

October 29, 2008

MEMORANDUM FOR: Jeffrey Cruz, Chief
ESBWR/ABWR Projects Branch (NGE 1)
Division of New Reactor Licensing
Office of New Reactors

FROM: Timothy Frye, Chief **/RA/**
Health Physics Branch
Division of Construction Inspection & Operational Programs
Office of New Reactors

SUBJECT: ACCEPTANCE REVIEW RESULTS FOR FSAR CHAPTER 12 OF THE
RIVER BEND STATION UNIT 3 COMBINED OPERATING LICENSE
APPLICATION (COLA) (PROJ0745)

The Health Physics Branch (CHPB) has completed its acceptance review of Sections 12.1 through 12.6 of the River Bend Nuclear Plant Unit 3 Final Safety Analysis Report (FSAR) for which CHPB has primary review responsibilities. The results of our review are provided below.

Sections 12.1—12.6 of the COLA FSAR were reviewed against the following applicable criteria in accordance with Regulatory Guide 1.206, Section C.IV.1:

- 10 CFR 52.79(a),
 - Items 3, 4(ii), 4(iii), 5, 17, 26, 30, 39, and 45
- 10 CFR 52.79(c)
- 10 CFR 52.80
- 10 CFR 50.34(f)
 - Items 2(vii), 2(viii), 2(xvii), 2(xxvii), and 2(xxviii)

Those criteria that were found to be deficient or have review dependencies are shown in the enclosed Table 1.

Completeness and Sufficiency

Based on this review, CHPB concludes that, for the sections reviewed by CHPB, the COLA for River Bend Unit 3 contains all the information required by regulations and the submitted information is technically sufficient for CHPB to commence the detailed technical review.

CONTACT: Katherine Streit, DCIP/CHPB
415-3299

Schedule

CHPB's review effort includes areas for which CHPB and its contractor have both primary and supporting review responsibilities. Results were provided in the revised resource plan spreadsheet. The revised resource plan identifies the estimated contractor and CHPB hours that need to be removed or added to those currently scheduled in EPM needed to perform the technical review and contractor oversight through Phase 4. Note that depending on how pending matters are resolved with the ESBWR DCD and North Anna R-COLA, there may be a need to add additional resources to evaluate these sections of the FSAR. Accordingly, CHPB reserves the option of opening a review of FSAR Sections as needed. If additional review is necessary, CHPB will provide an estimate of the level of effort, identify changes to the schedule in completing the incremental review, and compile the associated RAIs as warranted.

Review Dependencies

Detailed technical review of the River Bend COLA depends on the approval of ESBWR DCD, North Anna Unit 3 R-COLA, and the staff's review and approval of the following three Nuclear Energy Institute (NEI) draft Topical Reports:

- 07-03, "Generic FSAR Template Guidance for Radiation Protection Program Description,"
- 07-08, "Generic FSAR Template Guidance for Ensuring that Occupational Radiation Exposures Are As Low As Is Reasonably Achievable (ALARA),"
- 08-08, "Generic FSAR Template Guidance for Life Cycle Minimization of Contamination"

Since the River Bend application is a subsequent S-COLA, our detailed technical review depends on the review and approval of the GE/Hitachi ESBWR Design Control Document and the North Anna Unit 3 R-COLA. It should be noted that the River Bend S-COLA is based on an interim version of General Electric Hitachi's (GEH) application for the certification of ESBWR design (Revision 4). GEH issued Rev. 5 of the ESBWR DCD in May 2008. As a result, River Bend COLA is expected to be revised to reflect the NRC certification of the GEH ESBWR design and the approval of the North Anna Unit 3 COLA. At this time, it is not possible to determine the incremental impact on the level of effort and schedule of the River Bend COLA review associated with the issuance of the final NEI topical reports, and subsequent revisions to the DCD and the R-COLA.

Enclosures:

Table 1. Safety Analysis Report Acceptance Review Results for River Bend Unit 3 COLA

Schedule

CHPB's review effort includes areas for which CHPB and its contractor have both primary and supporting review responsibilities. Results were provided in the revised resource plan spreadsheet. The revised resource plan identifies the estimated contractor and CHPB hours that need to be removed or added to those currently scheduled in EPM needed to perform the technical review and contractor oversight through Phase 4. Note that depending on how pending matters are resolved with the ESBWR DCD and North Anna R-COLA, there may be a need to add additional resources to evaluate these sections of the FSAR. Accordingly, CHPB reserves the option of opening a review of FSAR Sections as needed. If additional review is necessary, CHPB will provide an estimate of the level of effort, identify changes to the schedule in completing the incremental review, and compile the associated RAIs as warranted.

Review Dependencies

Detailed technical review of the River Bend COLA depends on the approval of ESBWR DCD, North Anna Unit 3 R-COLA, and the staff's review and approval of the following three Nuclear Energy Institute (NEI) draft Topical Reports:

- 07-03, "Generic FSAR Template Guidance for Radiation Protection Program Description,"
- 07-08, "Generic FSAR Template Guidance for Ensuring that Occupational Radiation Exposures Are As Low As Is Reasonably Achievable (ALARA),"
- 08-08, "Generic FSAR Template Guidance for Life Cycle Minimization of Contamination"

Since the River Bend application is a subsequent S-COLA, our detailed technical review depends on the review and approval of the GE/Hitachi ESBWR Design Control Document and the North Anna Unit 3 R-COLA. It should be noted that the River Bend S-COLA is based on an interim version of General Electric Hitachi's (GEH) application for the certification of ESBWR design (Revision 4). GEH issued Rev. 5 of the ESBWR DCD in May 2008. As a result, River Bend COLA is expected to be revised to reflect the NRC certification of the GEH ESBWR design and the approval of the North Anna Unit 3 COLA. At this time, it is not possible to determine the incremental impact on the level of effort and schedule of the River Bend COLA review associated with the issuance of the final NEI topical reports, and subsequent revisions to the DCD and the R-COLA.

Enclosures:

Table 1. Safety Analysis Report Acceptance Review Results for River Bend Unit 3 COLA

Distribution:

Non-Public CHPB r/f RidsNroOd RidsNroDcip RidsNroDcipChpb
ADAMS Accession No.: ML NRO-002

OFFICE	NRO/DCIP/CHPB	NRO/DCIP/CHPB	NRO/DCIP/CHPB:BC
NAME	KStreit	CHinson	TFrye
DATE	10/23/08	10/23/08	10/28/08

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Table 1: Safety Analysis Report Acceptance Review Results for River Bend COLA-Chapter 12

SAR Section: 12.1 ALARA
Branch Chief: T. Frye

Technical Branch: CHPB (Primary)
SRP Section: 12.1

Technical Reviewer: K. Streit
Date: 10/15/08

Does the section address the applicable regulations: **Yes**

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? **Yes** Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing				Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule				Review Dependencies Among Concurrent Reviews	
	2. Does COL section address the items required by regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is COL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC)? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.
RG 1.206, C.IV.1 item 3 CFR 52.79(a)	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites NEI Technical Reports (NEI 07-08 and 07-03) which are currently under review by staff.
RG 1.206, C.IV.1 item 39 CFR 52.79(a)	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites NEI Technical Reports (NEI 07-08 and 07-03) which are currently under review by staff.
Total this section	Yes	Yes	N/A		N/A	No	Section is standard to the RCOL.	N/A	No	Applicant cites the GE/Hitachi ESBWR DCD, Revision 4 for ALARA. Revision 5 of the DCD was issued in May 2008. The DCD is currently being reviewed by staff. Other Dependency: Review and Finalization of the North Anna Unit 3 R-COLA

Table 1: Safety Analysis Report Acceptance Review Results for River Bend COLA- Chapter 12 (cont.)

SAR Section: 12.2 Plant Sources
 Branch Chief: T. Frye

Technical Branch: CHPB (Primary)
 SRP Section: 12.2

Technical Reviewer: K. Streit
 Date: 10/15/08

Does the section address the applicable regulations: **Yes**

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? **Yes** Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing				Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule			Review Dependencies Among Concurrent Reviews		
	2. Does COL section address the items required by regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is COL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC)? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.
RG 1.206, C.IV.1 item 3 CFR 52.79(a)	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites the GE/Hitachi ESBWR DCD, Revision 4 as the design basis for radiation protection. Applicant also uses the standard supplement as specified in the North Anna Unit 3 R-COL.
Total this section	Yes	Yes	N/A		N/A	Yes		N/A	No	Applicant cites the GE/Hitachi ESBWR DCD, Revision 4 as the design basis for radiation protection. Revision 5 of the DCD was issued in May 2008. The DCD is currently being reviewed by staff. Other Dependency: Review and Finalization of the North Anna Unit 3 R-COLA

Table 1: Safety Analysis Report Acceptance Review Results for River Bend COLA- Chapter 12 (cont.)

SAR Section: 12.2.2
Branch Chief: T. Frye

Technical Branch: CHPB (Primary)
SRP Section: 11.2, 11.3, 11.4

Technical Reviewer: S. Williams
Date: 10/15/08

Does the section address the applicable regulations: **Yes**

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? **Yes** Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing					Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule			Review Dependencies Among Concurrent Reviews	
	2. Does COL section address the items required by regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is COL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC)? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.
RG 1.206, C.IV.1 item 16(i) CFR 52.79(a) & CFR 50.34a(d)	Yes	Yes	Yes		N/A	N/A		N/A	No	Applicant cites the GE/Hitachi ESBWR DCD, Revision 5 as the design basis for release of radioactive material. The DCD has not been reviewed and approved by staff. The applicant cites Revision 4 in Chapter 1, but uses Revision 5 in parts of Chapter 12. This will need clarification. Other Dependency: Review and Finalization of the North Anna Unit 3 R-COLA Applicant uses site specific atmospheric dispersion coefficients for development of off-site dose to members of the public. This area will require specific technical review.

Table 1: Safety Analysis Report Acceptance Review Results for River Bend COLA- Chapter 12 (cont.)

SAR Section: 12.2.2
Branch Chief: T. Frye

Technical Branch: CHPB (Primary)
SRP Section: 11.2, 11.3, 11.4

Technical Reviewer: S. Williams
Date: 10/15/08

Does the section address the applicable regulations: **Yes**

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? **Yes** Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing				Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule			Review Dependencies Among Concurrent Reviews		
	2. Does COL section address the items required by regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is COL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC)? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.
RG 1.206, C.IV.1 item 3 CFR 52.79(a)	No	No	Yes	For compliance with 10 CFR Part 20 Appendix B, Table 2 the COLA does not include provisions for the determination of the sum of ratios for mixed radionuclide concentrations	N/A			N/A	N/A	

Table 1: Safety Analysis Report Acceptance Review Results for River Bend COLA- Chapter 12 (cont.)

SAR Section: 12.2.2
Branch Chief: T. Frye

Technical Branch: CHPB (Primary)
SRP Section: 11.2, 11.3, 11.4

Technical Reviewer: S. Williams
Date: 10/15/08

Does the section address the applicable regulations: **Yes**

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? **Yes** Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing				Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule			Review Dependencies Among Concurrent Reviews		
	2. Does COL section address the items required by regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is COL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC)? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.
RG 1.206, C.IV.1 Item 39 CFR 52.79(a)	Yes	Yes	Yes	Compliance with 10 CFR 1302 are based on surveys conducted in accordance with the ODCM ,which is required by the Technical Specifications Section 5.5.1.This will require review of ODCM.				N/A	No	Applicant cites the GE/Hitachi ESBWR DCD, Revision 5 as the design basis for release of radioactive material. Revision 5 has not been reviewed and approved by staff. Other Dependency: Review and Finalization of the North Anna Unit 3 R-COLA

Table 1: Safety Analysis Report Acceptance Review Results for River Bend COLA- Chapter 12 (cont.)

SAR Section: 12.3 Radiation Protection
 Branch Chief: T. Frye

Technical Branch: CHPB (Primary)
 SRP Section: 12.3/12.4

Technical Reviewer: ERI/DMA
 Date: 10/15/08

Does the section address the applicable regulations: **Yes**

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? **Yes** Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing				Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule			Review Dependencies Among Concurrent Reviews		
	2. Does COL section address the items required by regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is COL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC)? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.
RG 1.206, C.IV.1 item 3 CFR 52.79(a)	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites GE/Hitachi ESBWR DCD, Revision 4, and the North Anna Unit 3 R-COLA
RG 1.206, C.IV.1 item 39 CFR 52.79(a)	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites GE/Hitachi ESBWR DCD, Revision 4, and the North Anna Unit 3 R-COLA
Total for this section	Yes	Yes	N/A		N/A	Yes		N/A	No	Applicant cites the GE/Hitachi ESBWR DCD, Revision 4 as the design basis for radiation protection. Revision 5 of the DCD was issued in May 2008. The DCD is currently being reviewed by staff. Other Dependency: Review and Finalization of the North Anna Unit 3 R-COLA and NEI template 08-08.

Table 1: Safety Analysis Report Acceptance Review Results for River Bend COLA- Chapter 12 (cont.)

SAR Section: 12.4 Dose Assessment
 Branch Chief: T. Frye

Technical Branch: CHPB (Primary)
 SRP Section: 12.3/12.4

Technical Reviewer: K. Streit
 Date: 10/15/08

Does the section address the applicable regulations: **Yes**

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? **Yes** Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing				Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule			Review Dependencies Among Concurrent Reviews		
	2. Does COL section address the items required by regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is COL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC)? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.
RG 1.206, C.IV.1 item 3 CFR 52.79(a)	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites GE/Hitachi ESBWR DCD, Revision 4, and the North Anna Unit 3 R-COLA
RG 1.206, C.IV.1 item 39 CFR 52.79(a)	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites GE/Hitachi ESBWR DCD, Revision 4, and the North Anna Unit 3 R-COLA
Total for this Section	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites the GE/Hitachi ESBWR DCD, Revision 4 as the design basis for radiation protection. Revision 5 of the DCD was issued in May 2008. The DCD is currently being reviewed by staff. Other Dependency: Review and Finalization of the North Anna Unit 3 R-COLA

Table 1: Safety Analysis Report Acceptance Review Results for River Bend COLA- Chapter 12 (cont.)

SAR Section: 12.5 Operational Rad Prot.
Branch Chief: T. Frye

Technical Branch: CHPB (Primary)
SRP Section: 12.5

Technical Reviewer: K. Streit
Date: 10/15/08

Does the section address the applicable regulations: **Yes**

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? **Yes** Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing				Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule			Review Dependencies Among Concurrent Reviews		
	2. Does COL section address the items required by regulation (refer to RG 1.206, Section C.IV.1)? (Yes/No)	3. Is COL section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC)? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.
RG 1.206, C.IV.1 item 3 CFR 52.79(a)	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites NEI Technical Reports (NEI 07-08 and 07-03) which are currently under review by staff..
RG 1.206, C.IV.1 item 39 CFR 52.79(a)	Yes	Yes	N/A		N/A	N/A		N/A	No	Applicant cites NEI Technical Reports (NEI 07-08 and 07-03) which are currently under review by staff.
Total this section	Yes	Yes	N/A	N/A	N/A	No	Section is standard to the RCOL.	N/A	No	Applicant cites the GE/Hitachi ESBWR DCD, Revision 4 as the design basis for radiation protection. Revision 5 of the DCD was issued in May 2008. The DCD is currently being reviewed by staff. Other Dependency: Review and Finalization of the North Anna Unit 3 R-COLA