

Concurrence Sheet

Phase 6 Final Safety Evaluation for the Advanced Power Reactor 1400 Design Certification Document Chapter 8, Electrical Systems

DOCKET NO. 52-046

Participant		Printed Name	Concurrence Date/Initials *via e-mail
Chapter Project Manager	NRO/DLSE/LB3	George Wunder	June 26, 2019
Licensing Assistant	NRO/DLSE/LB3	Sharon Green	August 8, 2019
Technical Branch Chief	NRR/DE/EEB	Tania Martinez-Navedo	August 6, 2019
OGC	OGC/GCHEA	Robert Weisman	August 13, 2019
Lead PM	NRO/DLSE/LB2	George Wunder	August 14, 2019
Licensing Branch Chief	NRO/DLSE/LB2	Jason Paige	August 18, 2019
Division Director	NRO/DLSE	Anna Bradford (Acting)	August 18, 2019

* Concurred by email.

**NLO by email

OFFICIAL RECORD COPY

1 From: Smith, Crystal

Sent: Thursday, June 28, 2018 10:55 PM

To: Santos, Cayetano; Kuhn, Tia; McCoppin, Michael; Ward, William; Betts, Ikeda

Subject: RE: LA review request - Chapter 18

Attachments: APR1400 Chp 18 (HFE)Draft FSER dated 6-20-18.docx

Tanny,

Attached is my reviewed version of Chapter 18, focusing on the changed material along with some random changes I thought were needed while scanning the document. Please address my comments and accept changes as you deem necessary. I did change "10 CFR" at the beginning of any sentence with Section. If Section is not correct, please adjust accordingly.

Per this email, I concur on the attached Chapter 18 SER.

Thanks,
Crystal

From: Santos, Cayetano

Sent: Monday, June 25, 2018 4:57 PM

To: Smith, Crystal <Crystal.Smith@nrc.gov>; Kuhn, Tia <Tia.Kuhn@nrc.gov>; McCoppin, Michael <Michael.McCoppin@nrc.gov>; Ward, William <William.Ward@nrc.gov>; Betts, Ikeda <Ikeda.Betts@nrc.gov>

Subject: RE: LA review request

Crystal

Attached is the file I originally sent. Please note that it contains proprietary information (the red bracketed text).

Tanny

2 From: Martin, Jody

Sent: Thursday, August 09, 2018 1:29 PM

To: Santos, Cayetano

Cc: Carpentier, Marcia; Vrahoretis, Susan; Nist, Lauren

Subject: RE: OGC-2018-2693 - OGC review APR1400 Chp 18 Phase 6

Thanks for the update Tanny.

With that information docketed, I NLO Chapter 18.

Best,

Jody

Jody C. Martin
Deputy Assistant General Counsel for
New Reactor Programs
Office of the General Counsel
U.S. Nuclear Regulatory Commission
301-287-9201
Jody.Martin@nrc.gov

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From: Santos, Cayetano

Sent: Monday, August 06, 2018 11:12 AM

To: Martin, Jody <Jody.Martin@nrc.gov>

Cc: Carpentier, Marcia <Marcia.Carpentier@nrc.gov>; Vrahoretis, Susan
<Susan.Vrahoretis@nrc.gov>; Nist, Lauren <lauren.nist@nrc.gov>

Subject: RE: OGC-2018-2693 - OGC review APR1400 Chp 18 Phase 6

Jody,

The staff has reviewed the submittal of a revised technical report and confirmed closure of the confirmatory item discussed in Chp 18 of the SER for the APR1400.

I am requesting OGC's NLO on this chapter.

Thanks

Tanny

From: Martin, Jody
Sent: Tuesday, July 03, 2018 1:55 PM
To: Santos, Cayetano <Cayetano.Santos@nrc.gov>
Cc: McCoppin, Michael <Michael.McCoppin@nrc.gov>; Vrahoretis, Susan <Susan.Vrahoretis@nrc.gov>; Carpentier, Marcia <Marcia.Carpentier@nrc.gov>; Ward, William <William.Ward@nrc.gov>
Subject: RE: OGC-2018-2693 - OGC review APR1400 Chp 18 Phase 6

Hi Tanny,

I have NLO to Chapter 18, subject to you confirming the highlighted language once revision 3 of the DCD is received.

Thanks,

Jody

Jody C. Martin
Deputy Assistant General Counsel for
New Reactor Programs
Office of the General Counsel
U.S. Nuclear Regulatory Commission
301-287-9201
Jody.Martin@nrc.gov

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From: OGC_NRP_Tickets Resource
Sent: Friday, June 29, 2018 11:06 AM
To: Martin, Jody <Jody.Martin@nrc.gov>
Cc: Greene, Latosha <LaTosha.Greene@nrc.gov>; Carpentier, Marcia <Marcia.Carpentier@nrc.gov>; Vrahoretis, Susan <Susan.Vrahoretis@nrc.gov>
Subject: FW: OGC-2018-2693 - OGC review APR1400 Chp 18 Phase 6

Latosha,

I am assigning this ticket to myself.

Thanks,

Jody

Jody C. Martin
Deputy Assistant General Counsel for
New Reactor Programs
Office of the General Counsel
U.S. Nuclear Regulatory Commission
301-287-9201
Jody.Martin@nrc.gov

[NOTE: This e-mail may contain ATTORNEY-CLIENT COMMUNICATIONS or ATTORNEY WORK-PRODUCT.
DO NOT RELEASE WITHOUT COMMISSION AUTHORIZATION.]

From: OGCMailCenter Resource
Sent: Friday, June 29, 2018 9:40 AM
To: OGC_NRP_Tickets Resource <OGC_NRP_Tickets.Resource@nrc.gov>
Subject: OGC-2018-2693 - OGC review APR1400 Chp 18 Phase 6

Leslie

From: Santos, Cayetano
Sent: Friday, June 29, 2018 8:12 AM
To: OGCMailCenter Resource <OGCMailCenter.Resource@nrc.gov>; Carpentier, Marcia <Marcia.Carpentier@nrc.gov>; Roach, Kevin <Kevin.Roach@nrc.gov>
Cc: McCoppin, Michael <Michael.McCoppin@nrc.gov>; Ward, William <William.Ward@nrc.gov>
Subject: Reply requested - OGC review APR1400 Chp 18 Phase 6

I am requesting OGC review of the Chp 18 Draft P6 (FSER) associated with the APR1400 design certification. Attached is a redline strikeout version showing changes made to the Phase 4 SER. Marcia Carpentier and Kevin Roach reviewed the Phase 4 version of this SER chapter.

A couple of things to note:

1. The bracketed red text is proprietary information copied from KHNP technical reports.
2. Highlighted text is draft confirmatory item closure language that will be confirmed once we receive Rev 3 of the DCD.

Please provide comments by Friday July 13, 2018.

Thank you

Cayetano (Tanny) Santos
301-415-7270





3 From: **McCoppin, Michael**
Sent: Tuesday, September 04, 2018 11:52 AM
To: Santos, Cayetano
Cc: Ward, William
Subject: APR1400 Ch 18 Phase 6 FSER

Tanny,

I concur, with minor edits, on the APR1400 Ch 18 Phase 6 FSER.

Mike McCoppin, MBA, PMP

Chief, Licensing Branch 2 (LB2)
Division of Licensing, Siting and Environmental Analysis (DLSE)
Office of New Reactors
United States Nuclear Regulatory Commission

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 Email: michael.mccoppin@nrc.gov

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4 From: Green, Brian

Sent: Wednesday, September 05, 2018 9:32 AM

To: Santos, Cayetano

Subject: RE: Reply requested - APR1400 Chp 18 FSER

Attachments: APR1400 Chp 18 (HFE) Draft FSER 8-31-18 BG comments for concurrence.docx

Hi Tanny,

Thanks for that file, that made it much easier.

Attached is a file that points out a few punctuation issues in track changes.

I concur on the P6 SER.

Is it safe to celebrate now? ☺

Brian

From: Santos, Cayetano

Sent: Wednesday, September 05, 2018 9:14 AM

To: Green, Brian <Brian.Green@nrc.gov>

Subject: RE: Reply requested - APR1400 Chp 18 FSER

Brian

The short answer is No. The biggest change of course was the closure of the confirmatory items.

The other changes are more editorial: hyperlinks were removed, ADAMS #s were updated, formatting etc.

To help you, I am attaching a comparison showing the difference between the Phase 4 final and what I gave you yesterday.

I hope it helps

Tanny

From: Green, Brian

Sent: Wednesday, September 05, 2018 9:03 AM

To: Santos, Cayetano <Cayetano.Santos@nrc.gov>

Subject: RE: Reply requested - APR1400 Chp 18 FSER

Hi Tanny,

Have there been any substantive changes since HOIB looked at this last?

I'm reading through and it looks pretty much the same.

Brian

From: Santos, Cayetano
Sent: Tuesday, September 04, 2018 8:39 AM
To: Green, Brian <Brian.Green@nrc.gov>; Nist, Lauren <lauren.nist@nrc.gov>
Cc: Ward, William <William.Ward@nrc.gov>; McCoppin, Michael <Michael.McCoppin@nrc.gov>
Subject: Reply requested - APR1400 Chp 18 FSER
Importance: High

Brian,

Attached is the Phase 6 (FSER) for Chp 18 of the APR1400 design certification review. I am requesting HOIB review and concurrence on this document by COB, Wednesday, September 5.

A copy can also be found in ADAMS at:

[APR1400 Chapter 18, "Human Factors Engineering." Final Safety Evaluation Report\(ML18116A099\)](#)

Sorry for the quick turnaround request.

Any questions, please let me know.

Tanny

5 From: Krohn, Paul

Sent: Friday, September 07, 2018 10:42 AM

To: Santos, Cayetano; Jones, William

Cc: Bradford, Anna; Taylor, Robert; McCoppin, Michael; Ward, William; Jimenez-Guzman, Jose; Green, Brian

Subject: RE: Reply requested - Review and Concurrence APR1400 FSER Chp 18

Attachments: APR1400 Chp 18 (HFE) Draft FSER 9-5-18 paul krohn comments.docx

Tanny,

I concur on APR1400 FSER Chapter 18. The attached track changes contains some very minor edits. Note that I found one acronym that needs to be defined and one 'purple' word that I made a suggestion to change.

Paul Krohn

From: Santos, Cayetano

Sent: Wednesday, September 05, 2018 10:27 AM

To: Jones, William <William.Jones@nrc.gov>; Krohn, Paul <Paul.Krohn@nrc.gov>

Cc: Bradford, Anna <Anna.Bradford@nrc.gov>; Taylor, Robert <Robert.Taylor@nrc.gov>; McCoppin, Michael <Michael.McCoppin@nrc.gov>; Ward, William <William.Ward@nrc.gov>; Jimenez-Guzman, Jose <Jose.Jimenez-Guzman@nrc.gov>; Green, Brian <Brian.Green@nrc.gov>

Subject: Reply requested - Review and Concurrence APR1400 FSER Chp 18

Importance: High

Bill/Paul,

I am requesting DCIP review and concurrence of the Phase 6 (Final SER) for Chapter 18, "Human Factors Engineering," of the APR1400 design certification by COB Monday, September 10. OGC has provided an NLO and HOIB has concurred.

The document is attached and can also be found in ADAMS using the link below:

[APR1400 Chapter 18, "Human Factors Engineering," Final Safety Evaluation Report](#)

Please let me know if you have any questions or comments,

Thank you,

Cayetano (Tanny) Santos
301-415-7270

6 From: Ward, William

Sent: Friday, September 07, 2018 1:20 PM

To: Santos, Cayetano

Cc: McCoppin, Michael

Subject: Ch 18 peer review.....

Attachments: APR1400 Ch 18 P6 SER ADAMS Version 13 WW-edits.docx

Tanny,

I apologize about the timing, but I completed a peer review on Ch 18. First, I'll say that the technical content is fine and I concur on the FSER. I do have a number of grammatical/vocabulary edits for you marked in the attached version. A lot of double-spacing issue, lack of 'Oxford' commas, and some other issues. Some of my edits may be in quoted sections. So, I understand if they are not incorporated. KHNP is simply not as proficient at English.

Bill

7 From: Santos, Cayetano
Sent: Monday, September 10, 2018 2:20 PM
To: Santos, Cayetano
Subject: RE: Reply requested - APR1400 Chp 18 FSER

I concur on the draft P6 FSER for chp 18.

From: Santos, Cayetano
Sent: Tuesday, September 04, 2018 8:39 AM
To: Green, Brian <Brian.Green@nrc.gov>; Nist, Lauren <lauren.nist@nrc.gov>
Cc: Ward, William <William.Ward@nrc.gov>; McCoppin, Michael <Michael.McCoppin@nrc.gov>
Subject: Reply requested - APR1400 Chp 18 FSER
Importance: High

Brian,

Attached is the Phase 6 (FSER) for Chp 18 of the APR1400 design certification review. I am requesting HOIB review and concurrence on this document by COB, Wednesday, September 5.

A copy can also be found in ADAMS at:

[APR1400 Chapter 18, "Human Factors Engineering," Final Safety Evaluation Report\(ML18116A099\)](#)

Sorry for the quick turnaround request.

Any questions, please let me know.

Tanny

From: Bradford, Anna
Sent: Friday, September 14, 2018 8:35 AM
To: Santos, Cayetano
Cc: Ward, William; McCoppin, Michael
Subject: RE: Reply requested - APR1400 FSER Chp 18

I concur.

Anna H. Bradford
Deputy Director
Division of Licensing, Siting, and Environmental Analysis
U.S. Nuclear Regulatory Commission
301-415-1560

From: Santos, Cayetano
Sent: Thursday, September 13, 2018 1:34 PM
To: Bradford, Anna <Anna.Bradford@nrc.gov>
Cc: Ward, William <William.Ward@nrc.gov>; McCoppin, Michael <Michael.McCoppin@nrc.gov>
Subject: RE: Reply requested - APR1400 FSER Chp 18

Anna,

Certainly. Attached is Chp 18.

Again, sorry for the confusion

Tanny

From: Bradford, Anna
Sent: Thursday, September 13, 2018 1:31 PM
To: Santos, Cayetano <Cayetano.Santos@nrc.gov>
Cc: Ward, William <William.Ward@nrc.gov>; McCoppin, Michael <Michael.McCoppin@nrc.gov>
Subject: RE: Reply requested - APR1400 FSER Chp 18

The concurrence was for the file that was attached.

Can you please re-send 18 to me so I don't have to dig to find it?

Anna H. Bradford
Deputy Director
Division of Licensing, Siting, and Environmental Analysis

U.S. Nuclear Regulatory Commission
301-415-1560

From: Santos, Cayetano
Sent: Thursday, September 13, 2018 1:21 PM
To: Bradford, Anna <Anna.Bradford@nrc.gov>
Cc: Ward, William <William.Ward@nrc.gov>; McCoppin, Michael <Michael.McCoppin@nrc.gov>
Subject: RE: Reply requested - APR1400 FSER Chp 18
Importance: High

Anna,

I just wanted to clarify something. The subject of my email was Chp 18 but the file I sent was actually Chp 14.

Is the concurrence in your email below for Chp 14?

If so when do you think you will be able to provide me your concurrence on 18?

My apologies for the confusion.

Tanny

From: Bradford, Anna
Sent: Wednesday, September 12, 2018 7:03 PM
To: Santos, Cayetano <Cayetano.Santos@nrc.gov>
Cc: Ward, William <William.Ward@nrc.gov>; McCoppin, Michael <Michael.McCoppin@nrc.gov>
Subject: RE: Reply requested - APR1400 FSER Chp 18

I concur.

Anna H. Bradford
Deputy Director
Division of Licensing, Siting, and Environmental Analysis
U.S. Nuclear Regulatory Commission
301-415-1560

From: Santos, Cayetano
Sent: Tuesday, September 11, 2018 4:36 PM
To: Bradford, Anna <Anna.Bradford@nrc.gov>
Cc: Ward, William <William.Ward@nrc.gov>; McCoppin, Michael

<Michael.McCoppin@nrc.gov>

Subject: Reply requested - APR1400 FSER Chp 18

Importance: High

Anna,

I request your review and concurrence of the Phase 6 (Final SER) for Chapter 14, "Verification Programs," of the APR1400 design certification by COB, Friday September 14. OGC has provided an NLO. Concurrences have been obtained from LB2 (Mike M.) and all of the technical divisions.

The document is attached and can also be found in ADAMS using the link below:

[APR1400 Chapter 14, "Verification Programs," Final Safety Evaluation Report\(ML18173A101\)](#)

Thanks

Tanny Santos