, 2010

MEMORANDUM AND ORDER

(Rulings on Motions to Dismiss Contentions 8, 9, 14, 16, 21; Amended Contentions 8 and 21; New Co-Location Contentions; and New Main Cooling Reservoir Contentions)

This proceeding concerns the application of South Texas Project Nuclear Operating Company (“STP” or “Applicant”) for combined licenses (“COL”) under 10 C.F.R. Part 52 to construct and to operate two nuclear reactor units near Bay City, Texas.¹ On September 20, 2007, the Applicant submitted its COL application for proposed STP Units 3 and 4 at its site that currently houses two existing reactors, STP Units 1 and 2.² Following the Nuclear Regulatory Commission (“NRC”) publication of a notice of hearing and opportunity to petition for leave to intervene in this matter,³ Intervenors⁴ jointly filed a petition to intervene and request for hearing,

¹ South Texas Project Nuclear Operating Company; Notice of Receipt and Availability of Application for a Combined License, 72 Fed. Reg. 60,394 (Oct. 24, 2007).

² Id.

³ South Texas Project Nuclear Operating Company Application for the South Texas Project Units 3 and 4; Notice of Order, Hearing, and Opportunity To Petition for Leave To Intervene, 74 Fed. Reg. 7934 (Feb. 20, 2009).

challenging several aspects of the Applicant's combined license application ("COLA") with 28 contentions.⁵ In two separate opinions, issued August 27, 2009 and September 29, 2009, we ruled that Intervenors had standing to intervene in this proceeding and admitted portions of five of their environmental and safety contentions: Contentions 8, 9, 14, 16, and 21.⁶ In the instant ruling, we resolve the Applicant's motions to dismiss each of those contentions, as well as Intervenors' motions to amend Contentions 8 and 21. As discussed below, the Applicant has cured the omissions in its Environmental Report ("ER") that formed the basis for all of the previously-admitted contentions. Contentions 8, 9, 14, 16, and 21 are now dismissed. Amended Contentions 8 and 21 are not admissible. Also as discussed below, we admit in part Intervenors' newly proffered Contentions CL-2, CL-3, and CL-4, which we have combined into one new contention (CL-2). Admitted Contention CL-2 involves replacement power costs associated with the shutdown of multiple units at the STP site. The remaining newly proffered contentions are inadmissible.

I. Background

In our September 29, 2009 Order, we admitted Contentions 8, 9, 14, and 16 to address various omissions from the Applicant's ER.⁷ Contention 8 was narrowed and admitted to allege that the Applicant's ER failed to address the environmental impacts associated with the increase in concentration of radionuclides in the Main Cooling Reservoir ("MCR") that would be attributable to the operation of proposed STP Units 3 and 4.⁸ Contention 9 claimed that the ER

⁴ Intervenors are the Sustainable Energy and Economic Development Coalition ("SEED"), the South Texas Association for Responsible Energy, and Public Citizen.

⁵ Petition for Intervention and Request for Hearing (Apr. 21, 2009) [hereinafter Petition].

⁶ LBP-09-21, 70 NRC __, __ (slip op. at 1-2) (Aug. 27, 2009); LBP-09-25, 70 NRC __, __ (slip op. at 1) (Sept. 29, 2009).

⁷ LBP-09-25, 70 NRC at __ (slip op. at 31).

⁸ Id. at 7.

failed to predict or evaluate the effects of increasing groundwater tritium concentrations.⁹ Contention 14 was admitted insofar as it complains that the ER failed to analyze adequately the environmental impacts of unregulated seepage from the MCR into adjacent shallow groundwater.¹⁰ Contention 16 argued that the ER did not consider the environmental impact of the possible withdrawal of groundwater in excess of that authorized by the Applicant's current permits.¹¹ In a separate Order, we admitted Contention 21, which asserted that the Applicant's ER failed to address the potential impacts of a radiological incident at existing STP Units 1 and 2 on the operations of the proposed STP Units.¹²

Shortly thereafter, the Applicant undertook several actions to address these alleged omissions. On October 1, 2009, the Applicant filed with the Board a notification and copy of a response to NRC Staff Requests for Additional Information ("RAI") related to Contention 16.¹³ Asserting that this information renders Contention 16 moot, on October 8, 2009, the Applicant moved to dismiss Contention 16.¹⁴ Then, on November 11, 2009, the Applicant filed with the Board a notification of planned revisions to the ER to add a new Section 7.5S to cure the omission that had formed the basis for Contention 21.¹⁵ Likewise, on November 12, 2009, the Applicant filed with the Board a notification of planned revisions to ER Sections 2.3.1, 5.2, and 5.4 to cure the omissions that had formed the basis for Contentions 8, 9, and 14.¹⁶ On

⁹ Id. at 9.

¹⁰ Id. at 24-25.

¹¹ Id. at 31.

¹² LBP-09-21, 70 NRC at ___ (slip op. at 38-39).

¹³ See Notification of Filing Related to Contention 16, Letter from Steven P. Frantz, Counsel for STP Nuclear Operating Company, to the Board at 1-2 (Oct. 1, 2009).

¹⁴ See Applicant's Motion to Dismiss Contention 16 as Moot (Oct. 8, 2009) [hereinafter STP Motion to Dismiss 16].

¹⁵ See Notification of Filing Related to Contention 21, Letter from Stephen J. Burdick, Counsel for STP Nuclear Operating Company, to the Board at 1 (Nov. 11, 2009).

¹⁶ See Notification of Filing Related to Contentions 8, 9, and 14, Letter from Stephen J. Burdick, Counsel for STP Nuclear Operating Company, to the Board at 1 (Nov. 12, 2009).

November 30, 2009, in separate motions, the Applicant sought the dismissal of Contention 21¹⁷ and of Contentions 8, 9, and 14, as moot.¹⁸

Claiming the Applicant had not cured the omissions in its ER, Intervenors opposed all three motions to dismiss and moved to modify Contentions 8 and 21 as well.¹⁹ In addition, Intervenors separately filed nine new contentions related to the Applicant's proposed revisions to the ER. Five of these new contentions concern the Main Cooling Reservoir ("MCR Contentions"),²⁰ while the remaining four are co-location contentions that concern the proximity of proposed STP Units 3 and 4 to existing STP Units 1 and 2 ("CL Contentions").²¹ The Applicant and NRC Staff oppose all nine of these new contentions.²²

II. Legal Standards

A. Timeliness

¹⁷ See Applicant's Motion to Dismiss Contention 21 as Moot (Nov. 30, 2009) [hereinafter Applicant's Motion to Dismiss 21].

¹⁸ See Applicant's Motion to Dismiss Contentions 8, 9, and 14 as Moot (Nov. 30, 2009) [hereinafter Applicant's Motion to Dismiss 8, 9, 14].

¹⁹ See Intervenors' Response to Applicant's Motion to Dismiss Contention 16 as Moot (Oct. 15, 2009) [hereinafter Intervenors' Response to 16]; Intervenors' Response to Applicant's Motion to Dismiss Contention 21 as Moot (Dec. 14, 2009) [hereinafter Intervenors' Response to 21]; Intervenors' Response to Applicant's Motion to Dismiss Contentions 8, 9, 14 as Moot (Dec. 14, 2009) [hereinafter Intervenors' Response to 8, 9, 14].

²⁰ See Intervenors' Contentions Regarding Applicant's Proposed Revision to Environmental Report Sections 2.3.1, 5.2, and 5.4 and Request for Hearing (Dec. 23, 2009) [hereinafter Intervenors' MCR Contentions].

²¹ See Intervenors' Contentions Regarding Applicant's Proposed Revision to Environmental Report Section 7.5S and Request for Hearing (Dec. 22, 2009) [hereinafter Intervenors' CL Contentions].

²² See Applicant's Answer Opposing New and Revised Contentions Regarding Environmental Report Section 7.5S (Jan. 22, 2010) at 2 [hereinafter Applicant's Answer to CL Contentions]; NRC Staff's Answer to the Intervenors' Amended and New Accident Contentions (Jan. 22, 2010) at 1 [hereinafter NRC Staff's Answer to CL Contentions]; Applicant's Answer Opposing New and Revised Contentions Regarding the Main Cooling Reservoir (Jan. 25, 2010) at 2 [hereinafter Applicant's Answer to MCR Contentions]; NRC Staff's Answer to Intervenors' Amended and MCR New Contentions (Jan. 25, 2010) at 1 [hereinafter NRC Staff's Answer to MCR Contentions].

Our Initial Scheduling Order directs Intervenor, when filing new or amended contentions, to move for leave to file a timely new or amended contention under 10 C.F.R. § 2.309(f)(2), or for leave to file an untimely new or amended contention under 10 C.F.R. § 2.309(c).²³ If Intervenor are uncertain about the timeliness of new or amended contentions, the Scheduling Order directs them to move for leave pursuant to both 10 C.F.R. § 2.309(c) and (f)(2).²⁴ Under 10 C.F.R. § 2.309(f)(2), new or amended contentions filed after the initial deadline may be admitted “with leave of the presiding officer upon a showing that—

- (i) The information upon which the amended or new contention is based was not previously available;
- (ii) The information upon which the amended or new contention is based is materially different than information previously available; and
- (iii) The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.”²⁵

With regard to the third criterion, this Board has stated that, for this proceeding, a contention based on new information will be considered timely if it is filed within thirty days of the availability of the new information.²⁶ A number of licensing boards have recognized that if a contention meets the 10 C.F.R. § 2.309(f)(2) criteria, it is timely and the intervenor proffering the contention need not also make a showing under 10 C.F.R. § 2.309(c).²⁷ However, at the

²³ Licensing Board Order (Initial Scheduling Order) (Oct. 20, 2009) at 8 (unpublished) [hereinafter Scheduling Order].

²⁴ Id.

²⁵ 10 C.F.R. § 2.309(f)(2).

²⁶ See Scheduling Order at 8.

²⁷ See, e.g., Shaw Areva Mox Servs. (Mixed Oxide Fuel Fabrication Facility), LBP-07-14, 66 NRC 169, 210 n.95 (2007); Entergy Nuclear Vt. Yankee, LLC (Vermont Yankee Nuclear Power Station), LBP-07-15, 66 NRC 261, 265 n.5 (2007); Entergy Nuclear Vt. Yankee, LLC (Vermont Yankee Nuclear Power Station), LBP-06-14, 63 NRC 568, 572-74 (2006); Amergen Energy Co., LLC (Oyster Creek Nuclear Generating Station), LBP-06-16, 63 NRC 737, 744-45 & n.12 (2006); Entergy Nuclear Vt. Yankee, LLC (Vermont Yankee Nuclear Power Station), LBP-05-32, 62 NRC 813, 821 (2005). NRC Staff, in its answer to the Intervenor’s new and amended MCR

Board's discretion, non-timely contentions may also be admitted upon a balancing of eight factors.²⁸

B. Contentions of Omission

The Commission has recognized that a contention challenging an applicant's ER can be "superseded by the subsequent issuance of licensing-related documents" — whether a draft EIS or an applicant's response to a request for additional information."²⁹ In such situations, the Commission has distinguished between "contentions that merely allege an 'omission' of information and those that challenge substantively and specifically how particular information has been discussed in a license application."³⁰ For a contention of omission, if "the information is later supplied by the applicant or considered by the Staff in a draft EIS, the contention is moot [and] Intervenor must timely file a new or amended contention . . . in order to raise specific

Contentions, explains its view on the interplay between these two provisions, stating that 10 C.F.R. § 2.309(c) governs the admission of contentions that do not satisfy 10 C.F.R. § 2.309(f)(2). See NRC Staff's Answer to MCR Contentions at 5. We agree.

²⁸ The eight factors are:

- (i) Good cause, if any, for the failure to file on time;
- (ii) The nature of the requestor's/petitioner's right under the [Atomic Energy Act] to be made a party to the proceeding;
- (iii) The nature and extent of the requestor's/petitioner's property, financial or other interest in the proceeding;
- (iv) The possible effect of any order that may be entered in the proceeding on the requestor's/petitioner's interest;
- (v) The availability of other means whereby the requestor's/petitioner's interest will be protected;
- (vi) The extent to which the requestor's/petitioner's interests will be represented by existing parties;
- (vii) The extent to which the requestor's/petitioner's participation will broaden the issues or delay the proceeding; and
- (viii) The extent to which the requestor's/petitioner's participation may reasonably be expected to assist in developing a sound record.

10 C.F.R. § 2.309(c).

²⁹ Duke Energy Corp. (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-28, 56 NRC 373, 382 (2002) (quoting Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1050 (1983)).

³⁰ Id. at 382-83.

challenges regarding the new information.”³¹ Were it otherwise, parties could transform the original contention of omission into several new claims and circumvent the contention admissibility standards of 10 C.F.R. § 2.309(f)(1).³² Thus, because Intervenors’ Contentions 8, 9, 14, 16, and 21, as admitted, challenge various omissions from the Applicant’s original ER,³³ they are subject to dismissal for mootness to the extent the Applicant’s ER revisions and RAI responses supply the omitted information.

C. Contention Admissibility

Contentions must also meet the admissibility requirements of 10 C.F.R. § 2.309(f)(1). To admit a contention for hearing, Intervenors must: (i) provide a specific statement of the issue of law or facts in dispute; (ii) provide a brief explanation of the basis for the contention; (iii) show that the contention is within the scope of the proceeding; (iv) demonstrate that the contention is material to the findings that the NRC must make in order to support the action involved in the proceeding; (v) provide a statement of the alleged facts or expert opinion to support the contention; and (vi) allege sufficient information to show that a genuine dispute exists with the applicant on a material issue of law or fact.³⁴ Intervenors’ amended Contentions 8 and 21, as well as all nine newly-proffered contentions, must meet these six admissibility requirements.

D. NEPA Requirements

Intervenors’ newly-proffered and amended contentions concern the National Environmental Policy Act of 1969 (“NEPA”) and NRC regulations incorporating the agency’s

³¹ Id. at 383. See also Amergen Energy Co., LLC (Oyster Creek Nuclear Generating Station), LBP-08-12, 68 NRC 5, 21 (2008) (“As with all contentions of omission, if the applicant supplies the missing information – or, as relevant here, if the applicant performs the omitted analysis – the contention is moot.”); S. Nuclear Operating Co. (Early Site Permit for Vogtle ESP Site), LBP-08-2, 67 NRC 54, 63-64 (2008) (where intervenors “have not sought to amend [their contention] as admitted, to the degree the contention is one of omission, it is subject to dismissal in connection with those aspects for which it is appropriately established the Staff [draft environmental impact statement] provides any purported missing analysis or discussion”).

³² McGuire, CLI-02-28, 56 NRC at 383.

³³ See LBP-09-21, 70 NRC at ___ (slip op. at 38); LBP-09-25, 70 NRC at ___ (slip op. at 31).

³⁴ 10 C.F.R. § 2.309(f)(1)(i)-(vi).

responsibilities vis-à-vis NEPA.³⁵ Generally, NEPA imposes procedural requirements on the NRC to take a “hard look” at the environmental impacts of building and operating a nuclear reactor.³⁶ The NEPA “hard look” doctrine is subject to a “rule of reason”³⁷ that the Commission has interpreted as obligating the agency to consider “all reasonable alternatives” to the proposed action.³⁸ The alternatives analysis is the “heart of the environmental impact statement.”³⁹ However, the agency is not required to consider every imaginable alternative to a proposed action; rather, it only need evaluate reasonable alternatives.⁴⁰

In addition, the agency has broad discretion to determine how thoroughly it needs to analyze a particular subject for NEPA compliance.⁴¹ For example, the Commission has held that where impacts are “remote and speculative” or “inconsequentially small,” they need not be examined.⁴² In the Commission’s estimation, the agency can dispense with an examination of these less significant impacts because NEPA requires only an estimate of anticipated, but not unduly speculative, impacts.⁴³ Finally, in the Commission’s view, because issuing a license involves oversight of a private project, rather than a federally sponsored project, the agency is

³⁵ See 42 U.S.C. §§ 4321 *et seq.*; 10 C.F.R. Part 51.

³⁶ La. Energy Servs., L.P. (National Enrichment Facility), CLI-05-28, 62 NRC 721, 726 (2005).

³⁷ La. Energy Servs., L.P. (National Enrichment Facility), LBP-06-8, 63 NRC 241, 258-59 (2006).

³⁸ 10 C.F.R. Part 51, Subpt. A, App. A.

³⁹ Id.

⁴⁰ See, e.g., Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-91-2, 33 NRC 61, 71 (1991).

⁴¹ La. Energy Servs., L.P. (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 103 (1998).

⁴² Vt. Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-919, 30 NRC 29, 44 (1989) (citing Limerick Ecology Action, Inc. v. Nuclear Regulatory Comm’n, 869 F.2d 719, 739 (3rd Cir. 1989)) vacated on other grounds, CLI-90-4, 31 NRC 333 (1990).

⁴³ La. Energy Servs., L.P. (National Enrichment Facility), CLI-05-20, 62 NRC 523, 536 (2005).

entitled to give the applicant's preferences substantial weight when considering project design alternatives.⁴⁴

III. Decision

A. Motion to Dismiss Contention 21 and Amended Contention 21

Contention 21, as admitted by this Board, states:

Impacts from severe radiological accident scenarios on the operation of other units at the STP site have not been considered in the Environmental Report.⁴⁵

Contention 21 is a contention of omission alleging that the ER for STP Units 3 and 4 did not include required information about the environmental impacts of a radiological incident at existing STP Units 1 and 2 on proposed STP Units 3 and 4, or vice versa.⁴⁶ This contention was admitted to address the requirements outlined in an NRC guidance document, Standard Review Plans for Environmental Reviews for Nuclear Power Plants, NUREG-1555.⁴⁷ That document counsels applicants to address potential causes of severe accidents from contributors that are external to the plant.⁴⁸

In response to Contention 21, on November 11, 2009, the Applicant notified this Board that it had revised its ER⁴⁹ to add ER Section 7.5S, "Evaluation of Impacts of Severe Accidents on Safe Shutdown of Other Units."⁵⁰ The Applicant maintains that this revised section⁵¹

⁴⁴ See, e.g., Hydro Res., Inc. (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 55 (2001) (citing Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 197 (D.C. Cir. 1991)).

⁴⁵ LBP-09-21, 70 NRC at __ (slip op. at 36).

⁴⁶ Id. at 36-39.

⁴⁷ Id. at 38-39.

⁴⁸ Id.

⁴⁹ Letter from Stephen Burdick, STPNOC Counsel, to Licensing Board, Notification of Filing Related to Contention 21 (Nov. 11, 2009).

⁵⁰ Id., Attach., Letter from Scott Head, Manager, Regulatory Affairs, STP Units 3 & 4, to NRC, Proposed Revision to Environmental Report (Nov. 10, 2009) [hereinafter ER Letter].

⁵¹ ER Letter, Attach., ER Section 7.5S.

addresses the potential environmental impacts of a radiological incident at existing STP Units 1 or 2 on proposed STP Units 3 or 4 (and the effects of an accident at proposed STP Units 3 or 4 on existing STP Units 1 or 2) and so moots Contention 21.⁵² Consequently, the Applicant moved to dismiss Contention 21.⁵³ Intervenor's oppose the Applicant's motion to dismiss Contention 21, claiming that new ER Section 7.5S addresses neither how large releases of radiation would interfere with safe shutdown nor how those releases would affect the environmental and economic impacts on co-located units.⁵⁴ Intervenor's claim that 10 C.F.R. §§ 50.150 and 50.54(hh)(2) require the Applicant to consider these impacts because the regulations "postulate accident scenarios that would likely include large radiation releases."⁵⁵

As noted in Section II.B, supra, Commission precedent dictates that a contention of omission be disposed of or modified when that contention is superseded by licensing-related documents such as amendments to the Applicant's ER.⁵⁶ Because new ER Section 7.5S supplements the ER with information about the impacts of severe radiological accidents on nearby units, Contention 21 is moot, and the Applicant's motion to dismiss that contention is hereby granted.⁵⁷

We turn now to the admissibility of Intervenor's amended Contention 21. Intervenor's claim the Applicant's revised ER "does not discuss the impacts on safe shutdown in the

⁵² Applicant's Motion to Dismiss 21 at 1, 4.

⁵³ Id. NRC Staff agrees with the Applicant that Contention 21 is now moot and so should be dismissed. See id. at 6.

⁵⁴ Intervenor's Response to 21 at 3.

⁵⁵ Id.

⁵⁶ McGuire, CLI-02-28, 56 NRC 373, 382 (2002).

⁵⁷ In that regard, we note that while Intervenor's assertion that the information in new ER Section 7.5S is insufficient or otherwise deficient might provide support for a new or amended contention, it does not provide a basis for denying the Applicant's motion to dismiss the current contention of omission.

absence of 'sufficient warning' [or] the implications for safe shutdown in the event of a large release."⁵⁸ Therefore, Intervenors request that Contention 21 be amended as follows:

- A) The Environmental Report is deficient because it fails to discuss how a large release of radiation from an affected unit(s) will impact safe shutdown at an unaffected unit(s).
- B) The Environmental Report is deficient because it assumes there will be sufficient warning of an accident at an affected unit to allow an unaffected unit(s) to complete safe shutdown.
- C) The Environmental Report is deficient because it assumes that a separation distance of 1500 feet is adequate to preclude impacts from fires and explosions originating from an affected unit on other co-located units.⁵⁹

Parts B and C of amended Contention 21 suggest that Intervenors are questioning the adequacy of the information in new ER Section 7.5S rather than asserting an omission of required information. We will consider the admissibility of the three proposed modifications in turn.

In amended Contention 21A, Intervenors assert that "[t]he consideration of the relative probabilities/frequencies of large releases is qualitatively different from consideration of their impacts."⁶⁰ Thus, Intervenors claim the ER should explain how a large release of radiation from an affected unit(s) will impact safe shutdown at another unit.⁶¹

The Applicant disagrees with Intervenors' characterization of new ER Section 7.5S. Contrary to Intervenors' suggestion, the Applicant argues that 7.5S does evaluate large releases from severe accidents to determine whether the co-located units could be shut down

⁵⁸ Intervenors' Response to 21 at 2.

⁵⁹ Id.

⁶⁰ Id.

⁶¹ Id. at 3.

safely.⁶² In this regard, the Applicant cites ER Sections 7.5S.3 and 4, which evaluate the sufficiency of operator warning time and equipment design for safe shutdown.⁶³

We conclude that Intervenor's are incorrect in alleging in amended Contention 21A that the Applicant did not evaluate the potential effects on safe shutdown of co-located units after a large release of radiation. The Applicant correctly notes that ER Section 7.5S.4 "evaluates the impact of large releases on co-located units and concludes that all equipment necessary to complete safe shutdown would operate as designed."⁶⁴ Additionally, ER Section 7.5S.3 provides the very type of evaluation that amended Contention 21A seeks: it considers whether a severe accident at one unit could adversely impact safe shutdown of the other three units.⁶⁵ To the extent Intervenor's argue that the Applicant is obliged to undertake a more extensive study of the impact of releases at one unit on another, Intervenor's have failed to provide any legal or factual support for such a claim. Accordingly, amended Contention 21A fails to demonstrate a genuine, material dispute with the Applicant, as 10 C.F.R. § 2.309(f)(1)(vi) requires. Therefore, it is not admissible.

Amended Contention 21B alleges that the Applicant has made an erroneous assumption that there will be sufficient warning of an accident to allow for safe shutdown at unaffected units.⁶⁶ The Applicant responds that, quite to the contrary, it has made no such assumption, but instead has calculated the time needed for safe shutdown (three hours) in ER Section 7.5S.1.⁶⁷ Accordingly, the Applicant argues that new ER Section 7.5S.3 establishes that typical accident

⁶² Applicant's Answer to CL Contentions at 27.

⁶³ Id. NRC Staff agrees with the Applicant's position and further asserts that amended Contention 21A fails to meet the admissibility requirements of 10 C.F.R. § 2.309(f)(1)(v) and (vi), claiming that Intervenor's must offer additional facts or expert opinions to dispute this portion of the Applicant's submittal. See NRC Staff's Answer to CL Contentions at 8-9.

⁶⁴ Applicant's Answer to CL Contentions at 27; ER Letter, Attach., ER Section 7.5S at 5-6.

⁶⁵ Applicant's Answer to CL Contentions at 27; ER Letter, Attach., ER Section 7.5S at 4-5.

⁶⁶ Intervenor's' Response to 21 at 2.

⁶⁷ Applicant's Answer to CL Contentions at 28; ER Letter, Attach., ER Section 7.5S at 2.

scenarios actually progress over a period of time longer than three hours.⁶⁸ Based on the warning period before a radiological release and the ability of the Applicant's equipment to support safe shutdown well within that time period, new ER Section 7.5S asserts that the co-located units could be safely shutdown, yielding a very low probability of a severe accident at one unit causing a simultaneous accident at any of the other units.⁶⁹ Intervenors do not dispute the substance or accuracy of the Applicant's calculations, nor do they cite any legal requirement obligating the Applicant to perform additional calculations. Because it raises no factual or legal dispute in this regard, amended Contention 21B is inadmissible for failure to satisfy 10 C.F.R. § 2.309(f)(1)(vi).

In amended Contention 21C, Intervenors fault the Applicant's revised ER for assuming that a separation distance of 1500 feet is adequate to preclude impacts from fires and explosions on co-located units.⁷⁰ The Applicant maintains that ER Section 7.5S does not state that the distance between the units obviates the need to consider fires and explosions.⁷¹ Instead, the Applicant claims, the Final Safety Analysis Report ("FSAR") Section 2.2S.3, which was incorporated by reference in the ER, evaluates potential accidents that could impact other units.⁷² Moreover, the Applicant argues that these FSAR calculations produced a potential impact area for fires and explosions at Units 3 and 4, and 1500 feet was a conservative (i.e., safe) estimate of an acceptable distance for siting proposed STP Units 3 and 4 in proximity to existing STP Units 1 and 2.⁷³ Stated otherwise, the Applicant asserts, these calculations, not

⁶⁸ Applicant's Answer to CL Contentions at 28; ER Letter, Attach., ER Section 7.5S at 4-5.

⁶⁹ Applicant's Answer to CL Contentions at 28; ER Letter, Attach., ER Section 7.5S at 4-5.

⁷⁰ Intervenors' Response to 21 at 2.

⁷¹ Applicant's Answer to CL Contentions at 29.

⁷² Id. NRC Staff agrees with the Applicant on this point. See NRC Staff's Answer to CL Contentions at 11.

⁷³ Applicant's Answer to CL Contentions at 29.

mere assumptions, establish that the new units will be located at a safe distance from the existing units.⁷⁴

Examination of FSAR Section 2.2S.3, incorporated by reference in the Applicant's ER, reveals that it does include a summary of this accident information, and that the Applicant's use of 1500 feet as an adequate buffer is the result of a calculation rather than an assumption.⁷⁵ Intervenor's do not allege that the Applicant's calculation and use of 1500 feet as a buffer distance is inadequate or incorrect. Therefore, amended Contention 21C fails to satisfy 10 C.F.R. § 2.309(f)(1)(vi) because it does not demonstrate a genuine, material dispute with the Applicant.

We note that to buttress their argument in support of amended Contention 21, Intervenor's also argue that new ER Section 7.5S fails to consider the full spectrum of damage states.⁷⁶ In light of the fact that original Contention 21 was limited to design basis and severe accidents, this argument is outside the scope of the original contention and therefore can only be introduced as an amendment to the original contention. In any case, Intervenor's have not identified any new information that forms the basis for their assertion that the impacts of safe shutdown should be considered under the full spectrum of damage states.⁷⁷ Accordingly, any such proposed modification would be untimely under 10 C.F.R. § 2.309(f)(2).

In summary, original Contention 21 is dismissed because the Applicant supplied the information it omitted from its original Application regarding the impacts of radiological accidents

⁷⁴ Id.

⁷⁵ See STP Units 3 & 4 COLA, FSAR § 2.2S.3.1.1.4 (Rev. 3, Sept. 16, 2009) (ADAMS Accession No. ML092931242); ER Letter, Attach., ER Section 7.5S at 1.

⁷⁶ Intervenor's Response to 21 at 4.

⁷⁷ We note Intervenor's frequent requests for the Applicant to perform an analysis of various accident scenarios based on the "full spectrum of damage states." See, e.g., LBP-10-02, 71 NRC ___ (slip op. at 19-32) (Jan. 29, 2010) (nonpublic version). We remind Intervenor's now, as we stated repeatedly in our January 29, 2010 Order, that the Applicant cannot be forced to perform an analysis of the full spectrum of damage states in the absence of a regulatory obligation to do so, which Intervenor's have never established.

on other units in the ER. Intervenors' amended Contention 21 (A, B, and C) is inadmissible because it does not identify a genuine, material dispute with the Applicant about the new information that was provided to address the purported omissions in the ER.

B. Contention CL-1

Intervenors state in Contention CL-1:

The STPNOC evaluation of the possible impacts of a severe accident at one of the STP units on the other STP units is inadequate.⁷⁸

Intervenors have constructed their arguments in support of Contention CL-1 in four sub-parts, each with a separate issue statement. For ease of reference, the Board will address these arguments as Intervenors have stated them.

1. Contention CL-1, Part A

Intervenors state in Contention CL-1, Part A:

The Amended ER § 7.5S.3 states that the time from general emergency warning until the first release of radiation was of sufficient duration in all ten accident scenarios to put unaffected units into stable long term decay heat removal condition. However, in Applicant's accident scenario eight the release occurred prior to bringing unaffected units into stable long-term decay heat removal condition. Therefore the proposed amendment to the ER is not adequately substantiated.⁷⁹

In Part A of Contention CL-1, Intervenors claim that "the ER is not adequately substantiated" and allege that the Applicant's evaluation in amended ER Section 7.5S.3 incorrectly states that for all ten accident scenarios, there would be sufficient time between the general emergency warning and the first release of radiation to enable unaffected units to enter stable long term decay heat removal condition.⁸⁰ Intervenors assert that the Advanced Boiling Water Reactor ("ABWR")⁸¹ Design Control Document ("ABWR DCD") specifies a time frame for radiological release in Case 8 of 2 hours, i.e., 1.2 hours after the declaration of a general

⁷⁸ Intervenors' CL Contentions at 3.

⁷⁹ Id. at 3-4; see also Tr. at 947-54.

⁸⁰ Intervenors' CL Contentions at 4.

⁸¹ The Applicant intends to use the ABWR reactor design for proposed STP Units 3 and 4.

emergency.⁸² Intervenors assert this time frame in the ABWR DCD conflicts with ER Section 7.5S, which states that three hours will be available for every internally initiated severe accident sequence defined in the ABWR DCD.⁸³

Intervenors claim that because of this difference in time frames, the Applicant must evaluate environmental impacts on existing STP Units 1 and 2 that would result from a severe accident—involving early containment failure—at proposed STP Units 3 or 4.⁸⁴ Intervenors claim that the Applicant “must analyze the possibility that beyond design-basis radiological releases may reach the control rooms of the co-located units before those units can be put into stable configurations, either requiring the control rooms to be evacuated or operators to receive potentially life-threatening exposures.”⁸⁵

The Applicant asserts Contention CL-1 Part A would not require any changes to the conclusions in the ER, and so it is not admissible.⁸⁶ The Applicant cites a discussion in the ER, which indicates the frequency of Case 8 is “about twice in ten billion years” and argues that an event such as Case 8 is so remote and speculative that it does not require consideration under NEPA.⁸⁷ Therefore, the Applicant claims, CL-1 Part A fails to meet the materiality requirement of 10 C.F.R. § 2.309(f)(1)(iv).⁸⁸

Additionally, according to the Applicant, even were it required to perform the analysis that Intervenors propose, it would make no difference because the Applicant’s ER revisions

⁸² Intervenors’ CL Contentions at 5.

⁸³ Id.

⁸⁴ Id.

⁸⁵ Id.; see also Intervenors’ Consolidated Response to NRC Staff’s Answer to the Intervenors’ New Accident Contentions and Applicant’s Answer Opposing New Contentions Regarding Applicant’s Environmental Report Section 7.5S (Jan. 29, 2010) at 2 [hereinafter Intervenors’ CL Reply].

⁸⁶ Applicant’s Answer to CL Contentions at 13; see also Tr. at 950-51.

⁸⁷ Applicant’s Answer to CL Contentions at 12; see also Tr. at 950.

⁸⁸ Applicant’s Answer to CL Contentions at 13.

include a scenario that assumes simultaneous severe accidents at all four STP reactor units.⁸⁹

Even under those aggravated conditions, with all four units not safely shut down, the Applicant concludes that the environmental impacts would be small.⁹⁰

For their part, Intervenors do not attempt to argue that the difference in time frames stated in the Applicant's ER revision would affect the Applicant's conclusions regarding co-location impacts. In fact, Intervenors do not even contest the Applicant's characterization of how improbable Case 8 is.⁹¹ Nor have Intervenors challenged the Applicant's calculation that any impact resulting from a simultaneous accident at all four units (if they were not safely shut down) would be small.⁹² Consequently, Intervenors fail to raise a genuine dispute regarding a material issue of law or fact in Contention CL-1 Part A, as required under 10 C.F.R. § 2.309(f)(1)(vi), making CL-1 Part A inadmissible.⁹³

⁸⁹ Id. at 12-13. NRC Staff supports the Applicant's argument regarding the absence of a genuine, material dispute in CL-1 Part A. See NRC Staff's Answer to CL Contentions at 15.

⁹⁰ Applicant's Answer to CL Contentions at 12. NRC Staff agrees with the Applicant on this point, arguing that the radioactivity releases of an accident at all four units would be approximately four times the release from a single unit, and even if the environmental risk of such accident were multiplied by four, the cumulative environmental risk would still be insignificant. NRC Staff's Answer to CL Contentions at 14-15; see also Tr. at 949.

⁹¹ See Applicant's Answer to CL Contentions at 12; see supra Section II.D; N.J. Dept. of Env't'l Prot. v. U.S. Nuclear Regulatory Comm'n, 561 F.3d 132, 139, 141 (3d Cir. 2009) (Effects or impacts of risks that are too remote do not require a NEPA analysis. The scope of a NEPA analysis must be manageable; otherwise the agency "would 'expend considerable resources' on issues 'not otherwise relevant to [its] congressionally assigned functions' and 'resources may be spread so thin that agencies are unable adequately to pursue protection of the physical environment and natural resources.'"); Limerick Ecology Action, Inc. v. U.S. Nuclear Regulatory Comm'n, 869 F.2d 719, 739, 745 (3d Cir. 1989) (NEPA does not require consideration of remote and speculative risks, but there must be a finding that something is remote and speculative to preclude it from further analysis, and there must be support in the agency's record of decision to justify this finding); San Luis Obispo Mothers for Peace v. NRC, 751 F.2d 1287, 1300-01 (D.C. Cir. 1984) (Under NEPA's well-established "probabilistic rule of reason," an agency need not address remote and speculative environmental consequences, nor must it discuss in detail events it believes have an inconsequentially small probability of occurring).

⁹² See Intervenors' CL Contentions at 4-5.

⁹³ According to the Commission, a dispute is not "material" unless: (1) it involves a significant inaccuracy or omission, Sys. Energy Res., Inc. (Early Site Permit for Grand Gulf ESP Site), CLI-05-4, 61 NRC 10, 13 (2005) (noting that licensing boards "do not sit to 'flyspeck' environmental

2. Contention CL-1, Part B

Intervenors state in Contention CL-1, Part B:

The proposed amendments to the ER do not address the radiological impact of a severe accident at an STP unit during shutdown, when the primary containment head is removed, on the other STP units.⁹⁴

In Part B, Intervenors assert that the Applicant's amendment to ER Section 7.5S failed to evaluate severe core damage events that might occur during shutdown of one of the units.⁹⁵

Intervenors assert that, although the ABWR DCD discusses large release frequency ("LRF"), it does not consider contributions from severe accidents during low power or shutdown operations.⁹⁶ Intervenors then argue that "more recent design certification PRAs [probabilistic risk assessments] have shown that such scenarios are significant and sometimes dominant contributors to LRF."⁹⁷

Intervenors claim that the Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design, NUREG-1503, states that once the primary containment head of the ABWR reactor has been removed during shutdown for refueling, it cannot be readily repositioned to restore containment integrity.⁹⁸ Intervenors claim that under such conditions, there is likely to be an early release of radiation either because the open reactor coolant system will produce boiling or because of severe core damage.⁹⁹ Intervenors thus assert the ER should consider the environmental impacts of early large radiological

documents or to add details or nuances"); and (2) resolution of the dispute could affect the outcome of the licensing proceeding. See 54 Fed. Reg. 33,168, 33,172 (Aug. 11, 1989); see also Entergy Nuclear Vermont Yankee, LLC (Vermont Yankee Nuclear Power Station), LBP-06-20, 64 NRC 131, 149 (2006).

⁹⁴ Intervenors' CL Contentions at 5; see also Tr. at 954-72.

⁹⁵ Intervenors' CL Contentions at 5.

⁹⁶ Id.

⁹⁷ Id. (Letter from Tom M. Tai, Sr. Project Manager, ABWR Projects Branch, Division of New Reactor Licensing, NRC Office of New Reactors, to Scott Head, Regulatory Affairs, STPNOC (June 17, 2009) at 5 (ADAMS Accession No. ML091671797)).

⁹⁸ Id.

⁹⁹ Id. at 5-6.

releases that would occur during refueling outages. Intervenors claim that an early large radiological release during refueling outages is more likely to occur than the event the Applicant evaluated for environmental impacts, i.e., large radiological releases when the reactor is at full power.¹⁰⁰

The Applicant asserts that Intervenors' claim in this regard is not timely because it concerns Section 7.2 of the ER as the Applicant originally submitted it, not as it was revised.¹⁰¹ The Applicant also argues that Intervenors' real dispute is not with the Applicant's ER, but rather with the ABWR DCD itself—which determined that the probability of accidents during shutdown is low.¹⁰² Because the Commission has adopted the ABWR DCD pursuant to its rulemaking process,¹⁰³ the Applicant asserts that such a challenge to the ABWR DCD is impermissible in this adjudicatory proceeding.¹⁰⁴

The Applicant further argues that Intervenors have ignored a central message of the ABWR Final Safety Evaluation Report ("FSER") that is fatal to their claim: "[t]he chances of a core damage event occurring when in Modes 3, 4, or 5 [shutdown or refueling] is probably on the same order of magnitude as that of internal events occurring in Modes 1 and 2 [startup or operation]."¹⁰⁵ Accordingly, even were the Applicant's ER to evaluate an accident in one of the

¹⁰⁰ Id. at 6; see also Intervenors' CL Reply at 8-10.

¹⁰¹ Applicant's Answer to CL Contentions at 13; see also Tr. at 962. The Applicant also notes that Intervenors failed to address the late filing requirements in 10 C.F.R. § 2.309(c) and (f)(2). Applicant's Answer to CL Contentions at 13. NRC Staff agrees with the Applicant that CL-1 B is not timely. See NRC Staff's Answer to CL Contentions at 15-18; see also Tr. at 963-64. NRC Staff also argues that Intervenors' dispute raised in Part B is not specific to the Applicant's ER revisions, but instead addresses contributions from severe accidents during shutdown, an issue that was addressed in the Applicant's original ER. NRC Staff's Answer to CL Contentions at 16.

¹⁰² Applicant's Answer to CL Contentions at 14; see also Tr. at 968-70.

¹⁰³ See 10 C.F.R. Part 52, Appendix A, Section VI.

¹⁰⁴ Applicant's Answer to CL Contentions at 14; Tr. at 968-70.

¹⁰⁵ See Applicant's Answer to CL Contentions at 14 (citing Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design, Main Report, NUREG-1503, at 19-29 (July 1994) [hereinafter STP Attachment 4]). Moreover, the Applicant maintains that even if the risk of accidents at the units were conservatively increased by a factor

ABWRs on the STP site during shutdown and low power conditions, the Applicant maintains it would not affect the results of the evaluations of impacts and dose risks from an accident in either of the two proposed STP Units 3 and 4.¹⁰⁶

Because the Commission addressed this issue in its FSER for the ABWR DCD and concluded that the impact and dose risk in the event of an accident at proposed STP Units 3 and 4 during shutdown is low,¹⁰⁷ the issue is closed to us as an impermissible attack on the ABWR certified design, as codified in 10 C.F.R. Part 52, Appendix A.¹⁰⁸ In addition, were we to construe CL-1 Part B as a challenge to the severe accident analysis itself, Intervenor's challenge is not timely because this was addressed in the Applicant's original ER, not in its recent revisions to the ER.¹⁰⁹ Intervenor has characterized this as a contention of omission, but has provided no reason it is required to be included in the ER. Therefore, Contention CL-1 Part B is not admissible for failure to satisfy 10 C.F.R. § 2.309(f)(1)(iii), (vi), and (f)(2).

3. Contention CL-1, Part C

Intervenor states in Contention CL-1 Part C:

The amendments to the ER fail to evaluate the impact of a severe accident at one STP unit on the other units when the initiating event of the accident is an external event such as an earthquake, that could result in common-cause failures of systems

of ten to account for risk of accidents during shutdown and low power conditions, there would be no impact on the conclusions in those sections of the ER. Id. at 15.

¹⁰⁶ Id. As written, Contention CL-1B did not clearly articulate whether it is solely concerned with the effects of an accident during shutdown at proposed STP Units 3 and 4, or if it also encompasses a shutdown at existing STP Units 1 and 2. At oral argument, NRC Staff and the Applicant argued that because Intervenor invoked the ABWR DCD and FSER in support of proposed STP Units 3 and 4, a fair reading of Contention CL-1B is to limit it to a challenge to the ER's consideration of an accident while proposed Units 3 and 4 are shutdown. Tr. at 958.

¹⁰⁷ See STP Attachment 4.

¹⁰⁸ See 10 C.F.R. § 2.335(a) ("no rule or regulation of the Commission . . . concerning the licensing of production and utilization facilities . . . is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding"); Northeast Nuclear Energy Co. (Millstone Nuclear Power Station, Units 2 and 3), LBP-01-10, 53 NRC 273, 286-87 (2001).

¹⁰⁹ See STP Units 3 & 4 COLA, Environmental Report at 7.2 (Rev. 3, Sept. 16, 2009) (ADAMS Accession No. ML092931582) [hereinafter ER]. Intervenor has made no effort to justify this non-timely claim. See Scheduling Order at 8-9; 10 C.F.R. § 2.309(c), (f)(2).

at one or more of the other units, potentially extending the time necessary for operators to put the units into stable long-term decay heat removal configurations.¹¹⁰

In CL-1 Part C, Intervenors argue that the Applicant's ER considers severe accidents associated with internally initiated events at only one of the four co-located reactors, wrongly assuming that the initiator would not affect the other three reactors.¹¹¹ Intervenors maintain that externally-initiated events, such as earthquakes, could result in common-cause failures of safety systems at multiple co-located units and, accordingly, that the Applicant erred in failing to consider and evaluate the impact of such accidents.¹¹²

Intervenors assert that under these externally-initiated accident scenarios, involving multiple reactors, additional time "may" be required to restore operability of safety systems and achieve stable long-term configurations.¹¹³ Thus, Intervenors conclude, there is an increased risk that stable shutdown would not be achieved and that core-melt may occur at any one of the other reactor units.¹¹⁴ Intervenors claim that such external events must be addressed in the ER because they are "large – possibly even dominant – contributors to the overall plant risk profile."¹¹⁵ Intervenors then invoke the FSER for the ABWR DCD in asserting that "'the estimate of ABWR risk could be one or possibly two orders of magnitude higher' than analyses that consider only internal events."¹¹⁶

¹¹⁰ Intervenors' CL Contentions at 6; see also Tr. at 972-79.

¹¹¹ Intervenors' CL Contentions at 6.

¹¹² Id.; see also Tr. at 973, 975.

¹¹³ Intervenors' CL Contentions at 6.

¹¹⁴ Id.

¹¹⁵ Id.

¹¹⁶ Id. at 6-7.

The Applicant disputes Intervenor's claim that the ER only considers severe accidents associated with internally-initiated events. To the contrary, the Applicant claims its revisions to the ER do evaluate external events and their impacts on one or more co-located units.¹¹⁷

We conclude that Intervenor's have failed to raise a genuine dispute with the Applicant on a material issue of fact because the Applicant has, in fact, evaluated both accidents initiated by external events and a simultaneous accident impacting all four units on the STP site.¹¹⁸ Moreover, the Applicant has concluded that even considering such accident scenarios, the cumulative environmental impacts would still be small.¹¹⁹ Because the Applicant has evaluated the environmental impacts of a severe accident at all four STP reactor units, regardless of source, and concluded those impacts would be small, there is no omission—and so Intervenor's Contention CL-1 Part C fails to raise a genuine dispute with the Applicant regarding a material issue of law or fact, as 10 C.F.R. § 2.309(f)(1)(vi) requires.

4. Contention CL-1, Part D

Intervenor's state in Contention CL-1 Part D:

The amended ER fails to fully evaluate the impact of a chain-reaction that leads to more than one unit experiencing a severe accident.¹²⁰

In Part D of Contention CL-1, Intervenor's argue that the Applicant's ER "fails to fully evaluate the impact" of the simultaneous occurrence of a severe accident at all four reactors at the STP facility.¹²¹ In particular, Intervenor's claim that "the combined radiological

¹¹⁷ Applicant's Answer to CL Contentions at 16.

¹¹⁸ Applicant's ER revision at 7.5S.3 evaluates accidents initiated by external events. ER Letter, Attach., ER Section 7.5S at 4-5. Section 7.5S.6 evaluates environmental effects of a simultaneous accident at all four units. This evaluation encompasses accidents that result from either internal or external sources, as the impacts in both scenarios would be the same. Id. at 8.

¹¹⁹ Id. at 8.

¹²⁰ Intervenor's CL Contentions at 7; see also Tr. at 979-81.

¹²¹ Intervenor's CL Contentions at 7.

consequences could have a significant impact on the ABWR severe accident mitigation design alternatives (“SAMDA”) analysis.”¹²²

The Applicant argues that its ER revision does, in fact, evaluate the potential for an accident to impact co-located units and concludes that a chain reaction among the STP units is not possible.¹²³ For this reason, the Applicant claims there is no need to perform a SAMDA analysis that assumes simultaneous accidents at all four units,¹²⁴ nor have Intervenors explained how such an analysis could impact the conclusions of the Applicant’s current SAMDA analysis.¹²⁵ According to the Applicant, even were one to take the cost to risk ratio for one ABWR and multiply it by four (to account for severe accidents at all four units), the overall cost-risk value would remain well below the lowest cost SAMDA for an ABWR.¹²⁶ Accordingly, the Applicant concludes, performing Intervenors’ requested analyses in CL-1 Part D would have no impact on the outcome of this proceeding,¹²⁷ and so there is no genuine dispute of material fact as required under 10 C.F.R. § 2.309(f)(1)(vi).¹²⁸

We conclude that Contention CL-1 Part D is inadmissible because the Applicant’s revisions to its ER have addressed the possibility of a chain reaction resulting from a simultaneous accident at all four units and concluded that such a chain reaction is impossible.¹²⁹ Intervenors neither challenge this conclusion nor demonstrate how the evaluation they request

¹²² Id.; see also Intervenors’ CL Reply at 11.

¹²³ Applicant’s Answer to CL Contentions at 17.

¹²⁴ Id. at 17-18; see also Tr. at 980.

¹²⁵ Applicant’s Answer to CL Contentions at 18.

¹²⁶ Id. at 18-19.

¹²⁷ Id. at 19.

¹²⁸ Id.; see also Tr. at 980-81. NRC Staff agrees that CL-1 Part D is inadmissible for similar reasons. NRC Staff points to Intervenors’ claim that the current SAMDA analysis “could” be significantly impacted, and argues that such support is vague and speculative, and is thus insufficient to support contention admissibility. NRC Staff’s Answer to CL Contentions at 21-22.

¹²⁹ ER Letter, Attach., ER Section 7.5S at 8.

would affect the Applicant's conclusions in its ER. Accordingly, Intervenor's have failed to raise a genuine dispute regarding a material issue of fact as required by 10 C.F.R. § 2.309(f)(1)(vi).

C. Contentions CL-2, CL-3, and CL-4

The Board considers Intervenor's' remaining co-location contentions concurrently because all three address the Applicant's quantification of replacement power costs following a shutdown of multiple STP units. Contention CL-2 asserts that the Applicant's quantification of the probable replacement power costs "in the event of a forced shutdown of nuclear units on the STP site is inadequate and understates the replacement power costs which would be incurred."¹³⁰ In Contention CL-3, Intervenor's argue the ER fails to account for the increase in replacement power costs that would result from the increase of Electric Reliability Council of Texas ("ERCOT") market prices due to reactor unit outage on the STP facility.¹³¹ And finally, in Contention CL-4, Intervenor's allege that the ER is inadequate because it does not evaluate or take into account "the impacts on ERCOT consumers and the disruptive impacts of potential price spikes and grid outages, which could be triggered by the simultaneous shutdown of all four units at STP."¹³²

To support these co-location contentions, Intervenor's rely on their expert, Clarence Johnson.¹³³ Johnson criticizes the ER for deriving its replacement power costs through modeling of various power pool costs from the 1990s.¹³⁴ Instead, Johnson maintains, the Applicant should have recognized the subsequent restructuring and deregulation of the electric

¹³⁰ Intervenor's' CL Contentions at 7; see also Tr. at 981-92.

¹³¹ Intervenor's' CL Contentions at 8; see also Tr. at 992-1004.

¹³² Intervenor's' CL Contentions at 9; see also Tr. at 1004-15.

¹³³ See Intervenor's' CL Contentions, Attach., Clarence L. Johnson, Ph.D., Review of Replacement Power Costs for Unaffected Units at the STP Site (Dec. 21, 2009) [hereinafter Johnson Report].

¹³⁴ Johnson Report at 2.

industry by using ERCOT costs, which are higher than the costs the Applicant used.¹³⁵ Johnson performed such an analysis—using baseline ERCOT market prices—which resulted in calculations that indicate the ER underestimated replacement power costs by a factor of “3 to 3.8.”¹³⁶ Intervenors also claim that the Applicant failed to account for the electricity price increase that would result from removal of multiple STP units from the ERCOT market.¹³⁷ Johnson submits that his calculations are a more accurate reflection of ERCOT market prices if STP units are removed from the ERCOT market.¹³⁸

The Applicant opposes admission of Contentions CL-2 and CL-3 on the grounds that they are not timely raised because the replacement power costs in new ER Section 7.5 use the same, NRC-prescribed approach that was used in ER Section 7.3, which was available to Intervenors at the time of issuance of the notice of hearing for this proceeding.¹³⁹ We disagree with this reasoning. For the reasons set forth below, Intervenors’ co-location contentions, to the extent they allege that the Applicant’s replacement power costs are inaccurate when multiple STP Units are shut down, are timely.¹⁴⁰

Contention CL-2 states that it concerns a forced shutdown of nuclear units (meaning more than one unit) on the STP site.¹⁴¹ Contention CL-3 is also phrased using the plural “units on the STP site.”¹⁴² We also note that all of the co-location contentions were formulated in

¹³⁵ Intervenors’ CL Contentions at 8; Johnson Report at 2-3.

¹³⁶ Johnson Report at 3-4.

¹³⁷ Id. at 4-5; see also Intervenors’ CL Reply at 13.

¹³⁸ Johnson Report at 7.

¹³⁹ Applicant’s Answer to CL Contentions at 20, 22.

¹⁴⁰ However, any allegations involving only STP Units 1 and 2 are outside the scope of this proceeding and cannot be considered by this Board, which is solely concerned with the licensing of proposed STP Units 3 and 4.

¹⁴¹ Intervenors’ CL Contentions at 7.

¹⁴² Id. at 8.

response to the Applicant's supplement to its ER.¹⁴³ The Applicant intended that supplement to cure the omissions alleged in original Contention 21, which stated that the ER had not considered severe radiological accident scenarios on the operation of other units at the STP site.¹⁴⁴ The "other units" are existing STP Units 1 and 2.¹⁴⁵

As we discussed in Section II.A, supra, a contention based on new information will be considered timely under 10 C.F.R. § 2.309(f)(2) if it is filed within thirty days of the availability of the new information.¹⁴⁶ Revised ER Section 7.5 may use the same method of analysis as was used elsewhere in the original ER, but the addition of calculating economic impacts of loss of multiple STP units (particularly impacts of a severe accident at STP Unit 1 and/or 2 in addition to Unit 3 and/or 4) to this analysis renders the resulting replacement power costs, the basis for Contentions CL-2 through CL-4, new information to Intervenors. As we discussed in Section III.A, supra, the Applicant revised its ER by adding Section 7.5 partly to cure the omissions identified in original Contention 21. We think it unreasonable to expect Intervenors to forecast both the admission of original Contention 21 and the Applicant's subsequent use of the same NUREG/BR-0184 approach it used in an earlier version of the ER to calculate replacement power costs in the amended ER. This is the unlikely scenario the Applicant apparently envisioned with its assertion that Intervenors should have pled this contention with their petition for intervention. And in any event, the amended ER applies the approach to a new set of conditions, namely the shutdown of multiple STP Units. Therefore, any analysis of replacement

¹⁴³ Id. at 1.

¹⁴⁴ See Applicant's Motion to Dismiss 21 at 4-5.

¹⁴⁵ See LBP-09-21, 70 NRC __ (slip op. at 38-39).

¹⁴⁶ See Scheduling Order at 8.

power involving multiple STP Units, resulting from ER Section 7.5, is new information, and so contentions based on that information are timely under 10 C.F.R. § 2.309(f)(2).¹⁴⁷

We note that Intervenors' failure to explicitly challenge SAMDA until their reply is understandable in light of the absence of any explicit reference to it in revised ER Section 7.5S.5, which states: "These costs are less than half of the costs of an accident at the affected unit. The Section 7.3 conclusion that there is no cost-effective ABWR operation design change holds for the mitigation of impacts at other site units."¹⁴⁸ However, the answers of both the Applicant and NRC Staff clearly recognize that Intervenors were effectively challenging the Applicant's SAMDA analysis.¹⁴⁹

Had it used the replacement power costs that Intervenors propose be used, the Applicant maintains those costs would not have a material impact on its analysis of Severe Accident Mitigation Design Alternatives ("SAMDA").¹⁵⁰ The Applicant concluded that none of the ABWR SAMDAs would be cost effective or would mitigate potential impacts from a severe, large release accident at the existing units.¹⁵¹ Furthermore, the Applicant concludes, were one both to multiply the table values by four (to account for the replacement power costs of all four units) and to add the ERCOT replacement power costs, no cost-effective SAMDA would result.¹⁵² Thus, the Applicant claims, Intervenors fail to raise a material issue of fact under 10 C.F.R. §

¹⁴⁷ We note, however, that to the extent contentions CL-2 and CL-3 challenge the calculation of replacement power costs for a shutdown of only one STP unit due to a severe accident, they are not based on new information and are therefore not timely.

¹⁴⁸ ER Letter, Attach., ER Section 2.3.1.

¹⁴⁹ See, e.g., Applicant's Answer to CL Contentions at 21; NRC Staff's Answer to CL Contentions at 22-25

¹⁵⁰ Applicant's Answer to CL Contentions at 21. NRC Staff agrees with the Applicant that the replacement power cost figures Intervenors propose would not impact the outcome of the SAMDA analysis by resulting in the identification of a cost-beneficial SAMDA. NRC Staff's Answer to CL Contentions at 24; see also Tr. at 988-89.

¹⁵¹ Applicant's Answer to CL Contentions at 21.

¹⁵² Id.

2.309(f)(1)(iv), and they fail to raise a dispute with the Application regarding a material issue of fact under Section 2.309(f)(1)(vi).¹⁵³

As to Contention CL-3, the Applicant maintains Intervenor's arguments lack adequate support to demonstrate that consideration of the market effects of shutting down the units would change the replacement power costs.¹⁵⁴ Instead, the Applicant contends, Intervenor's make generalized and conclusory statements that merely state that the ER is deficient, inadequate, or wrong, without providing a reasoned basis or explanation for that conclusion.¹⁵⁵

The Applicant next argues that Intervenor's claims in Contention CL-3 about future ERCOT power costs are too speculative for a NEPA analysis.¹⁵⁶ In any event, the Applicant argues, NEPA is an environmental statute and it need only evaluate the environmental, and not the economic, impacts of its proposed action.¹⁵⁷ Thus, the Applicant maintains, because the economic impact of a proposed action on ratepayers is outside the scope of a NEPA analysis, those arguments are outside the scope of the proceeding and are therefore inadmissible under 10 C.F.R. § 2.309(f)(1)(iii).¹⁵⁸ The Applicant also contends that Intervenor's remaining co-location contentions are inadmissible because the NEPA rule of reason dictates that the ER

¹⁵³ Id. at 21, 25.

¹⁵⁴ Applicant's Answer to CL Contentions at 23. The Applicant notes that support for a contention is required under 10 C.F.R. § 2.309(f)(1)(v). Id.

¹⁵⁵ Id.; see also Tr. at 995-97.

¹⁵⁶ Applicant's Answer to CL Contentions at 23-24.

¹⁵⁷ Id. at 24-25.

¹⁵⁸ Id. (citing Portland Gen. Elec. Co. (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610, 614 (1976); Detroit Edison Co. (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-470, 7 NRC 473, 474-75 (1978); Puget Sound Power & Light Co. (Skagit/Hanford Nuclear Power Project, Units 1 and 2), LBP-82-26, 15 NRC 742, 744 (1982)); see also Tr. at 1005-07 (discussing whether economic impacts are within the scope of NEPA considerations required for NRC/COLA purposes at issue in this proceeding).

need only discuss and evaluate impacts that either have some likelihood of occurring or are reasonably foreseeable.¹⁵⁹

NRC Staff contends that the consideration of SAMDAs to mitigate the environmental consequences of the proposed action (for proposed STP Units 3 and 4) is a valid NEPA consideration, but the consideration of SAMDAs at the proposed units to mitigate environmental consequences of the already-existing reactors (STP Units 1 and 2) is not a valid NEPA consideration.¹⁶⁰ Thus, in NRC Staff's view, the cost-risk calculations Intervenors propose in Contention CL-2, as they relate to the existing reactors, are not material to the findings that the NRC must make to license the proposed reactors under 10 C.F.R. § 2.309(f)(1)(iv).¹⁶¹

NRC Staff claims that a dispute would be material in the instant proceeding, in the context of the SAMDA analysis, if its resolution could result in the identification of a cost-beneficial SAMDA.¹⁶² However, because Intervenors only take issue with one component of the cost-risk evaluation in the Applicant's analysis, and because they do not show how this would affect the overall cost-risk figure or whether such a change might result in the identification of a cost beneficial SAMDA, NRC Staff claims that Intervenors have failed to raise a genuine dispute with the Applicant on a material fact.¹⁶³

NRC Staff claims that the report of Intervenors' expert, Clarence Johnson, includes no estimate of potential increases in the costs of replacement power—and even that is only one component of the monetized impact of a severe accident.¹⁶⁴ NRC Staff argues further that the difference in the monetized impact of a severe accident would be material to the findings the

¹⁵⁹ Applicant's Answer to CL Contentions at 25 (quoting La. Energy Servs., L.P. LBP-06-8, 63 NRC at 258-59).

¹⁶⁰ NRC Staff's Answer to CL Contentions at 25.

¹⁶¹ Id.

¹⁶² NRC Staff's Answer to CL Contentions at 24 (citing Grand Gulf, CLI-05-4, 61 NRC at 13; Yankee Nuclear, CLI-96-7, 43 NRC at 259).

¹⁶³ Id. at 24-25.

¹⁶⁴ Id. at 27.

NRC must make in this proceeding only if it would result in one or more cost-beneficial SAMDAs.¹⁶⁵ NRC Staff also contends that Intervenor fail to allege facts or provide expert opinions that would support Contention CL-3's market effects analysis, and Intervenor fail to point to any significant inaccuracies or omissions in the Applicant's ER co-location revisions.¹⁶⁶ Therefore, NRC Staff asserts that Intervenor's claims—that market effects on replacement power costs should be considered in the context of severe accidents—do not raise a genuine material dispute with the Applicant.¹⁶⁷

NRC Staff also claims that Intervenor fail to explain how increases to the ERCOT market price are likely, or how Intervenor projected such increases.¹⁶⁸ For these reasons, NRC Staff argues that Intervenor fail to provide sufficient information to establish a significant omission from or inaccuracy in the Applicant's SAMDA analysis.¹⁶⁹ Further, NRC Staff asserts that although Intervenor raise the issue of potential price spikes, they neither show how these price spikes would impact the costs of a severe accident nor show that such impacts might result in a cost-beneficial SAMDA.¹⁷⁰

Because Contentions CL-2, CL-3, and CL-4 are so closely interwoven, we consider their admissibility concurrently. In essence, Intervenor's remaining co-location contention alleges:

The Applicant's calculation in ER Section 7.5S of replacement power costs in the event of a forced shutdown of multiple STP Units is erroneous because it underestimates replacement power costs and fails to consider disruptive impacts, including ERCOT market price spikes.

¹⁶⁵ Id.

¹⁶⁶ Id.

¹⁶⁷ Id.

¹⁶⁸ NRC Staff's Answer to CL Contentions at 28.

¹⁶⁹ Id.

¹⁷⁰ Id. at 29.

We will now refer to this consolidated contention as Contention CL-2.¹⁷¹ Turning to the contention admissibility criteria of 10 C.F.R. § 2.309(f)(1)(i) and (ii), Intervenor's pleadings present the requisite statements of fact to be raised or controverted and a brief explanation of the basis for the contention.¹⁷² Next, criterion (iii) requires Intervenor to demonstrate that the contention is within the scope of the proceeding.¹⁷³ While the Applicant, but not NRC Staff, maintains that NEPA does not require an applicant to evaluate the economic impacts of a proposed nuclear plant on consumers,¹⁷⁴ the law is not as sweeping as the Applicant suggests. Under NEPA, an agency must consider alternatives to the proposed action.¹⁷⁵ In the NRC licensing context, 10 C.F.R. § 51.45 requires an applicant's ER to discuss alternatives.¹⁷⁶ And as all the parties apparently agree, Contention CL-2 challenges the adequacy of the replacement power costs in the Applicant's ER Amendment¹⁷⁷ that are fundamental to the SAMDA analysis,¹⁷⁸ which is a subset of severe accident mitigation alternatives ("SAMA") analysis.¹⁷⁹ The Commission has stated that SAMAs "are rooted in a cost-benefit assessment"

¹⁷¹ Long held Commission precedent dictates that licensing boards may reformulate contentions to "eliminate extraneous issues or to consolidate issues for a more efficient proceeding." See, e.g., Crow Butte Res., Inc. (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 552 (2009); Shaw Areva MOX Services (Mixed Oxide Fuel Fabrication Facility), LBP-08-11, 67 NRC 460, 482 (2008). Additionally, we are authorized to hold prehearing conferences to simplify or clarify the issues for hearing, after which we may admit a revised contention, so long as the revised contention does not add material not raised by the intervenor to make it admissible. Crow Butte, CLI-09-12, 69 NRC at 553 (citing 10 C.F.R. §§ 2.319(j), 2.329(c)(1)).

¹⁷² Intervenor's CL Contentions at 7-10; Johnson Report.

¹⁷³ 10 C.F.R. § 2.309(f)(1)(iii).

¹⁷⁴ Applicant's Answer to CL Contentions at 24-25.

¹⁷⁵ 42 U.S.C. § 4332(2)(C)(iii).

¹⁷⁶ 10 C.F.R. § 51.45(b)(3).

¹⁷⁷ Intervenor's CL Reply at 12.

¹⁷⁸ See, e.g., Applicant's Answer to CL Contentions at 21; NRC Staff's Answer to CL Contentions at 22-25; Intervenor's CL Reply at 12-13.

¹⁷⁹ See Licenses, Certifications, and Approvals for Nuclear Power Plants, 72 Fed. Reg. 49,352, 49,426 (Aug. 28, 2007) ("SAMDA's are alternative design features for preventing and mitigating severe accidents, which may be considered for incorporation into the proposed design. The

and that the purpose of the assessment is to identify plant changes whose costs would be less than their benefit (i.e., the “potential for significantly improving severe accident safety performance”).¹⁸⁰ Thus, because Contention CL-2 challenges the Applicant’s analysis of the impacts of a severe accident (the benefit side of the SAMDA cost-benefit analysis), it is within the scope of this proceeding. Similarly, because Intervenors claim that using their replacement power costs, which they claim are more realistic, “could raise the overall monetized impacts to a point in which a SAMDA is cost-effective,”¹⁸¹ their allegations regarding replacement power costs are material to the SAMDA analysis, which is a material part of NRC’s NEPA analysis, and therefore satisfy 10 C.F.R. § 2.309(f)(1)(iv).¹⁸²

The Johnson Report satisfies the requirement under 10 C.F.R. § 2.309(f)(1)(v) that contentions be supported by alleged facts or expert opinion. This requirement “generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the factors underlying the contention or references to documents and text that provide such

SAMDA analysis is that element of the severe accident mitigation alternatives [SAMA] analysis dealing with design and hardware issues.”).

¹⁸⁰ Duke Energy Corp. (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-17, 56 NRC 1, 5 (2002).

¹⁸¹ Intervenors’ CL Reply at 13.

¹⁸² Three additional points are relevant here. First, “materiality” in this context is simply a pleading requirement, not a proof requirement. Second, at the contention admissibility stage, Intervenors are not required, under the rubric of “materiality,” to run a sensitivity analysis and/or to prove that the alleged defects would, in fact, change the result. See McGuire, CLI-02-17, 56 NRC at 9-10; U.S. Dept of Energy (High-Level Waste Repository) LBP-09-6; 69 NRC 367, 416 (2009) (“DOE cannot, at the contention admissibility stage, demand that petitioners rerun DOE’s TSPA in order to demonstrate the impact of alleged defects.”). That would be an assessment of the merits. Third, inasmuch as NEPA is a procedural statute that mandates that the NRC take a hard look at environmental impacts, but does not dictate a specific result, it is inappropriate, perhaps even impossible, for an Intervenor to prove (certainly at the contention admissibility stage) that correcting an error or omission in the ER or EIS would, in fact, change the NRC’s ultimate decision. See, e.g., Hydro Res., Inc. (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 44 (2001) (quoting Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 349 (1989)). Here, the Intervenors allege that an essential portion of the Applicant’s ER, which is a required component of a COLA, is deficient. Considered together with the support Intervenors have provided for Contentions CL-2 through CL-4, this reformulated contention meets the materiality requirement of 10 C.F.R. § 2.309(f)(1)(iv).

reasons.”¹⁸³ Contrary to the Applicant’s assertion in opposition to Contention CL-3, Intervenor’s pleadings and the Johnson Report both recite facts to support their assertion that, when multiple STP units are shut down, the ER’s projection of replacement power costs is incorrect or incomplete.

Finally, contrary to the Applicant’s argument, Intervenor’s have satisfied the requirements of section 2.309(f)(1)(vi). Under that criterion, a properly formulated contention must focus on the license application in question and challenge specific portions of (or omissions from) it, thereby establishing that a genuine dispute exists with the applicant on a material issue of law or fact. To begin with the basis of the Applicant’s SAMDA analyses, Intervenor’s and the Applicant disagree over whether the Applicant should have used ERCOT costs to create its SAMDA’s. They do not agree that the Applicant failed to account for the electricity price increase that would result if more than one STP unit is removed from the ERCOT market. They also disagree whether the current ABWR SAMDA’s would be cost effective or would mitigate potential impacts from a severe, large release accident at the existing units. Essentially, Intervenor’s present information to explain that they believe the Applicant must perform a new SAMDA analysis. As we noted previously, information supporting SAMDA’s is a material part of the Applicant’s ER and the COLA. Therefore, Intervenor’s have presented a genuine dispute with the Applicant on a material issue of fact. Because Contention CL-2 meets the contention admissibility criteria of 10 C.F.R. § 2.309(f)(1), it is admitted.

D. Motions to Dismiss Contentions 8, 9, 14, and 16

The Applicant asserts that its ER revisions cure the omissions raised in Contentions 8, 9, and 14. These contentions raise concerns about the environmental impacts of increased concentrations of non-radioactive and radioactive pollutants in the main cooling reservoir

¹⁸³ Calvert Cliffs 3 Nuclear Project, LLC and Unistar Nuclear Operating Servs., LLC (Calvert Cliffs Nuclear Power Plant, Unit 3), LBP-09-4, 69 NRC 170, 194-95 (quoting Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station), LBP-06-23, 64 NRC 257, 356 (2006) (internal quotations omitted)).

("MCR"), in seepage from the MCR into adjacent groundwater, and in discharges from the MCR to surface water. Intervenors disagree that the Applicant's revisions to the ER moot these contentions.¹⁸⁴

Turning first to Contention 8, this contention was admitted as follows: "The Environmental Report fails to analyze the environmental impacts associated with the increase in radionuclide concentration in the MCR due to operation of STP Units 3 & 4."¹⁸⁵ Intervenors claim that the Applicant's revisions do not render Contention 8 moot because: (1) "[w]hile the ER does discuss the quantities and forms of the increases of radioactivity in the MCR it does not discuss the environmental impacts thereof";¹⁸⁶ (2) the ER offers no factual support for the position that operation of proposed STP Units 3 and 4 will not result in radionuclides being detected in biological samples;¹⁸⁷ (3) the ER does not discuss the "fate and transport" of cobalt-60 ("Co-60") in the MCR beyond stating that there is no pathway for human exposure to cobalt-60;¹⁸⁸ (4) the ER does not discuss the effects of gamma radiation from Co-60 on organisms in the MCR;¹⁸⁹ (5) the ER contains "scant discussion" of physical effects of discharges from the MCR;¹⁹⁰ and (6) the ER does not account for organically bound tritium ("OBT").¹⁹¹

Alternatively, Intervenors request that Contention 8 be amended to allege that the ER has omitted a discussion of "actual environmental impacts, including bioaccumulation and bioconcentration, anticipated from radioactive particulates and tritium discharged into the

¹⁸⁴ Intervenors' Response to 8, 9, 14 at 1.

¹⁸⁵ LBP-09-25, 70 NRC at ___ (slip op. at 7).

¹⁸⁶ Intervenors' Response to 8, 9, 14 at 2; see also Tr. at 812.

¹⁸⁷ Intervenors' Response to 8, 9, 14 at 3.

¹⁸⁸ Id.

¹⁸⁹ Id. at 4.

¹⁹⁰ Id. at 5. Intervenors explained at oral argument that these changes refer to the biological effects of Co-60 particles in the MCR. See Tr. at 822-23.

¹⁹¹ Intervenors' Response to 8, 9, 14 at 5.

MCR.”¹⁹² In support of preserving Contention 8 (as originally proffered or as Intervenors have proposed to modify it), Intervenors claim that the Applicant “overlooks that organically bound tritium remains in the body longer than tritiated water.”¹⁹³ Intervenors further claim that the Applicant does not acknowledge adverse health effects of tritium exposures.¹⁹⁴ With respect to other nuclides, Intervenors allege that “the discussion regarding exposure pathways does not describe the environmental effects of increasing radioactive levels in the MCR, [and . . . there] is no discussion of the environmental effects of continued concentration of the particulates in the MCR sediment though the Applicant acknowledges such will occur.”¹⁹⁵

In contrast, both the Applicant and NRC Staff assert that the ER, as amended, does discuss the environmental impacts of radionuclides, specifically tritium and Co-60, including exposure pathways and doses to humans and biota.¹⁹⁶ The Applicant and NRC Staff allege that Intervenors do not demonstrate any flaws in the Applicant’s analysis or conclusions.¹⁹⁷ The Applicant maintains that, with respect to Co-60, it has utilized different deposition or mixing rates, has employed the actual dimensions and weight of Co-60 released, and has even assumed a worst case scenario of re-suspension of Co-60 after it has settled out of the water

¹⁹² Id. (We note that Intervenors do not formally propose any specific language for amended Contention 8.)

¹⁹³ Id.

¹⁹⁴ Id.

¹⁹⁵ Id. at 2.

¹⁹⁶ See NRC Staff’s Answer to MCR Contentions at 11-13; Applicant’s Answer to MCR Contentions at 20-21. The Applicant incorporates its arguments concerning the admissibility of Intervenors’ new MCR Contentions, specifically contentions MCR-1 and MCR-5.

¹⁹⁷ See NRC Staff’s Answer to MCR Contentions at 11-13; Applicant’s Answer to MCR Contentions at 20-21.

column.¹⁹⁸ From this, the Applicant has concluded that Co-60 concentrations in the MCR would remain within regulatory limits, and hence, would have an insignificant environmental impact.¹⁹⁹

In addition, NRC Staff argues that Intervenors fail to demonstrate a factual dispute regarding radioactive releases to the MCR. NRC Staff states that even were the Applicant to use a different method of calculating Co-60 concentrations, or to differentiate between tritiated water and OBT, the Applicant's impact determinations in the ER would remain unchanged.²⁰⁰ Additionally, NRC Staff asserts that the Applicant "described controls to the ER, discussed environmental effects, and concluded that water quality standards would be maintained and impacts to surface water, groundwater, humans, and biota would be small."²⁰¹ NRC Staff also faults Intervenors for failing to provide "any information to support the assertion that these small impacts would have 'actual physical changes' that have not been adequately considered or discussed by the Applicant."²⁰²

Intervenors counter that it is improper to dismiss Contention 8 (in its admitted form or in a modified version) because the Applicant's revisions to the ER neither discuss the environmental impacts of accumulated radioactive materials in the MCR nor address the merits

¹⁹⁸ Applicant's Answer to MCR Contentions at 22-23.

¹⁹⁹ Id. at 22-24. In addition, to counter Intervenors' argument that it is obligated to differentiate radionuclide releases from proposed STP Units 3 and 4, as opposed to existing STP Units 1 and 2, the Applicant argues that it is not required to distinguish pollutants discharged from the new units from pollutants discharged from the existing units so long as the combined discharges would be both within regulatory limits and less than the total discharge from the existing STP Units 1 and 2 in 1992. Regardless of whether the Applicant has any obligation to differentiate between such discharges, NRC Staff points out that the Applicant did compare tritium and Co-60 discharges from the existing and proposed units. NRC Staff's Answer to MCR Contentions at 11.

²⁰⁰ NRC Staff's Answer to MCR Contentions at 13-16.

²⁰¹ Id. at 14.

²⁰² Id. at 15. NRC Staff also argues that amended Contention 8 is untimely with regard to consideration of OBT because earlier versions of the ER also did not distinguish OBT from tritiated water, Intervenors did not raise the issue of OBT in their initial petition (although they did raise issues concerning tritium discharges), and the information they use to make the OBT argument was previously available. Id. at 9-10.

of the contention.²⁰³ Intervenors allege that the Applicant's ER discussion of "exposure pathways does not describe the environmental effects of increasing radioactive levels in the MCR" or of continued concentration of radioactive particulates in the MCR sediment—even though Intervenors claim the Applicant acknowledges such concentration will occur.²⁰⁴

Intervenors also take exception to the Applicant's estimation of deposition on the bottom of the MCR because, Intervenors claim, the Applicant assumes that deposition will occur uniformly.²⁰⁵

Through their expert, D. Lauren Ross, Ph.D., Intervenors claim that "estimates of radioactive concentration should be based on sediment deposition rates not on mixing rates."²⁰⁶

Intervenors further claim that the Applicant has failed to address "the qualities of the Cobalt-60 in terms of dimensions or weight [. . .] the effects of gamma radiation from Cobalt-60 on living organisms in the MCR, [and] bioconcentration or bioaccumulation of radionuclides in the MCR."²⁰⁷

Contention 9 asserts: "The Environmental Report fails to predict or evaluate the effects of increasing groundwater tritium concentrations."²⁰⁸ In support of their claim that the Applicant's revisions do not moot Contention 9, Intervenors incorporate by reference their Contention 8 arguments, i.e., that the ER does not discuss actual environmental impacts and does not account for OBT.²⁰⁹

Contention 14, as narrowed and admitted by this Board, states: "the ER fails to analyze adequately the environmental impacts of unregulated seepage from the MCR into the adjacent

²⁰³ Intervenors' Response to 8, 9, 14 at 1-2.

²⁰⁴ Id. at 2.

²⁰⁵ Id. at 2-3.

²⁰⁶ Id. at 3.

²⁰⁷ Id. at 4.

²⁰⁸ LBP-09-25, 70 NRC at ___ (slip op. at 7).

²⁰⁹ Intervenors' Response to 8, 9, 14 at 6.

shallow groundwater.”²¹⁰ Intervenor’s assert that Contention 14 has not been rendered moot and incorporate the arguments they previously asserted with respect to Contention 8 regarding mootness. In addition, although conceding that the Applicant states in the revised ER its discharges to the MCR will be monitored under a TPDES permit, Intervenor’s assert that Contention 14 is not moot because the Applicant has failed to address “the environmental effects of *unregulated* seepage from the MCR into the adjacent shallow groundwater.”²¹¹

1. Motion to Dismiss Contention 8

The Applicant has modified its ER to remedy the omission that gave rise to Contention 8 by adding information about seepage flow paths (addressed in new ER Section 2.3.1.1.2.1),²¹² the effects of tritium in surface water (addressed in revised ER Section 5.2.3.1), the effects of tritium in groundwater (addressed in new ER Section 5.2.3.2), and other radionuclides (addressed in revised ER Section 5.4.1).²¹³

First, with respect to tritium, ER Section 5.2.3.1 explains that tritium concentrations in the MCR are frequently measured, and that those measurements indicate that tritium concentrations have remained well below the NRC reporting limit of 30,000 picocuries per liter (pCi/L).²¹⁴ The Applicant also asserts that, due to the improved design of proposed STP Units 3 and 4, their discharges will only increase the MCR tritium concentration by 16 pCi/L.²¹⁵ Thus, the ER concludes that tritium concentrations will remain well below regulatory requirements, and the environmental effects of tritium will of necessity be small.²¹⁶

²¹⁰ LBP-09-25, 70 NRC at ___ (slip op. at 25).

²¹¹ Intervenor’s Response to 8, 9, 14 at 6-7 (emphasis added).

²¹² Applicant’s Motion to Dismiss 8, 9, 14 at 4.

²¹³ Id. at 5.

²¹⁴ ER Letter, Attach. 2 at 5-6.

²¹⁵ Id. at 7-8.

²¹⁶ Id.

Rather than challenging the Applicant's projected concentration of tritium in the MCR, Intervenor center their criticism on the Applicant's alleged failure to address OBT, which can lead to increased exposure relative to unbound tritium.²¹⁷ The Applicant counters that doses from OBT are quite small,²¹⁸ and it refers to the report of Intervenor's own expert, Arjun Makhijani, Ph.D, which states that (1) only about 3 percent of tritiated water actually becomes OBT, and (2) only about 50 percent of OBT in consumed food is then transferred to the consumer.²¹⁹ Thus, even if the ER specifically addressed the effects of OBT, the resulting environmental effects of tritium would be small and so no material omission remains in the ER regarding tritium.

With respect to nuclides other than tritium (the primary nuclides of concern are cobalt-58 (Co-58), Co-60, and cesium-137 (Cs-137)), the Applicant asserts it has addressed the exposure pathways of these constituents in ER Section 5.4.1. The Applicant's ER revisions state that levels of cobalt have declined in recent years so that they are now below the level of detection, and that when proposed STP Units 3 and 4 are brought on line, cobalt levels are expected to remain below the level of detection. While traces of Cs-137 have on occasion been detected, the levels of Cs-137 appear to be background, i.e., they are similar to the concentrations that were measured prior to the operation of existing STP Units 1 and 2.²²⁰ Effectively, Intervenor have failed to provide factual support that creates a dispute with the Applicant's assertion that radioactive nuclide concentrations have been, and are projected to remain, below regulatory limits. Moreover, Intervenor have not provided a legal basis for requiring the Applicant to

²¹⁷ Intervenor's Response to 8, 9, 14 at 5.

²¹⁸ Tr. at 857 (referring to Intervenor's statement by Dr. Makhijani). Dr. Makhijani indicates that the biological effects of ingesting OBT are about twice as severe as ingesting free tritiated water. Intervenor's MCR Contentions, Attach., Letter from Arjun Makhijani, Ph.D at 1 (Dec. 23, 2009) (ADAMS Accession No. ML0935706470) [hereinafter Makhijani Report].

²¹⁹ Tr. at 857.

²²⁰ See ER Section 5.4.1.

expand on the discussion of radioactive nuclide concentrations that is currently set forth in the amended ER.

With respect to Intervenor's claim that the Applicant should project higher calculated concentrations of radionuclides in some areas (rather than simply assuming a uniform deposition in the sediment of the MCR),²²¹ the Applicant claims that it took actual samples of the sediment in random and potential hot spot locations, and it could not detect Co-60 in those sediments.²²² Intervenor has provided nothing to suggest that if actual data from potential hot spots did not yield detectable concentrations of Co-60, anything could be gained from the more detailed projections they seek.

Finally, Intervenor's claim that the Applicant should describe the quantities of the Co-60 in terms of dimensions or weight, the effects of gamma radiation from Co-60 on living organisms in the MCR, and bioconcentration or bioaccumulation of radionuclides in the MCR.²²³ Intervenor characterizes this as a contention of omission. Yet, in light of the absence of detectable radioactivity in biological samples (no such radioactivity has been detected since 1992) and the Applicant's uncontroverted projection that no radioactivity will be detected in biological samples after proposed STP Units 3 and 4 come on line, Intervenor has provided no legal or factual basis for requiring the Applicant to discuss these matters.²²⁴

2. Amended Contention 8

Intervenor maintains that, even were the Board to conclude that the Applicant's revisions to its ER addressed the omissions alleged in original Contention 8, the contention should nevertheless be advanced in a modified form "based on the omission of discussion by Applicant

²²¹ Intervenor's Response to 8, 9, 14 at 2.

²²² Tr. at 819, 822.

²²³ Intervenor's Response to 8, 9, 14, at 4.

²²⁴ Tr. at 867. As noted above, see supra note 192, Intervenor did not propose specific language for amended Contention 8.

of the actual environmental impacts, including bioaccumulation and bioconcentration, anticipated from radioactive particulates and tritium discharged into the MCR.²²⁵

Although Intervenors suggest bioaccumulation and bioconcentration could lead to higher doses of radioactive particulates and tritium in the MCR, the Applicant has, in fact, evaluated the impact of radiological discharges on biota in ER Section 5.4.4, and Intervenors have provided nothing to suggest that further evaluation is required. Because the Applicant has performed the very study Intervenors seek with amended Contention 8, Intervenors' Amended Contention 8 fails to raise a material, genuine dispute with the Applicant. Under 10 C.F.R. § 2.309(f)(1)(iv) and (vi), it is not admissible.

3. Motion to Dismiss Contention 9

Contention 9, as admitted by this Board, states:

The Environmental Report fails to predict or evaluate the effects of increasing groundwater tritium concentrations.²²⁶

The Applicant's revision to ER Section 5.2.3 states that tritium concentrations in the MCR are measured frequently and that those tritium concentrations have remained well below the NRC reporting limit of 30,000 pCi/L.²²⁷ That section also indicates the MCR is the source of seepage into shallow adjacent groundwater, so that the concentration of pollutants in the MCR sets the upper boundary of groundwater tritium concentrations.²²⁸ Moreover, the Applicant asserts that the improved design of proposed STP Units 3 and 4 will cause the tritium concentration in the MCR to increase by only 16 pCi/L, so that even after those units are operating, tritium concentrations will remain well below the regulatory limit.²²⁹ Intervenors claim

²²⁵ Intervenors' Response to 8, 9, 14 at 5.

²²⁶ LBP-09-25, 70 NRC at ___ (slip op. at 7).

²²⁷ See ER Letter, Attach., ER Section 5.2 at 6-8.

²²⁸ Id.

²²⁹ Id. NRC Staff agrees with the Applicant that these supplements to the ER render Contention 9 moot. See NRC Staff Answer to MCR Contentions at 3.

that Contention 9 is not moot because the Applicant's ER revisions either do not discuss the environmental impacts of increased tritium concentrations in groundwater, or do so in a way that "fails to address the merits of the contention."²³⁰ However, Contention 9 was admitted as a contention of omission. As such, Commission precedent dictates that we dismiss it for mootness if—as has happened here—the Applicant's revised ER cures the omission by evaluating the effects of increasing tritium concentration in groundwater.²³¹ Therefore, Contention 9 is dismissed.

4. Motion to Dismiss Contention 14

Contention 14, as admitted by this Board, states:

The Environmental Report fails to analyze adequately the environmental impacts of unregulated seepage from the MCR into the adjacent shallow groundwater.²³²

The Applicant revised ER Sections 2.3.1, 5.2, and 5.4 to address the transport of radionuclides, including tritium, in MCR seepage.²³³ In those sections, the Applicant estimates that the quantity of water captured by the relief well system and the quantity that seeps to the shallow aquifer system will remain within the original design levels,²³⁴ so that the addition of proposed STP Units 3 and 4 will have an insignificant impact on the current MCR seepage rate.²³⁵

Intervenors ask us to determine whether the Applicant's discussion in the ER, in conjunction with its reliance on a Texas Pollutant Discharge Elimination System ("TPDES") permit regulating discharges to the MCR, adequately assesses the environmental impacts of

²³⁰ Intervenors' Response to 8, 9, 14 at 6.

²³¹ See, e.g., Duke Energy Corp., CLI-02-28, 56 NRC at 383.

²³² LBP-09-25, 70 NRC at ___ (slip op. at 24-25).

²³³ See ER Letter Attach., ER Sections 2.3.1, 5.2 and 5.4.

²³⁴ See ER Letter Attach., ER Section 2.3.1.

²³⁵ Id. NRC Staff agrees with the Applicant that this addition to the ER renders Contention 14 moot. See Applicant's Motion to Dismiss 8, 9, 14 at 10.

those discharges.²³⁶ To the extent Intervenor's assertions are a continuation of their complaint about the terms and conditions of the Applicant's TPDES permit, we extensively addressed this issue in our September 29, 2009 Order.²³⁷ In particular, we made clear that 33 U.S.C. §1371(c)(2) (Section 521(c)(2) of the Clean Water Act) prohibits an agency such as the NRC from using NEPA to impose additional effluent limitations on an applicant's wastewater discharges to surface waters, such as the Main Cooling Reservoir.²³⁸ Consequently, sole responsibility for the terms and conditions of that TPDES permit lie with the State of Texas and the U.S. Environmental Protection Agency. Those terms and conditions are not at issue here.

With respect to Intervenor's concerns about the Applicant's ER revisions, Intervenor miss the mark in their claim that the revisions either do not discuss the environmental impacts of seepage from the MCR into groundwater, or that they do so in a way that "fails to address the merits of the contention."²³⁹ In fact, revised ER Section 2.3.1.1.2.1 evaluates the impact of proposed STP Units 3 and 4 by projecting the volume of (1) water in the MCR, (2) seepage from the MCR to shallow groundwater adjacent to the MCR, (3) seepage captured by the relief well system, and (4) the seepage that will remain in the shallow groundwater adjacent to the MCR. In light of the fact that the MCR water level is projected to remain within the original design levels, revised ER Section 2.3.1.1.2.1 states that proposed STP Units 3 and 4 would have an

²³⁶ Intervenor's Response to 8, 9, 14 at 6-7.

²³⁷ LBP 09-25, 70 NRC at __ (slip op at 16-25.).

²³⁸ 33 U.S.C. § 1371(c)(2) provides that nothing in NEPA shall be deemed to "authorize any such agency to impose, as a condition precedent to the issuance of any license or permit, any effluent limitation other than any such limitation established pursuant to this chapter." Certainly, the Clean Water Act does not authorize regulation of discharges to groundwater (Exxon Corp. v. Train, 554 F.2d 1310, 1312 (5th Cir. 1977)), and so the Applicant's ER must address, and with these ER revisions has addressed, those discharges to groundwater. Still, the provisions of the TPDES permit cannot be adjudicated in this forum.

²³⁹ Intervenor's Response to 8, 9, 14 at 6. Intervenor also incorporate by reference their arguments opposing the Applicant's Motion to Dismiss Contention 8.

insignificant impact on the current MCR seepage rate.²⁴⁰ Because Intervenors have not filed an amended contention to refute the Applicant's analysis, the water quantity issue posed by this contention is resolved.

The other component of this contention is water quality. To the extent it comes properly before us, water quality concerns two types of constituents: radioactive and non-radioactive. The Applicant addresses both in revised ER Section 5.2.3.1. With respect to the radioactive constituents in the Applicant's discharge, our reasons for dismissing Contentions 8 and 9 apply with equal force here. Accordingly, Intervenors' concerns regarding the environmental impacts of radioactive seepage encompassed in Contention 14 are moot, and for that reason, they are dismissed as well.

With respect to Intervenors' concerns with nonradioactive constituents in the Applicant's discharges, the ER projects that the discharge from proposed STP Units 3 and 4 will increase slightly (if at all) the concentrations of chemicals and other constituents in the MCR.²⁴¹ Moreover, the ER describes those nonradioactive constituents in the MCR as comparable to Texas state drinking water standards (except for aluminum and arsenic, which are not attributed to plant operations but instead are introduced from ground and surface water sources).²⁴² Finally, revised ER Section 5.2.3.2 indicates that seepage water quality to the shallow adjacent groundwater is determined by MCR surface water quality because the MCR is the source of such seepage. Because MCR water quality meets regulatory limits, the environmental impacts of seepage to the adjacent shallow groundwater would also be small.²⁴³ Based on the foregoing, the Applicant asserts that proposed STP Units 3 and 4 will produce environmental impacts on water quality (whether in the MCR and in any surface or groundwater that directly or

²⁴⁰ Applicant's Motion to Dismiss 8, 9, 14 at 7; ER Letter, Attach., ER Section 2.3.1 at 2.

²⁴¹ ER Letter, Attach., ER Section 2.3.1 at 2; see also ER Section 5.2.

²⁴² ER Letter, Attach., ER Section 5.2, at 3.

²⁴³ Id. at 6-8.

indirectly receives discharges from the MCR) that are expected to be within the “small” regulatory threshold.²⁴⁴ For their part, Intervenor’s have not filed an amended contention to refute the Applicant’s analysis. Therefore, for the same reasons Contentions 8 and 9 are now moot, Contention 14 is also moot. The Applicant has addressed the omission identified in Contention 14, and it is hereby dismissed.

5. Motion to Dismiss Contention 16

Contention 16, as admitted by this Board, states:

The Environmental Report fails to consider adequately the environmental impact of the possible withdrawal of additional groundwater in excess of that authorized by the current permits.²⁴⁵

Regarding Contention 16, in its response to a Request for Additional Information (“RAI”) from NRC Staff, the Applicant stated that operation of proposed STP Units 3 and 4 will not require groundwater withdrawals above the limit authorized by its current permits.²⁴⁶ As a result, the Applicant argues that it need not evaluate the environmental impacts of withdrawals above that limit.²⁴⁷ This information, the Applicant asserts, renders Contention 16 moot, and the contention should be dismissed.²⁴⁸ Likewise, NRC Staff asserts that Contention 16 should be dismissed because “the basis for the Board’s materiality determination” was the Applicant’s statement in the original ER that groundwater withdrawals above the currently permitted limit might be necessary, and that basis no longer exists in light of the RAI response.²⁴⁹

²⁴⁴ Id. at 2-4, 6-7.

²⁴⁵ LBP-09-25, 70 NRC at ___ (slip op. at 31).

²⁴⁶ Applicant’s Motion to Dismiss 16 at 4.

²⁴⁷ Id. at 5.

²⁴⁸ Id. at 4-5.

²⁴⁹ NRC Staff Answer to Applicant’s Motion to Dismiss Contention 16 as Moot (Oct. 19, 2009) at 3 [hereinafter NRC Staff’s Answer to Motion to Dismiss 16]. NRC Staff further argues that Intervenor’s “[c]hallenges to the adequacy of the new information [in the RAI response] should be submitted in the form of a new or amended contention.” See id. at 3; see also Tr. at 786-88.

Intervenors argue that Contention 16 is not moot because the Applicant has erred in stating that operation of proposed STP Units 3 and 4 will not require groundwater withdrawals above the currently permitted limit.²⁵⁰ Intervenors base their argument on: (1) the existence of a “maximum case” withdrawal scenario that, if sustained, could lead to withdrawals above the currently permitted level; (2) the small margin of error between the amount of groundwater that would be withdrawn under “normal” operating conditions of all four STP units and the currently permitted limit; (3) diversion to the MCR of a portion of the groundwater withdrawn; and (4) a proposed increase in the Applicant’s groundwater pumping capacity.²⁵¹ Intervenors also assert that the Applicant fails to address whether decreases in surface water availability due to drought could increase withdrawal of groundwater and whether drought conditions could lead to decreased availability of groundwater.²⁵² Finally, Intervenors argue that the submission of a RAI response cannot render a contention moot “without a determination of the adequacy of the information therein” and that a decision on whether the new information renders the contention moot is premature because NRC Staff has not yet determined whether the RAI response is satisfactory.²⁵³

The Applicant’s RAI response clarifies that its existing groundwater withdrawal permit is based on cumulative groundwater use over a period of time (approximately 9,000 acre-ft over three years), and that its groundwater withdrawal permit does not constrain either the groundwater production rate or the groundwater drawdown.²⁵⁴ The Applicant has further

²⁵⁰ Intervenors’ Response to 16 at 1-5.

²⁵¹ Id. at 2-3.

²⁵² Id. at 4-5.

²⁵³ Id. at 5-6. As discussed in Section II.B, supra, for a contention of omission, if the information is later supplied by the applicant, the contention is moot. See supra note 31 and accompanying text.

²⁵⁴ Letter from Scott Head, Manager, Regulatory Affairs, STP Units 3 & 4, to NRC, Response to Request for Additional Information (Sept. 28, 2009) (ADAMS Accession No. ML092730285) [hereinafter STP Response to Sept. 2009 RAI], Attach. 5 at 3; Tr. at 801.

explained that the volume it is authorized to take under its groundwater withdrawal permit encompasses groundwater diversion to the MCR.²⁵⁵ Finally, the Intervenor's conceded that, although the addition of groundwater pumping capacity could increase groundwater use efficiency, such an increase in pumping capacity would not necessarily lead to a violation of the groundwater withdrawal permit limits.²⁵⁶ In its response to the RAI, the Applicant also said it does not intend to use groundwater in excess of existing permit limits.²⁵⁷ As a result, the Applicant amended the COLA for proposed STP Units 3 and 4 to remove any reference to the possible need for increased groundwater use and any concomitant modifications to its groundwater withdrawal permit.²⁵⁸ Intervenor's have not filed an amended contention to refute the Applicant's claim that it no longer needs a permit modification. As a result of these revisions to the ER, Contention 16 is hereby dismissed as moot.

E. Intervenor's New MCR Contentions

Intervenor's five new MCR Contentions were submitted in response to the Applicant's revisions to ER Sections 2.3.1, 5.2, and 5.4, which provide additional information on the potential environmental impacts associated with the radionuclide concentrations in the MCR, tritium concentrations in groundwater, and seepage from the MCR into adjacent groundwater. We address the admissibility of each below.

1. MCR-1 – Organically Bound Tritium (OBT)

The Environmental Report fails to discuss the actual environmental impacts, including bioaccumulation, bioconcentration, and human health effects, anticipated from radioactive particulates and tritium discharged into the MCR (Main Cooling Reservoir).²⁵⁹

²⁵⁵ Id. at 799-800.

²⁵⁶ Id. at 802-04.

²⁵⁷ STP Response to Sept. 2009 RAI, Attach. 5 at 1. Attach. 5 to this letter presents 38 affected changes to the ER.

²⁵⁸ See id., Attach. 5 at 1-2.

²⁵⁹ Intervenor's MCR Contentions at 3.

In Contention MCR-1, Intervenors assert that the ER fails to address bioaccumulation and bioconcentration of radionuclides, specifically increased biological damage caused by OBT.²⁶⁰ In support of this contention, Intervenors incorporate by reference their “arguments and authorities in their response to the Applicant’s motion to dismiss Contention 8” as well as a statement of their expert witness, Dr. Makhijani.²⁶¹ In his statement, Dr. Makhijani asserts that OBT may pose a greater hazard than free tritium, particularly at a well lying 1400 feet offsite.²⁶²

Both the Applicant and NRC Staff claim that any such evaluation of OBT would not affect the ER’s conclusion that tritium concentrations in the MCR would be within regulatory limits and therefore would have a small environmental impact.²⁶³

Intervenors respond that because OBT has substantially greater biological effects than tritiated water, the distinction between OBT and tritiated water is material even if MCR discharges remain within regulatory limits.²⁶⁴ Dr. Makhijani claims that tritium can be bound within organic materials, and ingestion of those materials can lead to higher doses than ingestion of equivalent amounts of free tritium.²⁶⁵ He also claims that the Applicant should evaluate bioaccumulation, bioconcentration, and human health effects from radioactive

²⁶⁰ Id. at 3-4.

²⁶¹ Id. at 3.

²⁶² Id.; Makhijani Report at 1.

²⁶³ Applicant’s Answer to MCR Contentions at 6-8; NRC Staff’s Answer to MCR Contentions at 20-22. NRC Staff also opposes this contention as non-timely because the original ER for proposed STP Units 3 and 4 also did not distinguish between OBT and tritiated water, and Intervenors’ initial petition, which challenged the Applicant’s analysis of tritium impacts, did not raise the issue of OBT. See NRC Staff’s Answer to MCR Contentions at 18-19. However, we agree with Intervenors that Contention MCR-1 is timely. It is based on new information—the revised ER now discusses impacts of radionuclide discharges in general, whereas earlier versions of the ER did not, and it omits a discussion of OBT within the context of the new discussion. See Intervenors’ MCR Reply at 2-3.

²⁶⁴ Intervenors’ MCR Reply at 1-2.

²⁶⁵ Intervenors MCR Contentions at 3 (citing Makhijani Report).

particulates and tritium concentrations in the offsite well closest to the proposed STP Units 3 and 4, which is approximately 1,400 feet from the MCR.²⁶⁶

In response, the Applicant maintains, and Intervenor do not dispute, that the tritium concentrations at that well are conservatively estimated to be approximately 1600 pCi/L,²⁶⁷ which is twenty times lower than the NRC reporting standard for tritium. Thus, according to the Applicant, if one were to accept Intervenor's argument that OBT poses a greater hazard than tritiated water and assume that all tritium is OBT, then the actual tritium concentration of 1600 pCi/L at the well would have the biological effect of twice that concentration, i.e., 3200 pCi/L of tritium.²⁶⁸ This effect would still be over nine times below the NRC reporting level.²⁶⁹ Plainly and simply, Intervenor has not demonstrated that any such study could produce a material difference. Therefore, Contention MCR-1 fails to demonstrate that it is material to the findings NRC Staff must make to issue a COL and fails to demonstrate a genuine dispute on a material fact, as 10 C.F.R. § 2.309(f)(1)(iv) and (vi) require.

2. MCR-2 – Monitoring and Minimum Quality Standards for Relief Well Discharge

The ER does not include monitoring for MCR relief well discharge quality nor are there minimum water quality standards applied to these discharges.²⁷⁰

Contention MCR-2 alleges that the Applicant's TPDES permit fails to impose minimum quality standards or monitoring of the Applicant's discharges from the MCR relief wells.²⁷¹ Intervenor's expert, Dr. Ross, complains that the Applicant's "TPDES Permit No. WQ001908000 authorizes discharges from reservoir relief wells . . . [with] no requirements, minimum standards,

²⁶⁶ See Makhijani Report at 1-2.

²⁶⁷ Applicant's Answer to MCR Contentions at 7.

²⁶⁸ ER Letter, Attach., ER Section 5.2.

²⁶⁹ 9.375 times lower.

²⁷⁰ Intervenor's MCR Contentions at 4.

²⁷¹ Id.

or permit limits for monitoring relief well discharge quality.”²⁷² Intervenors further state, “[t]he failure to address the means to monitor and control the discharges from the MCR relief wells is a material omission and the basis for an admissible contention.”²⁷³

Both the Applicant and NRC Staff assert that this contention is outside the scope of this proceeding because it challenges the terms of the Applicant’s TPDES permit.²⁷⁴ They also argue that Contention MCR-2 fails to raise a genuine dispute because the ER does analyze the environmental impact of seepage from the MCR, and Intervenors do not challenge the existing analysis or conclusions²⁷⁵ or suggest any basis for requiring additional monitoring or standards.²⁷⁶ Intervenors argue that Contention MCR-2 is within the scope of the proceeding because the environmental effects of permitted discharges still must be evaluated, and the TPDES permit “does not eliminate the duty to evaluate discharges from the unmonitored relief wells.”²⁷⁷ As Intervenors clarified at oral argument, through Contention MCR-2, they seek monitoring of relief well discharge to determine if that discharge will have environmental impacts.²⁷⁸

In ER Section 5.2.3, the Applicant evaluates the environmental impacts of discharges from proposed STP Units 3 and 4 into the MCR. That evaluation concluded that the

²⁷² Intervenors’ MCR Contentions, Attach., Letter from Lauren Ross, Ph.D., to Robert Eye (Dec. 14, 2009) [hereinafter Ross Report].

²⁷³ Intervenors’ MCR Contentions at 4.

²⁷⁴ Applicant’s Answer to MCR Contentions at 10-11; NRC Staff’s Answer to MCR Contentions at 25.

²⁷⁵ NRC Staff’s Answer to MCR Contentions at 25-26.

²⁷⁶ Applicant’s Answer to MCR Contentions at 9-10. Additionally, NRC Staff argues that the contention is not timely because the terms of the TPDES permit were previously available. NRC Staff’s Answer to MCR Contentions at 23. However, we agree with Intervenors that Contention MCR-2 is timely because it alleges omissions based on new information, *i.e.*, the ER revisions that purport to address the omissions alleged in original Contention 8. See Intervenors’ MCR Reply at 4.

²⁷⁷ Intervenors’ MCR Reply at 5.

²⁷⁸ Tr. at 873-74.

environmental impacts of seepage, including MCR relief well discharge, would be small.²⁷⁹

Intervenors' dispute is not with the Applicant's evaluation of these discharges, but rather with the terms and conditions of the Applicant's TPDES permit that authorizes discharges from these relief wells. As we have noted elsewhere, those concerns are not properly before us, but instead are solely matters that must be addressed with the State of Texas and the U.S.

Environmental Protection Agency.²⁸⁰ Therefore, Contention MCR-2 is not within the scope of this proceeding, as 10 C.F.R. § 2.309(f)(1)(iii) requires.

3. MCR-3 – MCR Water Level Impacts

The ER fails to account for operational impacts on the MCR's water level.²⁸¹

Contention MCR-3 asserts that the Applicant's ER fails to address impacts of water levels in the MCR from operation of proposed STP Units 3 and 4.²⁸² Intervenors maintain the Applicant's operation of all four units will result in a higher water level in the MCR, which in turn will increase the seepage rate.²⁸³ From this, Intervenors assert that "impacts on seepage rates from such operational increases should be addressed in the ER in order to determine, inter alia, the overall increases in water consumption needed to maintain the MCR within design specifications."²⁸⁴

²⁷⁹ Applicant's Answer to MCR Contentions at 9.

²⁸⁰ As we discussed extensively in a previous order, the NRC has no authority either to regulate effluent discharges that are subject to TPDES permit limits, or to require the Texas Commission on Environmental Quality (TCEQ) to adopt certain discharge limits. See LBP-09-25, 70 NRC at ___ (slip op. at 18-19).

²⁸¹ Intervenors' MCR Contentions at 4.

²⁸² Id. at 4-5.

²⁸³ Id. at 4.

²⁸⁴ Id.

Both the Applicant and NRC Staff assert that Intervenor have not challenged the analysis or conclusions in the ER regarding seepage rate.²⁸⁵ The Applicant states that the evaluation Intervenor request in Contention MCR-3 is already in the ER: “this ER section provides the seepage rate for a water level of 49 feet above MSL (5700 acre-ft/yr), which is the water level of the MCR during operation of all four units.”²⁸⁶ The Applicant further asserts that the critical component for environmental impacts is the low concentrations of pollutants in the MCR, not the MCR water level or the MCR seepage rate, and that Intervenor therefore have not challenged the impact conclusions.²⁸⁷ Intervenor counter that operation of proposed STP Units 3 and 4 would cause some increase in the MCR level, even if the MCR stays within the design level, and that any such fluctuation should be accounted for in the ER.²⁸⁸

The Applicant’s revised ER provides seepage rate information. Because Intervenor do not dispute the Applicant’s projection of low concentrations of pollutants in the seepage water, Contention MCR-3 fails to demonstrate a genuine dispute with the Applicant, as 10 C.F.R. § 2.309(f)(1)(vi) requires.

4. MCR-4 – Water Quality Impacts

The Environmental Report does not fully evaluate the water quality nor does it account for the environmental impacts of all nonradioactive contaminants, including salinity and total dissolved solids (TDS), in the MCR and the seepage water from the MCR.²⁸⁹

²⁸⁵ Applicant’s Answer to MCR Contentions at 11; NRC Staff’s Answer to MCR Contentions at 27-28.

²⁸⁶ Applicant’s Answer to MCR Contentions at 11.

²⁸⁷ Id. at 12. NRC Staff agrees with the Applicant that Intervenor have not supported their assertion that additional calculations are necessary. See NRC Staff’s Answer to MCR Contentions at 30.

²⁸⁸ Intervenor’s MCR Reply at 5-6. At oral argument, Intervenor clarified that their concern is that higher MCR levels would lead to higher seepage rates, which would in turn lead to higher amounts of contaminants entering the groundwater. See Tr. at 882-83. However, the Applicant’s revised ER makes clear (as the original ER did not) that the water level of 49 feet reflects the operation of all four units.

²⁸⁹ Intervenor’s MCR Contentions at 5.

Contention MCR-4 asserts that the ER does not fully evaluate water quality impacts, including the environmental impacts of nonradioactive contaminants, in the MCR and in seepage from the MCR.²⁹⁰ Specifically, Intervenors assert that the Applicant's TPDES permit does not require monitoring or treatment for all nonradioactive contaminants, and that the ER does not adequately characterize total dissolved solids ("TDS"), particularly during "critical periods," salinity, and toxic metal concentrations in the MCR.²⁹¹ More specifically, Intervenors' expert, Dr. Ross, claims that the ER "does not provide a relationship from which TDS could be estimated based on conductivity measurements," and "[s]ince it does not estimate TDS, it also does not evaluate the environmental consequences from discharge of water from the MCR with an estimated TDS."²⁹² In addition, Dr. Ross faults the ER for failing to evaluate the environmental consequences of discharges during hot dry periods of low flow, which is the time when higher MCR specific conductance would make such a discharge most likely.²⁹³

The Applicant and NRC Staff argue that this contention is outside the scope of this proceeding because it challenges the terms and conditions of the Applicant's TPDES permit²⁹⁴ and fails to raise a genuine dispute because it does not mount a challenge to the Applicant's analysis in the ER or mischaracterizes that analysis.²⁹⁵ With respect to "critical periods," the Applicant claims that its TPDES permit prohibits it from discharging from the MCR during periods when the Colorado River is at low flow and is subject to tidal influences near the

²⁹⁰ Id.

²⁹¹ Id. at 5-6.

²⁹² Id. at 6 (quoting Ross Report at 3).

²⁹³ Ross Report at 3.

²⁹⁴ Applicant's Answer to MCR Contentions at 13-14; NRC Staff's Answer to MCR Contentions at 32-33.

²⁹⁵ Applicant's Answer to MCR Contentions at 14-16; NRC Staff's Answer to MCR Contentions at 33-35.

Applicant's site.²⁹⁶ Both the Applicant and NRC Staff assert that Intervenor's have not shown how periods of low flow are material to the environmental impacts analysis.²⁹⁷ NRC Staff also notes that the Applicant, in an RAI response, explained how it converted its measurements of conductivity to TDS.²⁹⁸

Intervenor's respond that Contention MCR-4 is within the scope of the proceeding because it concerns, not the terms of the TPDES permit, but instead the ER's discussion of water quality impacts of nonradioactive contaminants.²⁹⁹ Intervenor's also contend that discharges of lead, molybdenum, and vanadium present "a valid water quality issue that should be included in the ER" and that the ER provides no factual support for the proposition that TDS concentrations during droughts are irrelevant because of tidal influences near the STP site.³⁰⁰

We conclude that, contrary to Intervenor's' claims, the ER evaluates the environmental impacts of MCR water quality, including MCR seepage, in new ER Sections 5.2.3 and 5.4.1. In particular, the environmental impacts of TDS, salinity, and metal concentrations in the MCR are addressed in ER Section 5.2.3. Intervenor's have not challenged the Applicant's statement that variations in TDS concentrations during "critical periods" are insignificant,³⁰¹ but instead seek to challenge the actual terms and conditions of the Applicant's TPDES Permit, which are not properly before us.³⁰² Thus, the contention is outside the scope of this proceeding, contrary to 10 C.F.R. § 2.309(f)(1)(iii). Additionally, there is no genuine dispute with a material fact that would satisfy 10 C.F.R. § 2.309(f)(1)(vi). Accordingly, Contention MCR-4 is not admissible.

²⁹⁶ Applicant's Answer to MCR Contentions at 16.

²⁹⁷ Id.; NRC Staff's Answer to MCR Contentions at 35.

²⁹⁸ NRC Staff's Answer to MCR Contentions at 35.

²⁹⁹ Intervenor's' MCR Reply at 6. Intervenor's, however, admit that the contention is not based on new information in the November ER revisions, as opposed to the original ER. See Tr. at 895-96.

³⁰⁰ Intervenor's' MCR Reply at 7-8.

³⁰¹ See Applicant's Answer to MCR Contentions at 16.

³⁰² See supra note 280 and accompanying text.

5. MCR-5 – Monitoring and Control of MCR Water Seepage Rate, Quantity, and Quality

The Applicant fails to state how the MCR water seepage rate, quantity, and quality will be monitored and controlled.³⁰³

Contention MCR-5 asserts that the ER does not discuss monitoring and control of MCR water seepage rate, quantity, and quality, particularly under drought conditions.³⁰⁴ The Applicant asserts that Intervenors neither challenge the results of current water quality monitoring nor articulate a basis for additional monitoring.³⁰⁵ NRC Staff disputes Intervenors' position by asserting that the Applicant did analyze the impacts of seepage.³⁰⁶ NRC Staff also states that Intervenors provide no support for their claim that water quality would be affected were the MCR to be maintained at lower levels.³⁰⁷ With regard to the allegedly altered statement in the revised ER concerning discharge and recharge, the Applicant asserts that it is not significantly different from a statement in the prior version, while NRC Staff argues that, in any case, Intervenors have not shown how the change affects the Applicant's impact conclusions.³⁰⁸ Intervenors respond that the ER does not discuss discharges associated with blowdown and that the revised ER statement shows "a reduction in the total amount of water

³⁰³ Intervenors' MCR Contentions at 7.

³⁰⁴ Id. Contention MCR-5 also challenged alleged changes in language between the original ER and the November 2009 ER revisions. Id. at 7-8. Intervenors' expert, Dr. Ross, stated that the original ER included a sentence that read: "Discharge to the environment from the MCR occurs from seepage through the reservoir floor to the groundwater." Ross Report at 2. She contrasted this with language in the revision stating that "the remaining 32% of MCR leakage that isn't collected in relief wells discharges to the Colorado River and that statement contradicts the original assertion that the MCR recharges groundwater." Id. Intervenors, however, subsequently conceded that the other, allegedly deleted sentence they noted in Contention MCR-5 was merely moved to another section. Intervenors' MCR Reply at 9; see Tr. at 908-09.

³⁰⁵ Applicant's Answer to MCR Contentions at 17.

³⁰⁶ NRC Staff's Answer to MCR Contentions at 37.

³⁰⁷ Id.

³⁰⁸ Applicant's Answer to MCR Contentions at 18-19; NRC Staff's Answer to MCR Contentions at 37-38.

that seeps from the MCR that will recharge groundwater,” claiming this could have significant environmental effects.³⁰⁹

We conclude that the Applicant’s ER describes routine monitoring of pollutants in the MCR, and Intervenors have not contested the method or quality of that monitoring. As we have previously noted, the Applicant has stated that the MCR is the source of pollutants in the shallow groundwater adjacent to the MCR.³¹⁰ Accordingly, the Applicant reasons, if the concentrations of pollutants in the MCR are lower than pertinent environmental standards, the concentrations of pollutants in the groundwater will also be lower than pertinent environmental standards.³¹¹ Therefore, the Applicant maintains, discharges from the MCR to groundwater will not have an adverse environmental impact.³¹² Intervenors do not contradict this analysis, nor do they provide any regulatory authority for their assertion that the Applicant must make additional calculations to “determine what the increase in seepage rate would be before that impact is determined to be significant.”³¹³

Intervenors’ argument that the ER does not attempt to account for water quality variations based on reduced MCR levels also fails to demonstrate an adequate factual basis for admission of this new contention. The Applicant has stated that it is not allowed to discharge from the MCR when river levels are low. Intervenors have not contested the Applicant’s assertion that, because discharges would thus not occur during low flow conditions in the river, any increases in the concentrations of TDS and other contaminants in the MCR during a drought would not have a significant environmental impact. Because Contention MCR-5 does

³⁰⁹ Intervenors’ MCR Reply at 8.

³¹⁰ Applicant’s Answer to MCR Contentions at 17.

³¹¹ Id.

³¹² Id.

³¹³ Ross Report at 2.

not raise a genuine dispute with the application, it is not admissible for failure to satisfy 10 C.F.R. § 2.309(f)(1)(vi).

IV. CONCLUSION AND ORDER

For the foregoing reasons:

- A. The Applicant's motions to dismiss previously admitted Contentions 8, 9, 14, 16, and 21 are granted and those contentions are now dismissed.
- B. Intervenors' requests to admit amended Contentions 8 and 21 are denied.
- C. Intervenors' requests to admit Contentions CL-1, MCR-1, MCR-2, MCR-3, MCR-4, and MCR-5 are denied.
- D. Intervenors' Contentions CL-2, CL-3, and CL-4 are reformulated as Contention CL-2, and admitted.

It is so ORDERED.

THE ATOMIC SAFETY
AND LICENSING BOARD
/RA/

Michael M. Gibson, Chairman
ADMINISTRATIVE JUDGE

/RA by T. Moore for/

Gary S. Arnold
ADMINISTRATIVE JUDGE

/RA by T. Moore for/

Randall J. Charbeneau
ADMINISTRATIVE JUDGE

Rockville, Maryland
July 2, 2010

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
SOUTH TEXAS PROJECT NUCLEAR) Docket Nos. 52-012-COL and 52-013-COL
OPERATING COMPANY)
)
(South Texas Project Units 3 and 4))
)

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing MEMORANDUM AND ORDER (RULINGS ON MOTIONS TO DISMISS CONTENTIONS 8, 9, 14, 16, 21; AMENDED CONTENTIONS 8 AND 21; NEW CO-LOCATION CONTENTIONS; AND NEW MAIN COOLING RESERVOIR CONTENTIONS) (LBP-10-14) have been served upon the following persons by the Electronic Information Exchange.

Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Mail Stop: T-3F23
Washington, DC 20555-0001

Office of the General Counsel
U.S. Nuclear Regulatory Commission
Mail Stop - O-15 D21
Washington, DC 20555-0001

Michael M. Gibson, Chair
Administrative Judge
E-mail: michael.gibson@nrc.gov

Marian Zabler, Esq.
Sara Kirkwood, Esq.
Maxwell Smith, Esq.
Michael Spencer, Esq.
Jody Martin, Esq.
Anthony C. Wilson, Esq.
Stephanie Liaw, Esq.
Joseph Gilman, Paralegal
E-mail:

Gary S. Arnold
Administrative Judge
E-mail: gxa1@nrc.gov

marian.zabler@nrc.gov
Sara.Kirkwood@nrc.gov
jsq1@nrc.gov
maxwell.smith@nrc.gov
michael.spencer@nrc.gov
jody.martin@nrc.gov
stephanie.liaw@nrc.gov
Anthony.wilson@nrc.gov

Randall J. Charbeneau
Administrative Judge
E-mail: Randall.Charbeneau@nrc.gov

Kara Wenzel, Law Clerk
E-mail: kara.wenzel@nrc.gov
Wen Bu, Law Clerk
E-mail: wxb3@nrc.gov

OGC Mail Center : OGCMailCenter@nrc.gov

Docket Nos. 52-012-COL and 52-013-COL
MEMORANDUM AND ORDER (RULINGS ON MOTIONS TO DISMISS CONTENTIONS 8, 9,
14, 16, 21; AMENDED CONTENTIONS 8 AND 21; NEW CO-LOCATION CONTENTIONS; AND
NEW MAIN COOLING RESERVOIR CONTENTIONS) (LBP-10-14)

Office of Commission Appellate
Adjudication
U.S. Nuclear Regulatory Commission
Mail Stop: O-16C1
Washington, DC 20555-0001
E-mail: ocaamail@nrc.gov

Morgan, Lewis & Bockius, LLP
1111 Pennsylvania Ave., NW
Washington, DC 20004
Counsel for the Applicant
Stephen J. Burdick, Esq.
Steven P. Frantz, Esq.
Alvin Gutterman, Esq.
John E. Matthews, Esq.
Mary Freeze, Assistant
E-mail:
sburdick@morganlewis.com
sfrantz@morganlewis.com;
agutterman@morganlewis.com
jmatthews@morganlewis.com
mfreeze@morganlewis.com

Sustainable Energy and Economic
Development (SEED) Coalition
Robert V. Eye, Esq.
Kauffman & Eye
112 SW 6th Avenue, Suite 202
Topeka, Kansas 66603
E-mail: bob@kauffmaneye.com

Southwest Workers' Union
Lanny Alan Sinkin, Esq.
1801 Westlake Drive #212
Austin, Texas 78746
E-mail: lanny.sinkin@gmail.com

Office of the Secretary of the Commission
U.S. Nuclear Regulatory Commission
Mail Stop: O-16C1
Washington, DC 20555-0001
Hearing Docket
E-mail: hearingdocket@nrc.gov

Sustainable Energy and Economic
Development (SEED) Coalition
Diane Curran
Harmon, Curran, Spielberg, & Eisenberg, LLP
1726 M Street N.W., Suite 600
Washington, DC 20036
E-mail: dcurran@harmoncurran.com

Sustainable Energy & Economic
Development (SEED) Coalition
Eliza Brown, Clean Energy Advocate
1303 San Antonio #100
Austin, Texas 78701
E-mail: eliza.seedcoalition@gmail.com

[Original signed by Nancy Greathead]
Office of the Secretary of the Commission

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