

From: [Kozak, Laura](#)
To: [Norton, Charles](#)
Subject: Re: Clinton regulatory conference - Friday
Date: Wednesday, November 28, 2018 2:57:40 PM

Thanks! I'm on a call. Lets talk tomorrow

From: Norton, Charles
Sent: Wednesday, November 28, 2018 2:33 PM
To: Kozak, Laura
Subject: RE: Clinton regulatory conference - Friday

I sent the message below before I was ready. We can talk with you before 3 pm today or any time you call tomorrow.

Chuck

From: Norton, Charles
Sent: Wednesday, November 28, 2018 2:31 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton regulatory conference - Friday

Jim and I went over the Clinton presentation together. We have some thoughts to share with you. (b)(5)

(b)(5)

From: Kozak, Laura
Sent: Wednesday, November 28, 2018 10:59 AM
To: Norton, Charles <Charles.Norton@nrc.gov>
Subject: Clinton regulatory conference - Friday

Chuck

I am delayed in looking at your issue because of the regulatory conference on Friday. Can I get back with you guys next week?

Also, I attached the Clinton presentation,. I would like to talk to you about it, given your Operator background and Fukushima background. Would you have time to take a look at it and talk with me later today or tomorrow?

Laura

From: [Kozak, Laura](#)
To: [Sanchez Santiago, Elba](#); [Phillips, Charles](#)
Subject: Seminar presentation next week
Date: Wednesday, November 28, 2018 10:54:34 AM
Attachments: [LCK shutdown safety.pptx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

Chuck, Elba

I'm still tweaking this presentation for next week but wanted to get any comments or suggestions that you might have on what to cover.

I'm planning to talk about shutdown safety in general, a little bit about the Clinton issue specifically, and some insights regarding FLEX and Risk-informed decision-making. John and I have two topics to cover in 1 hour, so I don't have a lot of time.

Suggestions?

Laura

From: [Kozak, Laura](#)
To: [West, Steven](#); [Roberts, Darrell](#); [Giessner, Jack](#); [PLL](#); [Lara, Julio](#); [O'Brien, Kenneth](#); [Shuaibi, Mohammed](#); [Riemer, Kenneth](#); [Stoedter, Karla](#); [Cameron, Jamnes](#); [Franovich, Mike](#); [Fong, CJ](#); [Mitman, Jeffrey](#); [Phillips, Charles](#); [Sanchez Santiago, Elba](#); [Sargis, Daniel](#)
Subject: Clinton regulatory conference
Date: Thursday, November 29, 2018 3:48:13 PM
Attachments: [Clinton Regulatory Conference SRA notes jtm.docx](#)

Note to requester: The attachment to this email has been redacted in its entirety under FOIA Ex. B5 (deliberative process privilege).

Jeff and I put together the attached one-page document.

The document covers what we think is new information, what we think are areas of disagreement but is not new information, and some important points to keep in mind during tomorrow's meeting.

If anyone has any questions before the conference, we will both be available. Please share this document as necessary with others for information.

Laura

Note to requester: The attachment to this email has been redacted in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: FW: Clinton Regulatory Conference SRA notes jtm.docx
Date: Thursday, November 29, 2018 1:04:00 PM
Attachments: [Clinton Regulatory Conference SRA notes jtm.docx](#)

From: Kozak, Laura
Sent: Thursday, November 29, 2018 12:35 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: Clinton Regulatory Conference SRA notes jtm.docx

Slightly revised

From: Mitman, Jeffrey
Sent: Thursday, November 29, 2018 9:34 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Clinton Regulatory Conference SRA notes jtm.docx

From: [Kozak, Laura](#)
To: [West, Steven](#); [Roberts, Darrell](#); [Giessner, John](#); [Louden, Patrick](#); [Lara, Julio](#); [O'Brien, Kenneth](#); [Shuaibi, Mohammed](#); [Franovich, Mike](#); [Fong, CJ](#); [Stoedter, Karla](#); [Cameron, Jamnes](#); [Riemer, Kenneth](#); [Phillips, Charles](#); [Sanchez Santiago, Elba](#); [Sargis, Daniel](#); [Mitman, Jeffrey](#); [Zoulis, Antonios](#); [Casey, Lauren](#)
Subject: FW: Comments on Exelon presentation
Date: Friday, November 30, 2018 8:12:00 AM
Attachments: [CPS Div 2 DG Reg Conf Presentation \(11-19-18\)\(2a\).pdf](#)

All

Jeff marked up the licensee procedure with some comments and highlighted areas of new information and points of disagreement.

See attached.

Laura

| |
|---|
| Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege). |
|---|

From: Mitman, Jeffrey
Sent: Thursday, November 29, 2018 7:46 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Zoulis, Antonios <Antonios.Zoulis@nrc.gov>
Subject: Comments on Exelon presentation

Laura,

As promised.

Jeff Mitman

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: one pager
Date: Thursday, November 29, 2018 11:23:00 AM
Attachments: [Clinton Regulatory Conference SRA notes jtm.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: RE: Clinton Regulatory Conference SRA notes jtm.docx
Date: Thursday, November 29, 2018 12:35:00 PM
Attachments: [Clinton Regulatory Conference SRA notes jtm.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

Slightly revised

From: Mitman, Jeffrey
Sent: Thursday, November 29, 2018 9:34 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Clinton Regulatory Conference SRA notes jtm.docx

From: [Kozak, Laura](#)
To: [Rodriguez, Lionel](#)
Subject: regulatory conference
Date: Friday, November 30, 2018 11:44:00 AM
Attachments: [Clinton Regulatory Conference SRA notes jtm.docx](#)
[CPS Div 2 DG Reg Conf Presentation \(11-19-18\)\(2a\).pdf](#)

Note to requester: The attachments to this email have been withheld in their entirety under FOIA Ex. B5 (deliberative process privilege).

Internal information only

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Sanchez Santiago, Elba](#)
To: [Kozak, Laura](#)
Cc: [Mitman, Jeffrey](#)
Subject: Clinton Regulatory Conference Notes.docx
Date: Monday, December 03, 2018 1:58:00 PM
Attachments: [Clinton Regulatory Conference Notes.docx](#)

Laura,

Attached are the notes I took during the Clinton reg conference. I know for a fact that there are at least 2 things missing. Mike Franovich and Jeff Mitman each requested something be addressed in the white paper, and I can't find those items in my notes.

Hope this helps.

Thanks,
Elba

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Sanchez Santiago, Elba](#)
Subject: regulatory conference information
Date: Monday, December 03, 2018 3:34:00 PM
Attachments: [Clinton Regulatory Conference Notes.docx](#)

I changed Elba's list a bit and rearranged into two sections 1) new information and 2) questions not necessarily related to new information.

Please provide any changes/additions. We'd like to get the list to the licensee tomorrow. Jeff, I'd like you to be on the phone with me. I think Julio would also like to attend the call.

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Sanchez Santiago, Elba](#)
Subject: Clinton discussion today
Date: Tuesday, December 04, 2018 7:23:00 AM
Attachments: [Clinton Regulatory Conference Notes rev 1.docx](#)

I cleaned the document up a bit – see attached for today's discussion.

I plan to run through the list – Jeff, you chime in as necessary.

Laura

Clinton Regulatory Conference Notes

(b)(5)

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: FW: CC-CL-118-1003.pdf
Date: Tuesday, December 04, 2018 3:39:00 PM
Attachments: [CC-CL-118-1003.pdf](#)

Note to requester: Attachment is a non-responsive record due to clarifying the request to exclude licensee originated documents.

FYI

From: Sanchez Santiago, Elba
Sent: Tuesday, December 04, 2018 2:42 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Cc: Phillips, Charles <Charles.Phillips@nrc.gov>
Subject: CC-CL-118-1003.pdf

Laura,

Attached is the Clinton FLEX implementation plan. The portion I was discussing with you is on page 24 and I highlighted the pertinent sections.

-Elba

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Phillips, Charles](#)
To: [Riemer, Kenneth](#)
Cc: [Kozak, Laura](#); [Sanchez Santiago, Elba](#); [St. Peters, Courtney](#)
Subject: Reg Conference mtg Summary draft
Date: Tuesday, December 11, 2018 9:38:22 AM
Attachments: [Reg Conference mtg Summary draft 1.docx](#)

Here is my draft. I think everything is here. If you want more detail let me know.

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Phillips, Charles](#)
To: [Riemer, Kenneth](#)
Cc: [Kozak, Laura](#); [Sanchez Santiago, Elba](#)
Subject: Reg Conference mtg Summary draft 3
Date: Tuesday, December 11, 2018 3:34:01 PM
Attachments: [Reg Conference mtg Summary draft 3.docx](#)

I added (or subtracted) all the comments to this draft.

From: [Kozak, Laura](#)
To: [Riemer, Kenneth](#); [Sanchez Santiago, Elba](#); [Mitman, Jeffrey](#); [Lara, Julio](#)
Subject: Re: RS-18-146 Exelon Evaluation of Preliminary White Finding
Date: Saturday, December 15, 2018 4:18:13 PM

Ken

I believe we need to respond in writing to this letter, only to address the later paragraph that names Jeff and me and characterizes the attachment as response to our questions, which it is not. Maybe a thank you letter that puts the information in the proper context. Our "questions" were seeking to understand the factual "new" information that Exelon had.

Remember, we are seeking the "new information" that the licensee was supposed to put on the docket prior to the regulatory conference which they did not. We were in a very awkward position by having to identify what was new and ask the licensee for it. Our mistake from not insisting on this back when the presentation was sent in.\

Laura

From: Riemer, Kenneth
Sent: Friday, December 14, 2018 3:27:44 PM
To: Sanchez Santiago, Elba; Kozak, Laura; Mitman, Jeffrey
Subject: RE: RS-18-146 Exelon Evaluation of Preliminary White Finding

(b)(5)

From: Sanchez Santiago, Elba
Sent: Friday, December 14, 2018 2:37 PM
To: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: FW: RS-18-146 Exelon Evaluation of Preliminary White Finding

Attached is the licensee's white paper and their response to our post reg conference questions. As the title of the document indicates, this document contains only attachments 1 and 2. The bulk of the information related to our questions are in attachments 3 - 15. Those attachments total over 2000 pages and will be sent in the form of a disc to Laura and Jeff. They will also be sent as hardcopies to the R3 RA office and document control desk in HQ.

From: Gaynor, Ellen M:(GenCo-Nuc) [<mailto:Ellen.Gaynor@exeloncorp.com>]
Sent: Friday, December 14, 2018 2:15 PM
Cc: ken.evans@illinois.gov; jason.fields@illinois.gov; steven.reynolds@illinois.gov; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>
Subject: [External_Sender] RS-18-146 Exelon Evaluation of Preliminary White Finding

Thank you!
Have a great weekend.

Ellen Gaynor
OSS – Licensing

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From: [Lara, Julio](#)
To: [Riemer, Kenneth](#); [Kozak, Laura](#)
Cc: [Louden, Patrick](#)
Subject: Clinton internal comms
Date: Monday, December 17, 2018 11:51:54 AM
Attachments: [image002.png](#)

Ken,

I think we should be more proactive in internal comms with respect to the Clinton Prelim-White finding. Such comms would help all internal stakeholders appreciate the pending actions, schedules, and our view of the information submitted by Exelon. This will help Steve/Darrell/Jack as well when communicating with NRR, and OEDO. We should be able to get something out by tomorrow.

Please keep jeff and laura informed as this summary is developed.

Something like:

(b)(5)

(b)(5)

Julio Lara, P.E.
Deputy Director
Division of Reactor Projects, RIII
630-829-9601



From: [Kunowski, Michael](#)
To: [ALL R3](#)
Cc: [Cook, Christopher](#)
Subject: Daily Meeting Notes Monday December 17
Date: Monday, December 17, 2018 9:15:53 AM

The Daily Morning Meeting News for Monday, December 17, 2018

Regional Duty Officer: Mike Kunowski; incoming, Ann Marie

Teleconference Number: (800) 779-9565; Passcode: (b)(6)

Note: This newsletter may contain pre-decisional info. Do not distribute outside the NRC.

Highlight of the week/Leadership Model: Receptivity to New Ideas & Thinking

Support Issues:

RA: Steve is in the office on Tuesday and Wednesday; 11:30 tomorrow, pizza farewell for him; Entergy drop-in tomorrow to talk in generalities about Palisades

DRP:

DRS:

DNMS:

DRMA: executive leadership training tomorrow for team leads and above

EICS: ARB today and a modified panel for a materials case this week

STATES: (b)(5)

PAO: (b)(5)

(b)(5) NMP 1 became the oldest commercial plant in the country at 49 years old; and Bulletin of Atomic Scientists had an article on radwaste. See [NRC in the News Today](#)

Materials Events/Issues:

Reactor Events:

Plant Status

BRANCH 1 (Ken Riemer)

Clinton: 2000-page response received Friday on the two EDG OOS issue. After the staff has reviewed it, an internal caucus will be held to determine if it changes the

proposed escalated enforcement.

Dresden:

U2:

U3:

LaSalle:

U1:

U2:

Quad Cities:

U1:

U2:

BRANCH 2 (Darius Szwarc)

Davis-Besse: (b)(5)

Duane Arnold:

Palisades: (b)(5)

Perry:

BRANCH 3 (Pete Peterson)

Braidwood:

Byron:

Monticello:

Prairie Island:

U1:

BRANCH 4 (Eric Duncan)

DC Cook:

Fermi: (b)(5)

(b)(5)

Point Beach:

U1:

U2: (b)(5)

(b)(5)

NRR:

Additional Support Issues –

Other Issues –

Personnel News –

Daily Notes/Preliminary Notification –

One Week Look Ahead

Post 8:15 Meeting Topics –

From: [Riemer, Kenneth](#)
To: [Kozak, Laura](#); [Phillips, Charles](#)
Subject: Proposed Clinton Comm Plan
Date: Monday, December 17, 2018 3:00:28 PM
Attachments: [Communication Plan.Clinton.docx](#)

See attached – feel free to change as necessary

Communication Plan

Clinton preliminary White EDG Finding and Violation

(b)(5)

(b)(5)

From: [Kozak, Laura](#)
To: [Lara, Julio](#); [Riemer, Kenneth](#)
Cc: [Louden, Patrick](#)
Subject: RE: Clinton internal comms
Date: Monday, December 17, 2018 12:39:24 PM
Attachments: [image001.png](#)

I'd like to see the communication before it goes out.

From my perspective, the NRC performed a comprehensive preliminary significance determination that involved significant interactions with the licensee and appropriately considered many of the licensee's positions presented at the regulatory conference. We knew at the preliminary SERP and going into the conference that the licensee disagreed with our evaluation and many of the assumptions. We were/are open to new technical and risk information to consider, but I hope we do not revisit known areas of disagreement for which there is no new information.

It was the licensee's obligation to provide the technical and risk information on the docket prior to the regulatory conference, which they did not do. Now we have received information – some of which is new, but most of it is not. However, we will need to go through it to determine what is new.

As a reminder below I have pasted an excerpt from the SERP package where we summarized the licensee's disagreements. We have discussed these at length internally.

The licensee performed an evaluation of the finding and concluded that the risk significance of the finding was of very low safety significance (approximately E-8).

In comparing the licensee evaluation to the NRC detailed risk evaluation the following differences were noted:

Diesel Generator 2 recovery – The licensee's HEP for failing to recovery the diesel generator was 4.6E-3. This HEP is very optimistic compared to the NRC HEP and is approximately a factor of 200 less than the data/statistically based value. The licensee evaluation concludes that human error is dominated by execution. Diagnosis of the condition was viewed as obvious and virtually certain to occur. The current NRC view is that diagnosis is the dominant error mode, but that diagnosis and execution of recovery actions has a high likelihood of success.

The licensee's evaluation used a reduced LOOP frequency. Switchyard LOOPS were removed from the estimate based on the licensee's judgment that the switchyard was protected.

The licensee developed an event tree similar to the phase 2 event tree and estimated branch failure probabilities.

The licensee's estimates for FLEX and cross-tie failure are not substantially different from the NRC's, but are slightly more optimistic.

In general, the licensee stated that there would be high assurance of the recovery of AC power because of the late shutdown condition with extra time to core damage and extra staffing due to the outage. The licensee stated that the efforts for recovery, FLEX, and the cross-tie would be performed in parallel, due to the staffing

From: Lara, Julio

Sent: Monday, December 17, 2018 11:52 AM

To: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>

Cc: Loudon, Patrick <Patrick.Loudon@nrc.gov>

Subject: Clinton internal comms

Ken,

I think we should be more proactive in internal comms with respect to the Clinton Prelim-White finding. Such comms would help all internal stakeholders appreciate the pending actions, schedules, and our view of the information submitted by Exelon. This will help Steve/Darrell/Jack as well when communicating with NRR, and OEDO. We should be able to get something out by tomorrow.

Please keep jeff and laura informed as this summary is developed.

Something like:

(b)(5)



(b)(5)

Julio Lara, P.E.
Deputy Director
Division of Reactor Projects, RIII
630-829-9601



From: [Kozak, Laura](#)
To: [Riemer, Kenneth](#); [Phillips, Charles](#)
Cc: [Cameron, James](#)
Subject: RE: Proposed Clinton Comm Plan
Date: Monday, December 17, 2018 3:41:00 PM
Attachments: [Communication Plan.Clinton LCK.docx](#)

Here are my suggested changes.

Separately – I shared with Julio my view that we should not be calling Exelon. We've had many opportunities to communicate with the licensee what appropriate interaction looks like, including at the regulatory conference, and we did not take them. Too late now, let's just move forward with the review.

From: Riemer, Kenneth
Sent: Monday, December 17, 2018 3:00 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>
Subject: Proposed Clinton Comm Plan

See attached – feel free to change as necessary

Communication Plan

Clinton preliminary White EDG Finding and Violation

(b)(5)

(b)(5)

From: [Kozak, Laura](#)
To: [Cameron, Jamnes](#); [Riemer, Kenneth](#)
Subject: RE: response to Exelon
Date: Monday, December 17, 2018 2:09:25 PM
Attachments: [Clinton Regulatory Conference information request.docx](#)

(b)(5)



From: Cameron, Jamnes
Sent: Monday, December 17, 2018 1:57 PM
To: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Re: response to Exelon

(b)(5)



From: Riemer, Kenneth
Sent: Monday, December 17, 2018 10:54:32 AM
To: Kozak, Laura; Cameron, Jamnes
Subject: RE: response to Exelon

(b)(5)



From: Kozak, Laura

Sent: Monday, December 17, 2018 8:55 AM

To: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>

Subject: response to Exelon

See attached for some input to a response letter.

Clinton Regulatory Conference Notes

New information: 5 areas of new information to be considered.

Battery Life

- Battery life extension evaluation to support 24 hour battery life

Recovery of the DG

- Copy of training material referenced in slide 9 "Assumption 13"
- Copy of the completed questionnaires sent to the 28 SROs as referenced in slide 18
Copy of the completed surveys provided to the six CPS shift managers referenced on slide 18
- Copy of time validation described in slide 19
- Copy of the DG air start flow path training referenced in slide 26

Isolation of SDC

- Copy of procedure(s) and training (including shutdown simulator exercises) that would direct closure of the shutdown cooling valves as referenced in slide 10
- Copy of HEP analysis for operator action to close the shutdown cooling valves referenced in slide 45

Pressure Control

- Copy of procedures and training (including shutdown simulator exercises) to support maintaining RPV pressure below 100 psig without low pressure injection as discussed on slide 45.

Division 3 Cross-tie

- Copy of time validations for evolutions described in slides 10 (cross-tie)

Questions (not necessarily related to new information):

- Any additional shutdown SBO training? If so provide training materials.
- Would the control room annunciators be impacted by the DC load shed?
- When would SAE and GE be declared for a shutdown SBO? How would this impact personnel availability?
- Any additional FLEX or cross-tie training materials to provide?
- What was the water level in the reactor vessel during the timeframe when both Division 1 and Division 2 diesels were unavailable?
- Exelon indicated that the credit we were giving re FLEX was inconsistent with the NRC FLEX SER. Please supplies details.

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton - ELAP
Date: Tuesday, December 18, 2018 6:15:00 AM
Attachments: [image001.png](#)

Jeff

(b)(5)

Laura

- 28 SROs from other stations (including non-Exelon) were given CPS procedures and scenarios that recreated the postulated scenario
 - All SROs stated that they remain in the LOOP procedure and NOT enter ELAP

From: [Kozak, Laura](#)
To: [Riemer, Kenneth](#)
Subject: Clinton
Date: Wednesday, December 19, 2018 11:43:00 AM
Attachments: [Communication Plan.Clinton LCK.docx](#)

I made some significant changes – see attached.

Communication Plan

Clinton preliminary White EDG Finding and Violation

(b)(5)

(b)(5)

From: [Lara, Julio](#)
To: [West, Steven](#); [Roberts, Darrell](#); [Giessner, Jack](#)
Cc: [Shuaibi, Mohammed](#); [O'Brien, Kenneth](#); [PLL](#)
Subject: Clinton Prelim White finding - Status Update
Date: Wednesday, December 19, 2018 1:25:10 PM
Attachments: [Clinton PrelimWhite CommPlan.docx](#)
[image003.png](#)

FYI.

Later today we will forwarding the attached status update on Clinton to internal stakeholders.

Julio Lara, P.E.
Deputy Director
Division of Reactor Projects, RIII
630-829-9601

logo-emails-1



December 19, 2018

Communication Plan

Clinton preliminary White EDG Finding and Violation

(b)(5)



(b)(5)

From: [Cameron, Jamnes](#)
To: [Lambert, Kenneth](#)
Cc: [Lara, Julio](#); [Shuaibi, Mohammed](#)
Subject: Re: EA-18-104; Clinton
Date: Wednesday, December 19, 2018 12:06:46 PM

Thanks Ken!

----- Original Message -----

From: "Lambert, Kenneth" <Kenneth.Lambert@nrc.gov>
Date: Wed, December 19, 2018 10:15 AM -0600
To: "Cameron, Jamnes" <Jamnes.Cameron@nrc.gov>
Subject: EA-18-104; Clinton

Jamnes,

(b)(5)

Ken

Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission
630-810-4376
kenneth.lambert@nrc.gov

From: [Kozak, Laura](#)
To: [Aird, David](#); [Garmoe, Alex](#); [Zoulis, Antonios](#)
Cc: [Helton, Donald](#)
Subject: FW: Clinton Prelim White finding - Status Update
Date: Wednesday, December 19, 2018 4:16:00 PM
Attachments: [Clinton PrelimWhite CommPlan.docx](#)
[image003.png](#)

FYI. Let me know if you have any questions.

From: Lara, Julio
Sent: Wednesday, December 19, 2018 4:11 PM
To: Franovich, Mike <Mike.Franovich@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Groom, Jeremy <Jeremy.Groom@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>; Felts, Russell <Russell.Felts@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Loudon, Patrick <Patrick.Loudon@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Jamnes Cameron <hironori.peterson>
Subject: Clinton Prelim White finding - Status Update

Update status and comm plan for Clinton prelim White finding.

Please forward to other internal stakeholders as appropriate.

Thanks
julio

Julio Lara, P.E.
Deputy Director
Division of Reactor Projects, RIII
630-829-9601



December 19, 2018

Communication Plan

Clinton preliminary White EDG Finding and Violation

(b)(5)



(b)(5)

From: [Kozak, Laura](#)
To: [Fong, CJ](#)
Cc: [Mitman, Jeffrey](#)
Subject: RE: 255 day deadline
Date: Wednesday, December 19, 2018 11:18:00 AM

(b)(5)

Laura

From: Fong, CJ
Sent: Wednesday, December 19, 2018 11:15 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: 255 day deadline

(b)(5)

Thanks,

CJ Fong, P.E.

Chief, PRA Oversight Branch (APOB)
Division of Risk Assessment
Office of Nuclear Reactor Regulation
(301) 415-8474

From: [Giessner, John](#)
To: [Kozak, Laura](#)
Subject: RE: Clinton - declaration of ELAP
Date: Wednesday, December 19, 2018 12:59:05 PM
Attachments: [image002.png](#)

Thank you! Yes.

(b)(5)

From: Kozak, Laura
Sent: Wednesday, December 19, 2018 10:19 AM
To: Giessner, John <John.Giessner@nrc.gov>
Subject: Clinton - declaration of ELAP

(b)(5)

From: [Mitman, Jeffrey](#)
To: [Lara, Julio](#)
Cc: [Kozak, Laura](#); [Fong, CJ](#)
Subject: RE: Clinton Prelim White finding - Status Update
Date: Wednesday, December 19, 2018 4:25:02 PM
Attachments: [Clinton PrelimWhite CommPlan itm.docx](#)
[image001.png](#)

Julio, thanks for the write-up. I've made a few suggested changes to it for your consideration.

Jeff Mitman

From: Lara, Julio
Sent: Wednesday, December 19, 2018 5:11 PM
To: Franovich, Mike <Mike.Franovich@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Groom, Jeremy <Jeremy.Groom@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>; Felts, Russell <Russell.Felts@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Loudon, Patrick <Patrick.Loudon@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Jamnes Cameron <hironori.peterson>
Subject: Clinton Prelim White finding - Status Update

Update status and comm plan for Clinton prelim White finding.

Please forward to other internal stakeholders as appropriate.

Thanks
julio

Julio Lara, P.E.
Deputy Director
Division of Reactor Projects, RIII
630-829-9601



December 19, 2018

Communication Plan

Clinton preliminary White EDG Finding and Violation

(b)(5)



(b)(5)

Note to requester: The second attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Stoedter, Karla](#)
To: [Riemer, Kenneth](#)
Subject: Timeline of Events for Preliminary White Finding.docx
Date: Wednesday, December 19, 2018 3:30:18 PM
Attachments: [Timeline of Events for Preliminary White Finding.docx](#)
[Clinton EDG Unavailability IFRB rev2.docm](#)

Ken,

Here is the timeline. It doesn't include the planning SERP which Laura likely has the date for.

The IFRB package with the 255 date is on the G drive, branch 1, Clinton, 2018 EDG inoperability during outage. I attached it so you wouldn't have to find it.

Karla

90-Day Clock Timeline for Clinton Power Station Division 2 EDG Preliminary White Finding

| Date | Event |
|---------------|---|
| 05/17/2018 | Clinton Power Station discovers the Division 2 EDG was inoperable while the Division 1 EDG was out of service for planned maintenance placing the unit in a shutdown risk yellow condition due to electrical power unavailability. |
| 05/25/2018 | Region 3 completes MD 8.3 evaluation and concludes a Special Inspection is warranted. |
| 05/29/2018 | Region 3 management decides to launch SIT in late June to allow licensee to focus on reactor restart activities, complete corrective actions, and to support the completion of a previously scheduled 95001 inspection. |
| 06/25-29/2018 | <p>Region 3 conducts Special Inspection at Clinton to review cause of EDG inoperability and licensee corrective actions. The inspectors identify that a failure to follow multiple procedures led to the Division 2 EDG being incorrectly restored to service on May 11, 2018. A senior reactor analyst from Region 3 and a risk analyst from HQ traveled to the site to support the team during the inspection.</p> <p>The inspectors hold exit meeting to discuss the above finding and two other findings.</p> |
| 07/19/2018 | IFRB agrees with proposed performance deficiency regarding the failure to follow multiple procedures and the need to perform a detailed risk evaluation. |
| 08/03/2018 | Re-exit completed with the licensee. 120 Day Upfront Metric Met. |
| 08/23/2018 | <p>Special Inspection Report is issued including a finding with a TBD significance and a corresponding apparent violation of 10 CFR 50, Appendix B, Criterion V and TS 3.8.2.</p> <p>NRR/DRA performs detailed risk evaluation with regional SRA support including a review of the licensee's 500+ page risk evaluation.</p> <p>90 Day ROP Clock Starts</p> |
| 09/11/2018 | Region 3 risk analyst and HQ risk analyst travel to Clinton Station to explain our risk model to the licensee's PRA staff and obtain feedback. |
| 09/20/2018 | SERP held. SERP agrees with moving forward with preliminary white finding. |
| 09/26/2018 | Region 3 informs Clinton Power Station of SERP decision and plans to formally communicate the SERP results by phone call prior to issuing the "choice" letter. |
| 11/21/2018 | 90 Day ROP clock expires |

From: [Kozak, Laura](#)
To: [Lara, Julio](#); [Louden, Patrick](#); [Riemer, Kenneth](#); [Cameron, Jamnes](#); [Stoedter, Karla](#); [Shuaibi, Mohammed](#); [O'Brien, Kenneth](#); [Hanna, John](#)
Cc: [Mitman, Jeffrey](#); [Franovich, Mike](#); [Fong, CJ](#); [Groom, Jeremy](#); [Dickson, Billy](#)
Subject: Clinton
Date: Thursday, December 20, 2018 7:53:38 AM

(b)(5)

(b)(5)

Note to requester: Attachment is a non-responsive record due to clarifying the request to exclude licensee originated documents.

From: [Kozak, Laura](#)
To: [Phillips, Charles](#)
Cc: [Mitman, Jeffrey](#)
Subject: Clinton
Date: Thursday, December 20, 2018 11:06:00 AM
Attachments: [2017 Training Material on DG Air Start Flow Path.pdf](#)

Chuck

Could you take a quick look at the attached? Exelon sent this material to demonstrate the training on the air start system. Please look in particular at pages 56 and 57. Are the valves that are the subject of the PD even on the diagrams?

Thanks
Laura

From: [Kozak, Laura](#)
To: [Phillips, Charles](#)
Subject: Clinton post regulatory conference information
Date: Thursday, December 20, 2018 8:28:00 AM
Attachments: [exelon letter.pdf](#)
[SRO Surveys \(redacted\).pdf](#)
[CPS Shift Manager Surveys Regarding ELAP Scenarios \(redacted\).pdf](#)

Note to requester: Attachments are non-responsive records due to clarifying the request to exclude licensee originated documents.

Chuck

I am concerned about the completeness and accuracy of the information that Clinton provided. Would like a sanity check from you?

Attached is the letter, the SRO (not Clinton) surveys, and the Clinton shift manager surveys. I tried to highlight the areas of conflict. Please read the letter first, then the other documents.

Thanks
Laura

From: [Kozak, Laura](#)
To: [Lara, Julio](#); [PLL](#); [Riemer, Kenneth](#); [Cameron, Jamnes](#); [Stoedter, Karla](#); [Shuaibi, Mohammed](#); [O'Brien, Kenneth](#); [Hanna, John](#)
Cc: [Mitman, Jeffrey](#); [Franovich, Mike](#); [Fong, CJ](#); [Groom, Jeremy](#); [Dickson, Billy](#)
Subject: Clinton
Date: Thursday, December 20, 2018 7:53:38 AM

(b)(5)

- g. The resource burden to perform an SDP analysis is normally considered appropriate if it increases stakeholder understanding of the basis for potentially risk significant conditions, especially when an inspection finding is believed to be greater than Green. However, it is appropriate due to SDP timeliness considerations for the staff to cease further effort to refine or review an analysis, acknowledge the limitations and uncertainties, and proceed to a final determination using best available information and reasonable technical or

Issue Date: 06/16/16 6 0308 Attachment 3

probabilistic judgments. When making the decision to continue further review, especially when the additional review will cause an issue to be untimely, it is essential for the analysts and decision makers to keep in perspective that the purpose of the SDP assessment is to determine what action the staff should take (e.g., supplemental inspection) as a result of the inspection finding. Experience with the SDP since its inception has shown that the resources expended for additional reviews are often not commensurate with the final risk significance determination of the degraded condition and the additional actions taken by the staff.

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: FW: Omitted Pages
Date: Thursday, December 20, 2018 12:31:00 PM
Attachments: [Attachment 6 - Omitted Interview Pages.pdf](#)

Note to requester: Attachment is a non-responsive record due to clarifying the request to exclude licensee originated documents.

I will put on share point

From: Sanders, Garrett R:(GenCo-Nuc) [mailto:Garrett.Sanders@exeloncorp.com]
Sent: Thursday, December 20, 2018 12:29 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>
Cc: Shelton, Dale A:(GenCo-Nuc) <Dale.Shelton@exeloncorp.com>
Subject: [External_Sender] Omitted Pages

Laura/Elba,

The omitted pages from Attachment 6 (Exelon Letter RS-18-146) are provided in the attached.

Please let me know if you have any questions or require further information on the attached.

Garrett Sanders
Clinton Power Station
Regulatory Assurance
(217) 937-2803

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From: [Kozak, Laura](#)
To: [Giessner, John](#)
Subject: FW: response to Exelon
Date: Thursday, December 20, 2018 4:26:24 PM
Attachments: [Clinton Regulatory Conference information request.docx](#)

(b)(5)

From: Kozak, Laura
Sent: Monday, December 17, 2018 2:09 PM
To: Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>
Subject: RE: response to Exelon

(b)(5)

From: Cameron, Jamnes
Sent: Monday, December 17, 2018 1:57 PM
To: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Re: response to Exelon

(b)(5)

From: Riemer, Kenneth
Sent: Monday, December 17, 2018 10:54:32 AM
To: Kozak, Laura; Cameron, Jamnes
Subject: RE: response to Exelon

(b)(5)

From: Kozak, Laura

Sent: Monday, December 17, 2018 8:55 AM

To: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>

Subject: response to Exelon

See attached for some input to a response letter.

Clinton Regulatory Conference Notes

New information: 5 areas of new information to be considered.

Battery Life

- Battery life extension evaluation to support 24 hour battery life

Recovery of the DG

- Copy of training material referenced in slide 9 "Assumption 13"
- Copy of the completed questionnaires sent to the 28 SROs as referenced in slide 18
Copy of the completed surveys provided to the six CPS shift managers referenced on slide 18
- Copy of time validation described in slide 19
- Copy of the DG air start flow path training referenced in slide 26

Isolation of SDC

- Copy of procedure(s) and training (including shutdown simulator exercises) that would direct closure of the shutdown cooling valves as referenced in slide 10
- Copy of HEP analysis for operator action to close the shutdown cooling valves referenced in slide 45

Pressure Control

- Copy of procedures and training (including shutdown simulator exercises) to support maintaining RPV pressure below 100 psig without low pressure injection as discussed on slide 45.

Division 3 Cross-tie

- Copy of time validations for evolutions described in slides 10 (cross-tie)

Questions (not necessarily related to new information):

- Any additional shutdown SBO training? If so provide training materials.
- Would the control room annunciators be impacted by the DC load shed?
- When would SAE and GE be declared for a shutdown SBO? How would this impact personnel availability?
- Any additional FLEX or cross-tie training materials to provide?
- What was the water level in the reactor vessel during the timeframe when both Division 1 and Division 2 diesels were unavailable?
- Exelon indicated that the credit we were giving re FLEX was inconsistent with the NRC FLEX SER. Please supplies details.

From: [Cameron, Jamnes](#)
To: [Kozak, Laura](#); [Lara, Julio](#); [Louden, Patrick](#); [Rierner, Kenneth](#); [Stoedter, Karla](#); [Shuaibi, Mohammed](#); [O'Brien, Kenneth](#); [Hanna, John](#)
Cc: [Mitman, Jeffrey](#); [Franovich, Mike](#); [Fong, CJ](#); [Groom, Jeremy](#); [Dickson, Billy](#)
Subject: Re: Clinton
Date: Thursday, December 20, 2018 9:49:17 AM

(b)(5)

From: Kozak, Laura
Sent: Thursday, December 20, 2018 7:53:36 AM
To: Lara, Julio; Louden, Patrick; Rierner, Kenneth; Cameron, Jamnes; Stoedter, Karla; Shuaibi, Mohammed; O'Brien, Kenneth; Hanna, John
Cc: Mitman, Jeffrey; Franovich, Mike; Fong, CJ; Groom, Jeremy; Dickson, Billy
Subject: Clinton

(b)(5)

(b)(5)

A large rectangular area is redacted, indicated by a black border. The text "(b)(5)" is located in the top-left corner of this redacted area.

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: HEPs Quantification
Date: Friday, December 21, 2018 4:03:01 PM

In our ongoing debate/argument on HEP quantification, I thought we might use comparisons to existing and non-controversial HEPs. For example, when Exelon states that our crosstie value of 23% is too large because it is straightforward and well trained, we can compare it to the value for placing SPC inservice (in 10 hours) of 5E-4, manually starting RCIC of 2E-3, or failure to depressurize during a MLOCA of 2E-2.

If we had time, we could ask SROs (both internal and external) to do one to one comparisons of the HEPs we're interested in against 3 or 4 non-controversial HEPs. For example:

Is the crosstie 1) less, 2) about the same or 3) more likely to fail than SPC?

Is the crosstie 1) less, 2) about the same or 3) more likely to fail than depressurization?

Is the crosstie 1) less, 2) about the same or 3) more likely to fail than manually starting RCIC?

This comparison way of illustrating HEP values might reduce some of the misunderstanding.

(b)(5)

(b)(5)

Jeff Mitman

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Ruiz, Robert](#)
To: [DRPIII](#); [DRSIII](#)
Cc: [Heck, Jared](#); [Mitlyng, Viktoria](#); [Chandrathil, Prema](#)
Subject: End of Cycle Operating Experience Report
Date: Monday, December 31, 2018 1:38:50 PM
Attachments: [EOC OE Note-2019.pdf](#)

All,

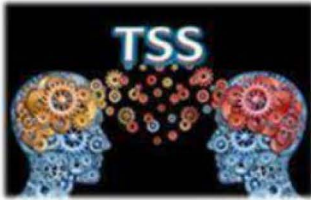
Please find the attached OpE report for your reference, as we will be discussing this during the EOC meetings.

The purpose of this Note is to provide information on relevant OpE issues evaluated over the past year that should be considered in the inspection planning process because of their potential safety significance and relevance across the industry.

Note: there are a couple Region III sites mentioned.

Please be prepared to talk about these insights (if they apply to you) and any other insights you may have on industry trends.

Thank you!
Rob Ruiz
Region III OpE Coordinator



Note to requester: Attachment is a non-responsive record due to clarifying the request to exclude licensee originated documents.

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: FW: C1R18 SSMP (FINAL) (002).pdf
Date: Tuesday, June 05, 2018 9:03:00 AM
Attachments: [C1R18 SSMP \(FINAL\) \(002\).pdf](#)

FYI – Clinton's shutdown risk plan for the outage.

From: Sanchez Santiago, Elba
Sent: Monday, June 04, 2018 4:38 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: C1R18 SSMP (FINAL) (002).pdf

Laura,

You were correct. There was a page missing in what I sent you. Attached is the full document. I apologize for the confusion.

Thanks,
Elba

From: [Lara, Julio](#)
To: [Miller, Chris](#); [Franovich, Mike](#); [Wilson, George](#)
Subject: RE: Outreach: Post Clinton EDG SERP regroup
Date: Tuesday, February 19, 2019 11:23:00 AM

I can support 12 EST, on thurs

Thanks!

From: Miller, Chris
Sent: Tuesday, February 19, 2019 10:20 AM
To: Franovich, Mike <Mike.Franovich@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Subject: Re: Outreach: Post Clinton EDG SERP regroup

Fully support. Thursday noon EST works
for me. Thanks Mike
chris

On: 18 February 2019 17:00,
"Franovich, Mike" <Mike.Franovich@nrc.gov> wrote:

SES only

Julio, George, and Chris,

(b)(5)

In the spirit of moving forward, I have a very short, options based proposal in the works that will hopefully resolve the impasse. My goal is to avert a lengthy second SERP meeting by achieving management alignment before-hand. There are some management perspectives and dynamics from each of our vantage points that may be best discussed amongst ourselves.

If we could have a discussion later this week and possibly strategize, it would be greatly appreciated. I will share the three options (includes White and Green) in advance of the discussion. Looking at your calendars I checked what could be available. Perhaps lunch-time (EST) this **Thursday** may work.

Best,

Mike

Note to requester: The attachments to this email have been withheld in their entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Lambert, Kenneth](#)
To: [Lara, Julio](#); [Orlikowski, Robert](#); [O'Brien, Kenneth](#); [Sanfilippo, Nathan](#); [Roberts, Darrell](#); [Giessner, John](#); [Kozak, Laura](#); [Hanna, John](#)
Cc: [Sanchez Santiago, Elba](#); [Sargis, Daniel](#); [Phillips, Charles](#); [Mancuso, Joseph](#); [St. Peters, Courtney](#); [Alvarado Guilloty, Diana](#)
Subject: FW: NRR Areas of Disagreement for Clinton Follow-up SERP (EA-18-104)
Date: Tuesday, February 26, 2019 3:05:00 PM
Attachments: [DRA Areas of Disagreement Clinton.docx](#)
[DIRS Areas of Disagreement Clinton.docx](#)

Attached are the NRR DRA and DIRS position papers for the Clinton follow-up SERP on Thursday.

Ken

Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission
630-810-4376
kenneth.lambert@nrc.gov

From: Casey, Lauren
Sent: Tuesday, February 26, 2019 2:26 PM
To: Marshfield, Mark <Mark.Marshfield@nrc.gov>; Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Cc: Torres, Edgardo <edgardo.torrescollazo@nrc.gov>
Subject: NRR Areas of Disagreement for Clinton Follow-up SERP (EA-18-104)

Good afternoon,

Attached for OE and Region III's distribution are NRR's areas of disagreement for discussion at Thursday's follow-up SERP.

Thank you,

Lauren R. Casey
NRR Enforcement Coordinator
U.S. Nuclear Regulatory Commission
301-415-1038

From: [Lara, Julio](#)
To: [Lambert, Kenneth](#)
Subject: Clinton_FinalSERP_R3.pdf
Date: Wednesday, February 27, 2019 8:44:00 AM
Attachments: [Clinton_FinalSERP_R3.pdf](#)
Importance: High

Ken,

Pls forward as appropriate.

Thanks
Julio

February 27, 2019

Clinton Preliminary White Finding (EA-18-104)
Region III Comments - J. Lara

(b)(5)



From: [Lambert, Kenneth](#)
To: [Lara, Julio](#); [Orlikowski, Robert](#); [O'Brien, Kenneth](#); [Sanfilippo, Nathan](#); [Roberts, Darrell](#); [Giessner, John](#); [Kozak, Laura](#); [Hanna, John](#); [Cameron, James](#)
Cc: [Sanchez Santiago, Elba](#); [Sargis, Daniel](#); [Phillips, Charles](#); [Mancuso, Joseph](#); [St. Peters, Courtney](#); [Alvarado Guilloty, Diana](#); [Marshfield, Mark](#)
Subject: FW: Updated Clinton OE Input
Date: Wednesday, February 27, 2019 7:20:17 AM

Folks,

See the emails below regarding OE's position on the Clinton EDG issue for tomorrow's follow-up SERP

Ken

Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission
630-810-4376
kenneth.lambert@nrc.gov

From: Marshfield, Mark
Sent: Wednesday, February 27, 2019 6:40 AM
To: Casey, Lauren <Lauren.Casey@nrc.gov>; Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Subject: Updated Clinton OE Input

More data from George.

Mark M.

From: Wilson, George
Sent: Wednesday, February 27, 2019 7:38 AM
To: Marshfield, Mark <Mark.Marshfield@nrc.gov>
Subject: Re: NRR Areas of Disagreement for Clinton Follow-up SERP (EA-18-104)

(b)(5)

On: 27 February 2019 06:32,
"Wilson, George" <George.Wilson@nrc.gov> wrote:

My one pager is included in DRA Mike Franovick's but only the first two concerns

On: 27 February 2019 06:15,
"Marshfield, Mark" <Mark.Marshfield@nrc.gov> wrote:

George,

Paul asked me to resend this, this morning.

Mark M.

From: Marshfield, Mark
Sent: Tuesday, February 26, 2019 3:36 PM
To: Wilson, George <George.Wilson@nrc.gov>
Cc: Peduzzi, Francis <Francis.Peduzzi@nrc.gov>; Peralta, Juan <Juan.Peralta@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: FW: NRR Areas of Disagreement for Clinton Follow-up SERP (EA-18-104)

George,

NRR has provided the following documents for your review prior to the panel on Thursday, 2/28.

They request that you provide to Lauren Casey for distribution your "one-pager" for review by their voting members.

Thank you,
Mark Marshfield
OE/EB

I have printed out copies for George and provided to Nasreen since his e-mail address is apparently not working.

From: Casey, Lauren
Sent: Tuesday, February 26, 2019 3:26 PM
To: Marshfield, Mark <Mark.Marshfield@nrc.gov>; Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Cc: Torres, Edgardo <edgardo.torrescollazo@nrc.gov>
Subject: NRR Areas of Disagreement for Clinton Follow-up SERP (EA-18-104)

Good afternoon,

Attached for OE and Region III's distribution are NRR's areas of disagreement for discussion at Thursday's follow-up SERP.

Thank you,

Lauren R. Casey
NRR Enforcement Coordinator

U.S. Nuclear Regulatory Commission
301-415-1038

From: [Lara, Julio](#)
To: [Giessner, John](#)
Cc: [Roberts, Darrell](#)
Subject: FW: Clinton SERP
Date: Thursday, February 28, 2019 8:35:00 AM

This thought is in Mike Franovich's paper.

He broached with me last night in our conversation.

Have not given it much thought till now

From: Miller, Chris
Sent: Thursday, February 28, 2019 8:07 AM
To: Lara, Julio <Julio.Lara@nrc.gov>
Subject: Clinton SERP

Hi Julio,

(b)(5)

thanks
chris
Christopher Miller
Director, Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
301-415-1004

Note to requester: Attachment is a non-responsive record due to clarifying the request to exclude licensee originated documents.

From: [Lara, Julio](#)
To: [Franovich, Mike](#); [Miller, Chris](#); [Wilson, George](#)
Subject: RE: Clinton - Outline of Final Significance Determination Response rev 1.docx
Date: Thursday, February 28, 2019 8:52:00 AM
Attachments: [1456_001.pdf](#)
[image001.png](#)

All,

I am attaching the most recent End of CYcle package for Clinton.

Based on Chris' and Mikes feedback, perhaps we could start with an overall summary of Clinton performance.

Im running in-between meetings.

From: Franovich, Mike
Sent: Thursday, February 28, 2019 8:46 AM
To: Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Subject: RE: Clinton - Outline of Final Significance Determination Response rev 1.docx

(b)(5)



From: Lara, Julio
Sent: Wednesday, February 27, 2019 6:36 PM
To: Franovich, Mike <Mike.Franovich@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Subject: Clinton - Outline of Final Significance Determination Response rev 1.docx

Gents,

The original email which provided SERP information contained 2 files: SERP package and

an outline of a proposed Final SDP letter (assuming White significance).

I am not sure if we as SERP members have focused on the second file, which I am attaching to this email.

I have taken the liberty to highlight some specific text in BLUE relating to some of the issues before us. A quick read of the document may provide further background analysis to further expand on the summarized points within the SERP package.

Thanks
Julio

Julio Lara, P.E.
Division Director
Division of Reactor Projects, RIII
630-829-9600



From: [Kozak, Laura](#)
To: [Riemer, Kenneth](#)
Subject: Clinton
Date: Thursday, January 03, 2019 8:42:00 AM
Attachments: (b)(5)

Ken

This is draft. I extracted the important statements from our inspection report, the licensee presentation, the licensee cover letter and white paper. Then I extracted the relevant statements from the SROs. Finally, I drafted a 50.9 violation. I bolded the most important statements.

I will try to talk to Jared this week.

Laura

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton
Date: Thursday, January 03, 2019 1:55:00 PM
Attachments: [image001.png](#)

Jeff

Happy New Year! I'm back at work whenever you are in and want to talk. I was reviewing the battery calculation briefly today. (b)(5)

(b)(5)

Laura

(b)(5)

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: Clinton
Date: Thursday, January 03, 2019 8:26:00 AM
Attachments: (b)(5)

This is draft, but you can see some of the relevant statements.

I bolded the most important statements.

From: [Kozak, Laura](#)
To: [Riemer, Kenneth](#); [Lara, Julio](#)
Subject: FW: Clinton
Date: Thursday, January 03, 2019 10:27:00 AM
Attachments: [CLI 2018_051 ERRATA \(non-public\).docx](#)
[CPS Div 2 DG Reg Conf Presentation \(11-19-18\)\(01\).pdf](#)
[RS-18-146 \(Attachments 1 and 2\).pdf](#)
[SRO Surveys \(redacted\).pdf](#)
[Clinton incomplete and inaccurate.docx](#)

Note to requester: Attachments are either non-responsive records due to clarifying the request to exclude licensee originated documents or have has been withheld in their entirety under FOIA Ex. B5 (deliberative process privilege).

FYI

From: Kozak, Laura
Sent: Thursday, January 03, 2019 10:11 AM
To: Heck, Jared <Jared.Heck@nrc.gov>
Subject: Clinton

Jared

(b)(5)



Please take a look and let's discuss further.

Laura

From: [Kozak, Laura](#)
To: [Lara, Julio](#); [Orlikowski, Robert](#)
Cc: [Hanna, John](#)
Subject: Fw: Clinton SDP Hours
Date: Saturday, April 06, 2019 9:19:02 AM

(b)(5)



(b)(5)



Laura

From: Aird, David

Sent: Friday, April 5, 2019 11:21 AM

To: Kozak, Laura

Cc: Mitman, Jeffrey; Miller, Chris; Dickson, Billy; Bowman, Gregory; Garmoe, Alex; Aird, David

Subject: Clinton SDP Hours

Laura,

Just got finished aggregating the hours charged for the Clinton White finding (EA-18-104). The totals are shown in the table below. As a reminder, these are only the billable hours charged by primarily Jeff and yourself. Other support (i.e., management time, OE, DIRS staff) is not available. The data is discretized by the individual staff member on a per day basis. If there are additional/alternative slices of the data that you think would be helpful, please let me know.

| Report | Activity | Hours |
|--|---|--------------|
| Reactive Rpts: Clinton - 2018050 (SIT - TBD) | FB-OR-INSPECTION SIGNIFICANCE DETERMINATION PROCESS (SDP) | 235.75 |
| Reactive Rpts: Clinton - 2018051 (Prelim White) | FB-OR-INSPECTION SIGNIFICANCE DETERMINATION PROCESS (SDP) | 182.75 |
| Final Determination - 2018092 (Final White) | FB-OR-INSPECTION SIGNIFICANCE DETERMINATION PROCESS (SDP) | 448 |
| Grand Total | | 886.5 |

Regards,

Dave

From: [Ng, Raymond](#)
To: [Bogedain, Doni](#)
Subject: RE: Clarification of boiler plate wording on violations
Date: Monday, January 07, 2019 11:53:00 AM

(b)(5)

(b)(5)

Thanks,

Raymond Ng
Project Engineer
Division of Reactor Projects, RIII
630-829-9574

From: Bogedain, Doni

Sent: Monday, January 07, 2019 10:20 AM

To: Ng, Raymond <Raymond.Ng@nrc.gov>

Subject: Clarification of boiler plate wording on violations

Hi Ray,

(b)(5)



Thanks!

Doni Bogedain

U.S. Nuclear Regulatory Commission

Fermi 2 and Davis-Besse Resident Inspector Office Assistant

630-829-9987 (Fermi)

630-829-9983 (Davis-Besse)

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton
Date: Monday, January 07, 2019 9:29:00 AM
Attachments: (b)(5)

This is FYI. I will update you when we talk.

Laura

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton schedule
Date: Tuesday, January 08, 2019 6:50:52 AM
Attachments: [January 8 Clinton update.docx](#)

Jeff

I'd like to send an update on the review to SERP members and other interested parties. What do you think of the attached?

Laura

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton update
Date: Tuesday, January 08, 2019 3:47:42 PM
Attachments: [January 8 Clinton update.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

see attached

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton battery life
Date: Wednesday, January 09, 2019 8:09:00 AM

Jeff

(b)(5)



Your call, but I wanted to share those thoughts.

Laura

From: [Kozak, Laura](#)
To: [Lambert, Kenneth](#); [Hanna, John](#)
Subject: FW: Clinton SDP update
Date: Wednesday, January 09, 2019 10:44:00 AM
Attachments: [January 8 Clinton update.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

FYI

From: Kozak, Laura

Sent: Tuesday, January 08, 2019 3:56 PM

To: Lara, Julio <Julio.Lara@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>; O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Stoedter, Karla <Karla.Stoedter@nrc.gov>; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Groom, Jeremy <Jeremy.Groom@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>

Subject: Clinton SDP update

Please see the attached schedule for review of Clinton information provided December 14. A brief update on our progress is also provided.

Our goal is to complete the review and revised risk evaluation by January 31 for a SERP in early February

Please contact me or Jeff with any questions.

Laura

From: [Helton, Donald](#)
To: [Gibbs, Russell](#)
Cc: [Garmoe, Alex](#)
Subject: Bi-weekly SDP Highlights
Date: Friday, July 20, 2018 4:18:00 PM

Russ,

It's that time again...

- (b)(5)
- Clinton EDG SDP has a planning SERP next week. IFRB conclusion was to have HQ perform a DRE.
- ROP Public meeting on July 19th went well – no adverse reaction to the 0609 activities, with some good questions being asked about the Appendix D revision out for public comment
- The Appendix D external comment period has been extended through September 20, based on a request from NEI
- Planning/activity continued on preparing some clarifying guidance on how to process TI-193 SDPs, sun-setting of Appendix O, slides for the DDCM SDP briefing, etc.
- (b)(5)

Since I'm out for much of the next 2 weeks, and since you'll be in the office in August, I'll suspend these bi-weekly updates until you go to Japan in September...

Hope all is well.
Don

From: Helton, Donald
Sent: Friday, July 06, 2018 3:11 PM
To: Gibbs, Russell <Russell.Gibbs@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: Bi-weekly SDP Highlights

Russ,

I realize you are on leave, but for the sake of cadence, here are your bi-weekly highlights:

- Antonios Zoulis has been named as See-Meng's replacement.
- 0609 Appendix D has gone out for external comment.
- 0609 Appendix I has gone out for internal comment.
- I received your comments on the draft of 0609 Appendix M, and we'll factor these in when we address the totality of the internal comments. Separately, the CTA brief on the 0609M extension request went smoothly.

I think that hits the high points... Hope you are enjoying your leave,
Don

From: [Helton, Donald](#)
To: [Gibbs, Russell](#)
Subject: RE: Bi-weekly SDP Highlights
Date: Monday, August 20, 2018 11:20:00 AM

Will do.

From: Gibbs, Russell
Sent: Monday, August 20, 2018 11:15 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: RE: Bi-weekly SDP Highlights

(b)(5)



We three should meet with David to offer our individual perspectives. Please Don add this meeting to the transition plan you develop.

Thanks!

From: Helton, Donald
Sent: Friday, August 17, 2018 3:59 PM
To: Gibbs, Russell <Russell.Gibbs@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: RE: Bi-weekly SDP Highlights

My understanding is that David Aird (starting in mid-September) will take over a lot of the day-to-day things I've been working on. David has PRA experience (master's under Ali Mosleh and a few years doing ASP analyses), and a little inspection experience, so that should be a good fit. I'll be coming up with a simple transition plan in the coming few weeks to try and get everyone on the same page as to who is doing what and when...

From: Gibbs, Russell
Sent: Friday, August 17, 2018 3:55 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>

Subject: Re: Bi-weekly SDP Highlights

As always lots going in with the SDP Program! Gotta talk to Greg about what he's thinking on who will take over when you leave as I will be in Japan. And now I'm working Transformation. Without help, that's a full plate. Right Akex!

On: 17 August 2018 15:40,
"Helton, Donald" <Donald.Helton@nrc.gov> wrote:

Russ,

Resuming the habit after a layoff from vacation...

- SDPs:
 - Clinton EDG SDP ongoing; SERP in September
 - Fermi RHR SW SDP underway; IFRB is next week
 - Peach Bottom (2 issues) still at regional level
- 0609 Appendix I and M internal comment periods ended; lot of feedback from R3 on M; I should be made publicly available (draft) next week
- 0609 Appendix H should go out for internal comment in the next week or so
- 0609 Appendix O – NRR/DLP+DRA+DIRS division management agreed with sun-setting as part of Appendix A revision
- DDCM presentation on FLEX – you saw the slides
- Discussing 0609 FBF status (think red DIRS metric) with Chris/Mike on 8/28
- CTA brief requested (to be on 8/30) on AP1000 ROP (including SDP changes)

Cheers,
Don

From: Helton, Donald
Sent: Friday, July 20, 2018 4:19 PM
To: Gibbs, Russell <Russell.Gibbs@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: Bi-weekly SDP Highlights

Russ,

It's that time again...

- (b)(5)
- Clinton EDG SDP has a planning SERP next week. IFRB conclusion was to have

HQ perform a DRE.

- ROP Public meeting on July 19th went well – no adverse reaction to the 0609 activities, with some good questions being asked about the Appendix D revision out for public comment
- The Appendix D external comment period has been extended through September 20, based on a request from NEI
- Planning/activity continued on preparing some clarifying guidance on how to process TI-193 SDPs, sun-setting of Appendix O, slides for the DDCM SDP briefing, etc.
- (b)(5)

Since I'm out for much of the next 2 weeks, and since you'll be in the office in August, I'll suspend these bi-weekly updates until you go to Japan in September...

Hope all is well.
Don

From: [Helton, Donald](#)
To: [Garmoe, Alex](#)
Subject: RE: Clinton SERP?
Date: Thursday, September 06, 2018 10:09:00 AM

OK. I sensitized Laura to the metric discussion between DIRS and Ho, and to the standing agenda item during the bi-weekly call... She plans to proceed as she has been (unless/until directed otherwise), but to make sure her management is sufficiently aware of the status/constraints for the 9/14 and 9/28 bi-weeklies...

Thanks for making me aware...

From: Garmoe, Alex
Sent: Wednesday, September 05, 2018 5:34 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: Clinton SERP?

(b)(5)

From: Helton, Donald
Sent: Wednesday, September 05, 2018 5:26 PM
To: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: RE: Clinton SERP?

I do not know (though my guess is that the answer is no). The Clinton SDP is squarely in HQ's domain thanks to the planning SERP and the HQ-led DRE, and that one is on a better success path at the moment. The Fermi SDP wouldn't really be on our radar yet if it weren't for the fact that I was involved at one point consulting as a SME (wearing my RES hat). That one's dicier, and as always, will be fundamentally affected by whether it is GTG or not.

Do you want me to give Laura a call tomorrow and let her know that the SDP timeliness metric is getting lots of attention on this end, and her management might get a question on the 9/14 call?

From: Garmoe, Alex
Sent: Wednesday, September 05, 2018 3:18 PM
To: Helton, Donald <Donald.Helton@nrc.gov>

Subject: RE: Clinton SERP?

Don,

I apologize in advance for jumping ahead of you a bit, (b)(5)

(b)(5)

Anyway, Greg was wondering if Region III was planning to use the standing SDP metric time on the bi-weekly DD Friday call agenda to discuss these two items. I don't know – do you?

Thanks,
Alex

From: Helton, Donald

Sent: Tuesday, September 04, 2018 2:58 PM

To: Garmoe, Alex <Alex.Garmoe@nrc.gov>

Subject: RE: Clinton SERP?

Agreed on the timing in your 1st paragraph.

Agree on your remarks in the 2nd paragraph. (b)(5)

(b)(5)

From: Garmoe, Alex

Sent: Tuesday, September 04, 2018 2:53 PM

To: Helton, Donald <Donald.Helton@nrc.gov>

Subject: RE: Clinton SERP?

Sounds good – probably best to do the SDP items right up front at the ROP meeting (around 9am eastern) so you'll be free in time to attend the SERP, which can hopefully be around 10:30am eastern.

(b)(5)

(b)(5)

From: Helton, Donald
Sent: Tuesday, September 04, 2018 2:48 PM
To: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: RE: Clinton SERP?

OK. That will represent a conflict for me if the Clinton SERP does occur that day, but so be it. I'll go to the ROP Monthly for the portion on SDP (including my remarks obviously), and hopefully it won't overlap completely with the SERP.

For what it is worth, below are my "key messages" based on today's and past discussions with Laura about those 2 SDPs:

Clinton:

- SDP arises from June 2018 SIT and relates to both EDGs unavailable during shutdown operations
- IFRB and Planning SERP held in July; HQ (DRA) has lead for the DRE
- Analysis is proceeding in a timely fashion, but meeting the SDP metric will be tight
- NRC evaluation may differ significantly from the licensee's, with HRA modeling assumptions being the key difference
- SERP tentatively planned for September 20th

(b)(5)

From: Garmoe, Alex
Sent: Tuesday, September 04, 2018 2:40 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: Clinton SERP?

Yes, the ROP monthly is going to be 9/20 in the morning. We're hoping it will be a half day meeting but the list of agenda topics is still being developed.

From: Helton, Donald
Sent: Tuesday, September 04, 2018 2:39 PM
To: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: RE: Clinton SERP?

What timing...I was planning to reach out to you about this...I talked with Laura this morning, and it looks like the SERP will be on 9/20 @ 9 or 9:30 (subject to change of course). That means it potentially conflicts with the ROP Monthly. Was that going to be in the AM?

(b)(5)

From: Garmoe, Alex

Sent: Tuesday, September 04, 2018 2:07 PM

To: Helton, Donald <Donald.Helton@nrc.gov>

Subject: Clinton SERP?

Don,

Have you heard if the Clinton SERP has been scheduled or any insights on where the risk numbers are coming out? I recall the target was a SERP sometime this month.

Thanks,
Alex

From: [Helton, Donald](#)
To: [Garmoe, Alex](#)
Subject: RE: SRA Call
Date: Monday, September 17, 2018 3:37:00 PM

(b)(5)

SDPs ongoing for Catawba (voltage regulator), Palo Verde (main steam isolation), and River Bend (water in EDG lube oil)...none are clearly GTG at this point...

From: Garmoe, Alex
Sent: Monday, September 17, 2018 3:25 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: SRA Call

Don,

I did hop on about half way through the SRA call, after the regions had already reported out. (b)(5)

(b)(5)

(b)(5) Anything to add or correct?

Thanks,
Alex

From: [Helton, Donald](#)
To: [Aird, David](#)
Subject: RE: Turnover 2 - Revenge of the Dashboard!
Date: Monday, September 24, 2018 11:21:00 AM

As I'll keep saying, be vocal about asking for help and telling me when to get out of the way.

I assume you are getting a new number (only because Shana is getting a new number when she moves to 3WFN next week)? I tried to call you a little while ago on your old number, since my phone said that your call to me this AM had come in on that number, but to no avail. That said, I'm not convinced I know how to use this new phone yet, so it could've been my error.

From: Aird, David
Sent: Monday, September 24, 2018 10:55 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: Turnover 2 - Revenge of the Dashboard!

Don,

Thanks for trying to set me up for success. I am definitely feeling overwhelmed and selfishly would like to stay longer to help with the transition. I want to tread water before people expect me to start swimming.

That aside, I agree with the division of work you proposed. Each meeting we setup or attend helps me gain context and familiarity.

Now if only you could make my VoIP phone work...

Dave

From: Helton, Donald
Sent: Monday, September 24, 2018 10:33 AM
To: Aird, David <David.Aird@nrc.gov>
Subject: Turnover 2 - Revenge of the Dashboard!

David,

We've reached that point where (for the next couple of weeks) it will be difficult for us, much less others, to know who has what. So that at least you and I can be on the same page, I've migrated [my overall tracking list](#) (the thing we've been walking through in our turnover meetings) to Sharepoint. Between that, and the [SDP Revs "Dashboard"](#) it should provide a two-stop shop as to who has the lead. In general, I've gone ahead and treated you as the lead for most things, with the following exceptions:

1. The ACRS Leading Indicators activity – the ACRS meeting is on October 4th, and I'll hand that off afterward (though our role is pretty narrow to begin with)
2. The ongoing Clinton SDP – When the Choice letter goes out (next week?) will be a

good time to transition that

3. The ongoing Fermi SDP – At this point I'm actually only really involved b/c of my RES duties (it is still at the Regional level); the SERP (nominally in early October) will be a good time to transition this
4. (b)(5)
5. DIRS lead for IMC 0609 Appendix H – Since I was pretty involved in formulating the actual changes, it probably makes sense for me to hang on to it until we receive and triage internal comment
6. DIRS lead for IMC 0609 Appendix M – Per Greg's request, I'll retain this until January...
7. SERP training – very little activity here, and we'll transition once we've reached this part of the turnover list on Thursday
8. SDP Desktop Guide – Let's talk Thursday...if I can carve out the time, me taking the first crack might be a good way to trigger thoughts of things that I've forgotten to mention to you....

Don't hesitate to speak up if you think I've gone too far in re-assigning things now, or if you think I'm hanging on to things that I shouldn't be. The above notwithstanding, I'll obviously continue to participate and provide context as best I can on the full spectrum of activities.

Thanks,
Don

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Don Helton
Division of Inspection and Regional Support (Rotational)
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
(301) 415-1545

From: [Helton, Donald](#)
To: [Leech, Matthew](#); [Aird, David](#)
Subject: RE: Clinton timeline and 6595 item
Date: Wednesday, September 26, 2018 11:23:00 AM

(b)(5)

From: Leech, Matthew
Sent: Wednesday, September 26, 2018 11:20 AM
To: Helton, Donald <Donald.Helton@nrc.gov>; Aird, David <David.Aird@nrc.gov>
Subject: RE: Clinton timeline and 6595 item

I haven't heard about the FERMI SDP....what's the 30 second run down on that one?

From: Helton, Donald
Sent: Wednesday, September 26, 2018 11:17 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>; Leech, Matthew <Matthew.Leech@nrc.gov>; Ng, Ching <Ching.Ng@nrc.gov>; Kichline, Michelle <Michelle.Kichline@nrc.gov>
Subject: Clinton timeline and 6595 item

Jeff,

2 follow-ups from the meeting this morning:

1. The timeline I have for the Clinton SDP is below. Certainly let me know if you know something different.
2. (b)(5)



so I wonder...

Don

| THESE ARE UNOFFICIAL VALUES | | | | | |
|--|--|--|---------------------------|------------|--|
| | | As of IFRB on 7/19 | As of Planning SERP | Current | Notes |
| Inspection- related dates | Event/Condition Report Date | 5/17/2018 | | | |
| | Date Reactive Inspection Need Determined | ~5/24/18 | | | Have not confirmed the actual date with the Region |
| | SIT Entrance Meeting | 6/20/2018 | | | |
| | SIT Inspection Exit Meeting | 6/29/2018 | | | |
| | Re-exit | TBD | TBD | 8/3/2018 | |
| | SIT Inspection Report Issued | TBD | TBD | 8/23/2018 | |
| ROP and Traditional Enforcement Metrics | Reactive Inspection Initiation metric [E-2] | Met by 6/20/18 entrance due to lag between discovery of condition on 5/17/18 and when the Region determined that a reactive inspection was required | | | 30 days from the determination a reactive inspection is required |
| | ROP inspection timeliness metric [E-4] | 9/14/2018 | | | 120 days from issue identification date |
| | ROP report issue metric [O-1] | 10/31/2018 (est. assuming full E-4 time is used) | | 9/17/2018 | 45 days from final exit on the PD |
| | Enforcement action metric | 10/27/2018 | | 12/1/2018 | 120 days from final exist on the PD |
| | ROP SDP metric [E-5] | 1/29/2019 (est. assuming full E-4 and O-1 time is used) | | 11/21/2018 | 90 days from inspection report issuance |
| | 255-day overall target to complete all activity | 1/29/2019 | | | 255 days from the discovery of the event/condition |
| SDP-related Milestones | Initial DRE/SERP Package Ready for Review | 8/29/2018 | 8/29/2018 | 9/13/2018 | |
| | SERP | - | 9/13/2018 | 9/20/2018 | |
| | Choice letter issued | - | 9/26/2018 | 10/2/2018 | |
| | Regulatory Conference | - | 10/27/2018 | 11/9/2018 | |
| | Final Determination Letter Issued | - | 11/10/2018 | 11/23/2018 | |

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Don Helton
Division of Inspection and Regional Support (Rotational)
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
(301) 415-1545

From: [Kozak, Laura](#)
To: [Helton, Donald](#)
Subject: RE: Fermi responses from 9/28 phone call
Date: Monday, October 01, 2018 1:47:15 PM

#1, (b)(5)

(b)(5)

#2, I think you might have mis-heard. I wanted the systems that would remain available.

#3, I have to review later too. Must write that Clinton letter!

Thanks for being so on top of this and helpful.

Laura

From: Helton, Donald
Sent: Monday, October 01, 2018 12:30 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Fermi responses from 9/28 phone call

Thanks.

(b)(5)

Thx,
Don

From: Kozak, Laura
Sent: Monday, October 01, 2018 1:07 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: FW: Fermi responses from 9/28 phone call

From: Michael J Koenemann [<mailto:michael.koenemann@dteenergy.com>]

Sent: Monday, October 01, 2018 11:36 AM

To: Kozak, Laura <Laura.Kozak@nrc.gov>

Cc: Michael A Lake <michael.lake@gteenergy.com>

Subject: [External_Sender] Fermi responses from 9/28 phone call

Hi Laura,

Here are responses for the information you asked for on the 9/28 phone call:

(b)(5)



(b)(5)

From: [Helton, Don](#)
To: [Helton, Don](#)
Subject: SRA Call
Date: Monday, January 14, 2019 4:20:51 PM

Region 1: Chris

- (b)(5)
- Commissioner Caputo was visiting R-1 and interacted with Frank...mostly met with senior management

Region 2: Scott

- (b)(5)
-
-
-

Region 3: John/Laura

- Still working on Clinton White finding

Region 4:

- (b)(5)

DIRS:

- (b)(5)
-

RES:

- (b)(5)

DRA:

- (b)(5)
-
-
-

From: [Garmoe, Alex](#)
To: [Bowman, Gregory](#)
Subject: FW: Clinton - Path forward
Date: Tuesday, February 19, 2019 9:23:00 AM

I'm more comfortable with Chris's proposed approach – meeting with DRA and discussing with the Region before meeting with Ho. Any consideration of qualitative factors cannot be fully considered without the Region involved since they would have the most facts to feed into the qualitative considerations.

From: Miller, Chris
Sent: Tuesday, February 19, 2019 9:21 AM
To: Casey, Lauren <Lauren.Casey@nrc.gov>
Cc: Dickson, Billy <Billy.Dickson@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Bowman, Gregory <Gregory.Bowman@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: Re: Clinton - Path forward

I would like to meet with Mike and DRA first, hopefully with some discussion on the specifics of the assumptions and process that led to our package- hopefully that would include a discussion with the Region. Then a meeting with Ho to discuss the NRR position. Then the re-SERP. Billy has some questions I would like to discuss with that part one discussion.

Thanks
chris

On: 19 February 2019 06:19,
"Casey, Lauren" <Lauren.Casey@nrc.gov> wrote:

Hi Chris,

(b)(5)

(b)(5)



Thanks,

Lauren R. Casey
NRR Enforcement Coordinator
U.S. Nuclear Regulatory Commission
301-415-1038

From: [Miller, Chris](#)
To: [Dickson, Billy](#); [Groom, Jeremy](#); [Bowman, Gregory](#)
Subject: Re: CPS Submittal Status Update
Date: Saturday, December 15, 2018 11:52:59 AM

Please check in with Ho on his concern with this issue. Probably should check with Mike Franovich first. I sent the info from Lauren to Ho because he had asked to be kept in the loop. (b)(5)

(b)(5)

From: Miller, Chris
Sent: Saturday, December 15, 2018 11:48:08 AM
To: Nieh, Ho; Franovich, Mike
Subject: Re: CPS Submittal Status Update

Yes I am available to call in from home on any day except Thursday next week. Jeremy and Billy are also available in the office next week.

From: Nieh, Ho
Sent: Friday, December 14, 2018 8:06:13 PM
To: Franovich, Mike; Miller, Chris
Subject: Fwd: CPS Submittal Status Update

Hi guys.

Can we have a chat about this next week please?

Informal discussion in the earlier AM or later PM would be fine.

Thanks,

Ho

Sent from my iPhone

From: "Miller, Chris" <Chris.Miller@nrc.gov>
Subject: Re: CPS Submittal Status Update
Date: 14 December 2018 17:21
To: "Casey, Lauren" <Lauren.Casey@nrc.gov>, "Groom, Jeremy" <Jeremy.Groom@nrc.gov>, "Dickson, Billy" <Billy.Dickson@nrc.gov>, "Franovich, Mike" <Mike.Franovich@nrc.gov>
Cc: "Nieh, Ho" <Ho.Nieh@nrc.gov>, "Evans, Michele" <Michele.Evans@nrc.gov>, "McDermott, Brian" <Brian.McDermott@nrc.gov>

I don't believe a treatise was asked for during the enforcement conference. We should make a conscious effort on how much staff effort to apply while at the same time trying to determine a reasonable way to evaluate any facts enclosed there in.

On: 14 December 2018 16:12, "Casey, Lauren" <Lauren.Casey@nrc.gov> wrote:

FYI

From: Mitman, Jeffrey
Sent: Friday, December 14, 2018 4:05 PM
To: Fong, CJ <CJ.Fong@nrc.gov>
Cc: Franovich, Mike <Mike.Franovich@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: FW: CPS Submittal Status Update

According to the below email thread, we can expect some 2000 pages of additional information on Clinton. This will take some time to digest and access.

Jeff Mitman

From: Sanchez Santiago, Elba
Sent: Friday, December 14, 2018 3:37 PM
To: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: FW: FW: CPS Submittal Status Update

FYI

From: Shelton, Dale A:(GenCo-Nuc) [<mailto:Dale.Shelton@exeloncorp.com>]
Sent: Friday, December 14, 2018 2:29 PM
To: Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>
Subject: [External_Sender] FW: CPS Submittal Status Update

From: Simpson, Patrick R.:(GenCo-Nuc)
Sent: Thursday, December 13, 2018 3:41 PM
To: Gellrich, George:(GenCo-Nuc) <george.gellrich@exeloncorp.com>; Gullott, David M.:(GenCo-Nuc) <David.Gullott@exeloncorp.com>; Reddick, Darani M.:(BSC) <Darani.Reddick@exeloncorp.com>; Fewell, J Bradley B:(Exelon Generation) <Bradley.Fewell@exeloncorp.com>
Cc: Nicely, Ken M.:(GenCo-Nuc) <ken.nicely@exeloncorp.com>; Shelton, Dale A:(GenCo-Nuc) <Dale.Shelton@exeloncorp.com>
Subject: CPS Submittal Status Update

We have received concurrence from all requested parties. Cover letter has been signed by Brad with letter dated for tomorrow (12/14). Only items remaining are the administrative processing that will occur on Friday as detailed below.

Given the size of the submittal with all attachments being over 2000 pages, we intend to FedEx hardcopies to the RIII Regional Administrator and the NRC Document Control Desk. Hardcopies of the cover letter along with Attachments 1 and 2 will be sent FedEx to the RIII Deputy RA (Giessner), EDO (Doane), DEDO for Reactors(Johnson), Director NRR (Nieh), as well as Chris Miller and Mike Franovich. In addition, to aid their review, Kozak and Mitman will be sent the submittal via FedEx on CDs in a user friendly format. I have spoken with both Mitman and Kozak so they are expecting the packages.

Patrick

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From: [Miller, Chris](#)
To: [Franovich, Mike](#)
Subject: Re: HEP uncertainty, and Clinton
Date: Thursday, February 14, 2019 5:54:14 PM
Attachments: [image001.png](#)

(b)(5)

chris

On: 14 February 2019 16:49,
"Miller, Chris" <Chris.Miller@nrc.gov> wrote:

Ha. (b)(5)

(b)(5)

On: 14 February 2019 16:34,
"Franovich, Mike" <Mike.Franovich@nrc.gov> wrote:

I am the lone holdout apparently. This will likely be elevated to the next level.

(b)(5)

From: Miller, Chris
Sent: Thursday, February 14, 2019 4:51 PM
To: Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: Re: HEP uncertainty, and Clinton

Thanks Mike. I hope we discussed changes that could be considered reasonable and in process to change. Or alternatively considered changing the process in the future to better risk inform future performance issues involving SD risk and HEP. These things aren't easy but at least our processes should be scrutable and reliable in the sense of repeatable.

I appreciate your insights
chris

On: 14 February 2019 12:23,
"Franovich, Mike" <Mike.Franovich@nrc.gov> wrote:

Hi Chris,

Thanks for weighing in while out of the office. (b)(5)

(b)(5)

results.

(b)(5)

My two cents,

Mike

From: Miller, Chris

Sent: Thursday, February 14, 2019 9:00 AM

To: Franovich, Mike <Mike.Franovich@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>; Felts, Russell <Russell.Felts@nrc.gov>

Cc: Miller, Chris <Chris.Miller@nrc.gov>

Subject: FW: HEP uncertainty, and Clinton

Mike,

(b)(5)

(b)(5)

I may not be able to attend the meeting based on my EOC schedule in Region IV and travel back. Billy will be representing DIRS.
chris

From: Kozak, Laura

Sent: Sunday, February 10, 2019 4:51 PM

To: Lara, Julio <Julio.Lara@nrc.gov>

Subject: HEP uncertainty

This graph shows the results of HEP evaluations of different trained teams of analysts using different methods. This was published in a NUREG a few years ago. I share it with you to show that trained analysts can differ in their judgments, with neither being right or wrong. We should be looking for whether we have applied our method, documented our justification and considered the licensee's position.

I would not be surprised if SERP members call for different/more analyst involvement or operator/ operator licensing involvement. I would resist the call for more analysis. Studies like this one show the variability among analysts and across methods.

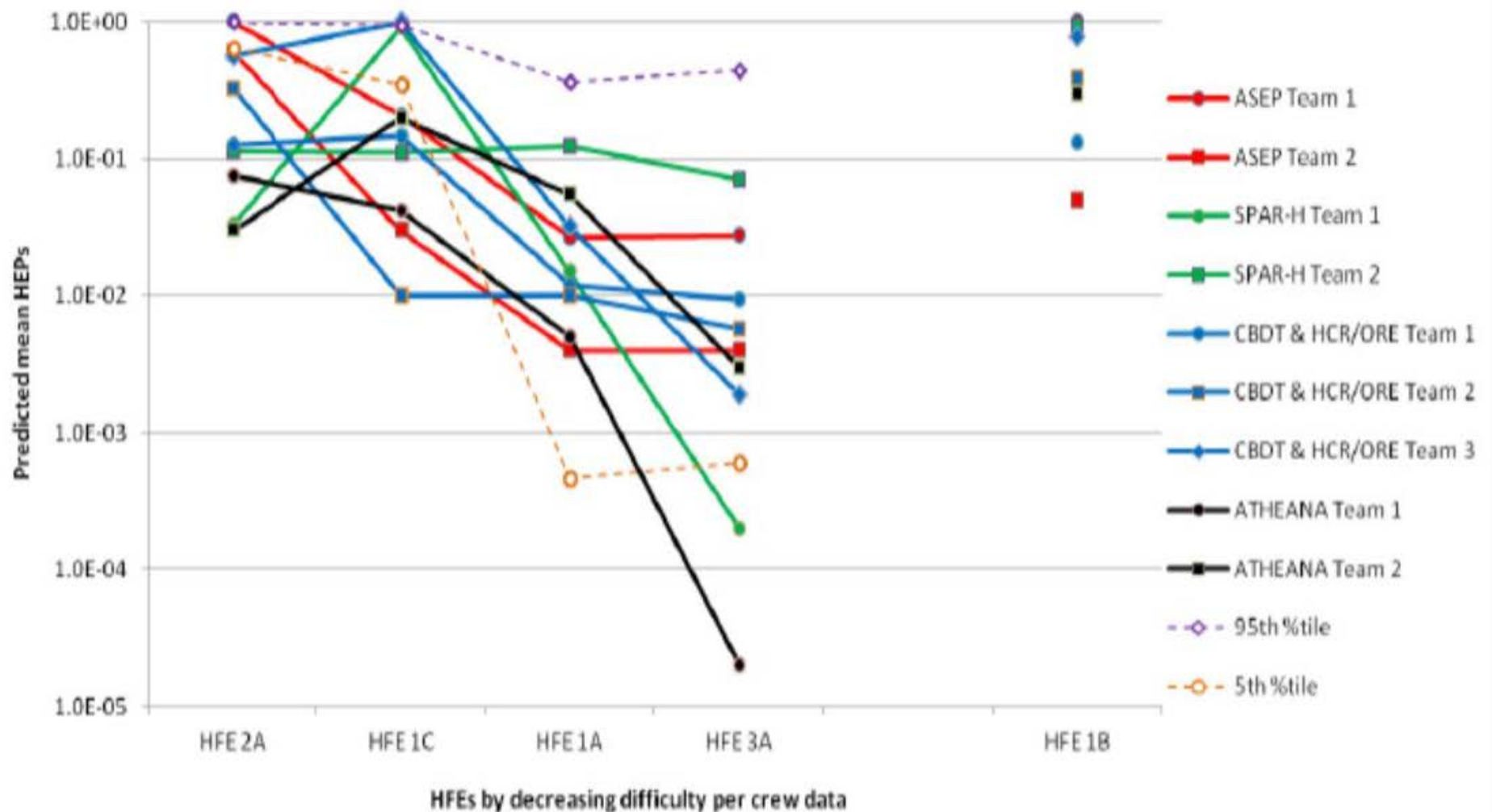


Figure ES-1 Predicted mean HEPs by all HRA teams

Note to requester: This graph is from a publicly available NUREG at <https://www.nrc.gov/docs/ML1617/ML16179A124.pdf>

We can talk more if you find this interesting or helpful.



From: [Helton, Donald](#)
To: [Bowman, Gregory](#)
Cc: [Aird, David](#)
Subject: Clinton SERP Prep
Date: Wednesday, September 19, 2018 1:24:29 PM

Greg,

I stopped by and saw Jeremy as we discussed. Jeremy confirmed that he is covering tomorrow's SERP for DIRS. I highlighted the availability of the SERP training in iLearn, and Jeremy plans to take it this afternoon. We chatted briefly about the risk evaluation drivers (recovery, the licensee's reliance on an execution-only HEP for diesel recovery, etc.)

(b)(5)

Thanks,
Don

- - - - -
Don Helton
Division of Inspection and Regional Support (Rotational)
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
(301) 415-1545

From: [Helton, Donald](#)
To: [Garmoe, Alex](#); [Bowman, Gregory](#)
Subject: Re: Reactions to Clinton SERP Last Week
Date: Tuesday, September 25, 2018 8:38:35 AM

Thanks Alex. Will discuss during tomorrow afternoons coordination meeting with CJ, and monitor the situation... Mike is engaging early with staff about the content of the Choice letter, (b)(5)

Greg, I'm in Training all day, but let me know if Jeremy reaches out and wants a sounding board.

On: 24 September 2018 17:22,
"Garmoe, Alex" <Alex.Garmoe@nrc.gov> wrote:

Greg and Don,

(b)(5)

Passing along for situational awareness and so Greg can consider making Jeremy aware since he was our voting member at the SERP.

Thanks,
Alex

From: [Franovich, Mike](#)
To: [Casey, Lauren](#)
Subject: Re: Clinton - Areas of Disagreement
Date: Tuesday, February 26, 2019 1:28:08 PM

Hi Lauren,

This list is fine to share with folks with a few tweaks.



I will have a one-pager and options to share with the other SERP voting members sometime tomorrow morning when I get back from travel.

Much appreciated,

Mike

From: Casey, Lauren
Sent: Tuesday, February 26, 2019 10:03:10 AM
To: Franovich, Mike
Subject: FW: Clinton - Areas of Disagreement

Good morning Mike,

I'd like to distribute the areas of disagreement for Clinton at least a day prior to the follow-up SERP on Thursday so that all the voting members have an opportunity to review and understand them.

Please let me know if the list below adequately captures your areas of disagreement. If I don't hear back from you today, I will provide the list below to OE and Region III.

Thank you,
Lauren

From: Casey, Lauren
Sent: Friday, February 15, 2019 10:19 AM
To: Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: Clinton - Areas of Disagreement

Hi Mike,

Does this list adequately capture your areas of disagreement on Clinton?

(b)(5)

Thanks,
Lauren

From: [Sigmon, Rebecca](#)
To: [Robles-Alcaraz, Jesse](#)
Subject: RE: Action Matrix
Date: Wednesday, December 19, 2018 4:29:44 PM

(b)(5)



From: Robles-Alcaraz, Jesse
Sent: Wednesday, December 19, 2018 3:10 PM
To: Sigmon, Rebecca <Rebecca.Sigmon@nrc.gov>
Subject: RE: Action Matrix

Also, I added the data to a Sharepoint list available at:
<http://fusion.nrc.gov/nrr/team/dirs/ieeb/analysis/Lists/Action%20Matrix%20Data/AllItems.aspx>

I figured we can keep it up to date every quarter. Working on the PI data now.

From: Robles-Alcaraz, Jesse
Sent: Wednesday, December 19, 2018 1:55 PM
To: Sigmon, Rebecca <Rebecca.Sigmon@nrc.gov>
Subject: Action Matrix

I got through the Action Matrix data. I've been playing around with some graphs. Notice how column 3 basically disappeared in 2015.

(b)(5)



Jesse E. Robles
U.S. Nuclear Regulatory Commission

Reactor Systems Engineer
NRR/DIRS/IOEB
301-415-2940
301-415-3061 (fax)
Jesse.Robles@nrc.gov

SRA Monthly Call

6/11/18

R1: Chris

R2: Scott, George

R3: John, Lauren

R4: Rich

DIRS: Alex, Aaron, Don

DRA: numerous, CS

RES: Jeff, Michelle, Chris

(b)(5)

*

R3: Clinton 95001: -

Palisades IFRB lifted lead on SIAS

Clinton EDG → App. 6 → SIT - end of June

SRA Call

R1: Frank, Chris

R2: George

R3: John

Rev?

(b)(5)

FBF on Peer Review:

- > delineate comments' significance
- > ease ambiguity for ASP
- > Don, Antonios, Frank, John H., ASP

FBF on CCZ signature

- > Frank: theory sounds good; practice is hard to imagine
- > CJ: Unless someone is interested in championing

PB EDG (Unit 3) failure: overheat during surveillance test - relates to a 2017 fire - lots of ? about functionality as it relates to PRA - engaged with an EDG IHA expert

Region 2:

Oconee cable separation - excited on Z6 - report is not out - 2018-090

DDCM presentation on SKA light - not recommending a formal program - not characterized as either R2-specific or agency-wide

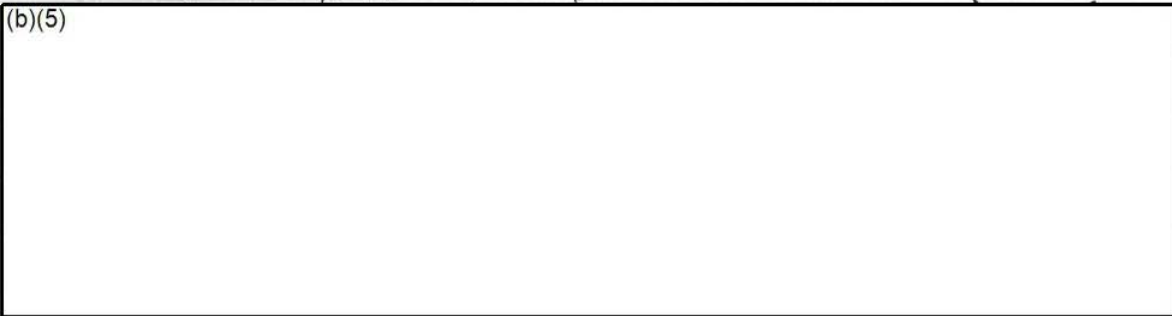
Region 3:

Clinton - status quo as I knew it

Fermi - RHR SW 2017 LER, IFRB upcoming; LERF, MAAP, Fire contribution

Clinton 95001 in next month

(b)(5)



ted

* Appendix I FBF submitter ???

* - ROP FBF 0609.04-2201: nobody had advice except that it might be an inadvertent removal - check old versions of Attachment A?

9-
2ed
Bi-Weekly w/ May

9/11/18

2
5
SRA Counterparts types

1. O609 Revs. - David
2. REP Transformer - Alex & ~~May~~
3. App. A / PRIO Re-set training
4. RII Inspectors - Mike & Tom?
5. II-193
- + 6. SRA Development Program - Alex /
Antones

Seminar on FLEX HRA Expert Evaluation 9/11/18
and ASR Effects on Concrete

- * email ~~about~~ to Antones about Counterparts Mtg
 - * set up mtg. w/ CJ, including NASA
 - * schedule next group mtg w/ D, R, A ...
-

Clinton Pre-SERP Brief 9/13/18

- neglecting the risk from the period where
1. ERG. was available
- issue of adjusting LOOP non-recovery probabilities
and limited RASP guidance

- neglected the potential for LOI from not isolating letdown
- time to core unrecovery is used as the core damage surrogate

SKA Monthly Call

9/18/18

R2: Fire issue at Browns Ferry leading to an unanalyzed condition \rightarrow crediting new high pressure injection, even though the ~~reactor~~ plant modification wasn't done (Laura conveyed that the same issue occurred in Region 3)

(b)(5)

Brinsworth: Made 3 - all roads w/out are impassable

R3: Clinton - SERP on Thursday - White
Fermi - still working

(b)(5)

Clinton EDG SERP

9/20/18

R-3: Ken Lambert, Pat Louden, Laura Kozak,
Ellen Sanchez, Paula Staedter ...

HQ: CJ Fong, Juan Peralta, Mike Marchfield,
Jeff Mitman, Jeremy Dorem, Alex
Darnal, David And, Mike Franovich,
Lawen Casey

- lots of discussion about assumptions, PSFs, time available, etc.
- Mike F. seemed to hedge lots that Reg. Conference arguments could swing to Green
- Agreement for a Chance Letter w/ Preliminary White - NRR and OE would be in concurrence -> Jeff and Laura will take first crack - Laura will touch base w/ the licensee both before and after the Chance Letter

* send email to Jeremy/Chris

- ROPE :

- * - ~~"DEED"~~ → goes to DORL
- "BDB" - any thoughts
- Target Rock:

LIC-504 comments - does CJ need a pre-brief

- NRW Meeting on February 11th

- Anne and John Hugley are attending
- Clinton Leg Conference on November 30th

APHB Branch Meeting

11/7/18

My items:

- * - ATF Seminar on 12/4 → talk on Friday
- Office move
- 0609M status

* - send APOB the MUI for the 0609M CA Note

ROP-E Coordination on

11/13/18

- NEI 4A/4B + Staff 841

- I will handle 841 under the DORL-led section

SRA Call

11/19/18

R1: nothing

R2: nothing; Risk Cafe Tomorrow
(200 responses from all regions on recent survey)

R3: may have a Risk Cafe on 11/26 or 12/3?
Cluster licenses w/for (for Reg Conf.) should come in by Friday
Julia Lane will be DRP DD when Pat Louden returns

R4: nothing

(b)(5)

DRA: P-501 during the week of 8/19 or 9/9
at INL?

RIDM Update:

Phase 1 - complete

Phase 2 - report covering this ~~next~~ early
next year

Counterparts Mig. - ~~John~~, John, ~~John~~ are going?
Scott Risko

Bi-weekly

- * Send R1DM 1-pagers
- ILRT - Survey a North Anna

SRA Monthly Call

12.10.18

R-2: ~~Cancel~~ cable separation report was
finally issued
Counterpart training on ongoing R1DM
- activities

R-3: C Center Reg Conference - new information
to be submitted by the licensee by
COB Dec. 14

R-4: nothing

R-1: not present

DIRS - not present

My items:

- 0609 M
- Operability public mtg. on Thursday
- ROP-E DIRS mtg. on -

- Breakouts? focused on a handful of issues / myths

APOB Branch Meeting

1/9/19

- John is reviewing the draft of NEI-18-10 (MRule 2.0)
- Jeff M. is observing some gummy aspects to the Clinton SDP
 - > 29 min. timing analysis - operator gets to EDG 37 seconds after LOSP
 - > surveys don't support assertion that 38 SROs wouldn't declare an ELAP at 1 hour in this situation

Low-Risk Compliance Process

1/9/19

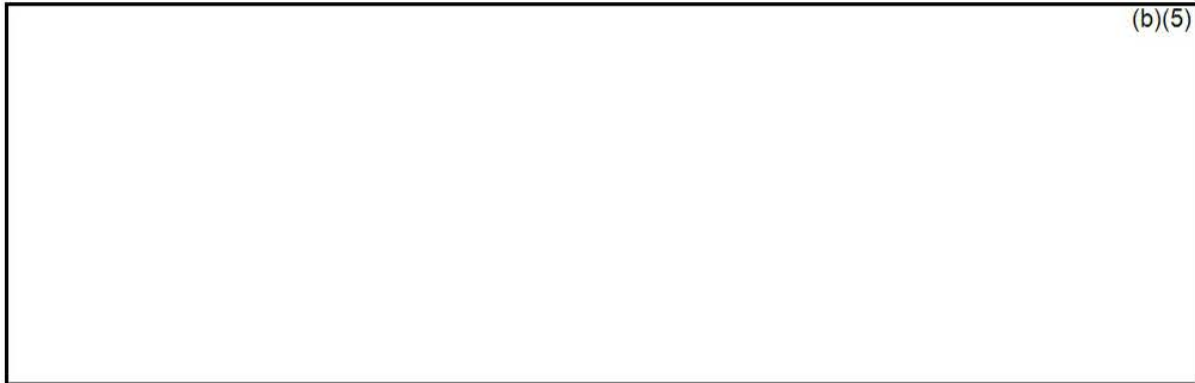
- do an effectiveness review

RIDM for Managers Call w/ Dalay 1/9/19

- Dalay: flexible in how he supports NRC; whatever is useful; just wants to help NRC

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: RE: Clinton
Date: Wednesday, February 13, 2019 4:09:26 PM
Attachments: [image003.png](#)
[image004.png](#)

A somewhat similar/related guidance point from RASP Volume 1 Section 6.4:



Jeff Mitman

From: Kozak, Laura
Sent: Wednesday, February 13, 2019 5:02 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Clinton

Jeff

I was again preparing for the Clinton DBAI inspection. In reviewing the licensee PRA Summary notebook, I came across the following list of model uncertainties. Note number 15. An accepted model uncertainty – so we can't credit ERO/don't know how in baseline PRA, but somehow we are supposed to do it in SDP??

Laura

The combined NRC-EPRI list of generic sources of Level 1 and initial Level 2 model uncertainties are as follows:

1. Grid Stability (includes LOSP initiating event and offsite AC recovery)
2. Support System Initiating Events
3. LOCA initiating event frequencies
4. Operation of equipment after battery depletion
5. RCP seal LOCA treatment – PWRs only
6. Recirculation pump seal leakage treatment – BWRs with Isolation
Condensers
7. Impact of containment venting on core cooling system NPSH
8. Core cooling success following containment failure or venting
through non hard pipe vent paths

⁽¹⁾ For specific applications, key assumptions and parameters should be examined both individually and in

logical combinations.

3-1 CL-PRA-013 REV. 5

Clinton PRA Summary Notebook

9. Room heatup calculations
10. Battery life calculations
11. Number of PORVs required for bleed and feed – PWRs only
12. Containment sump / strainer performance
13. Impact of failure of pressure relief
14. Operability of equipment in beyond design basis environments
15. Credit for ERO
16. Pipe failure modes
17. Core melt arrest in-vessel
18. Thermally induced failure of hot leg/SG tubes – PWRs only
19. Vessel failure mode
20. Ex-vessel cooling of lower head
21. Core debris contact with containment
22. ISLOCA Frequency determination
23. Treatment of Hydrogen combustion in BWR Mark III and PWR
ice condenser plants

From: [Duncan, Eric](#)
To: [Alvarado Guilloty, Lydiana](#); [Anderson, Alan](#); [Ariano, Carole](#); [Baker, Randal](#); [Bakhsh, Sarah](#); [Barclay, Kevin](#); [Barker, Allan](#); [Bartlett, Bruce](#); [Beavers, James](#); [Bell, Stephen](#); [Benjamin, Jamie](#); [Bergeon, Bryan](#); [Betancourt-Roldan, Diana](#); [Bigoness, Jay](#); [Boettcher, Julie](#); [Bogedain, Doni](#); [Bonano, Eugenio](#); [Boston, Brent](#); [Bozga, John](#); [Briley, Thomas](#); [Burger, Maureen](#); [Butler, Rodney](#); [Cameron, Jamnes](#); [Carrington, Kenya](#); [Casey, Colleen](#); [Cassidy, John](#); [Cender, Laura](#); [Chandraithill, Prema](#); [Christoffer Baruch, Gail](#); [Chyu, Doris](#); [Clay, Jim](#); [Corujo-Sandin, Jorge](#); [Craffey, Ryan](#); [Dahbur, Alan](#); [Daley, Robert](#); [Dalzell, Jennifer](#); [Demarshall, Joseph](#); [Dickson, Billy](#); [Domke, Matthew](#); [Draper, Jason](#); [Duncan, Eric](#); [Edwards, Geoffrey](#); [Edwards, Rhex](#); [Egan, Nathan](#); [Ehrig, Tina](#); [Ellegood, John](#); [Elliott, Roy](#); [Feliz-Adorno, Nestor](#); [Fernandez, Edison](#); [Fields, Nicole](#); [Foltz, Jeffrey](#); [Forster, Sara](#); [Frazier, Cassandra](#); [Garza, Michelle](#); [Gattone, Robert](#); [Gavula, James](#); [Giessner, John](#); [Gilliam, Jasmine](#); [Gladden, Karen](#); [Glass, Aaron](#); [Go, Tony](#); [Gorski, Lindsay](#); [Gryolak, Magdalena](#); [Grzywa, Mary](#); [Haeg, Lucas](#); [Hafeez, Ijaz](#); [Hanna, John](#); [Hansen, Gregory](#); [Hartman, Thomas](#); [Harvey, Edward](#); [Harvey, Jacquelyn](#); [Hausman, Cheryl](#); [Hausman, George](#); [Havertape, Joshua](#); [Heck, Jared](#); [Heller, James](#); [Hernandez, Cammie](#); [Hersey, Deborah](#); [Hills, Dave](#); [Holmberg, Mel](#); [Hunt, Christopher](#); [IRC, R3](#); [Jones, Michael](#); [Jonsson, Dawn](#); [Jose, Benny](#); [Kennedy, Erin](#); [Khan, Nadim](#); [Kimble, Daniel](#); [King, Michael](#); [Koester, Nancy](#); [Kozak, Laura](#); [Kranstuber, Nancy](#); [Krause, Donald](#); [Kunowski, Michael](#); [Kutlesa, Jure](#); [Laflamme, Paul](#); [LaFranzo, Michael](#); [Lambert, Kenneth](#); [Lara, Julio](#); [Lattin, Brandi](#); [Learn, Matthew](#); [Lee, Peter](#); [Licitra, Carl](#); [Lin, Bill](#); [Linn, Linda](#); [Lipa, Christine](#); [Logaras, Harra!](#); [Luo, Ming](#); [Magee, Thomas](#); [Mancuso, Joseph](#); [Martinez, Christine](#); [Martinez, Nancy](#); [Mason, Larry](#); [McCraw, Aaron](#); [McGowan, Thomas](#); [Meghani, Vijay](#); [Meyer, Paul](#); [Mills, Daniel](#); [Mitlynq, Viktoria](#); [Murray, Robert](#); [Myers, Valerie](#); [Nance, Jim](#); [Neurauter, James](#); [Ng, Raymond](#); [Nguyen, April](#); [Nieves Folch, Luis](#); [Norton, Charles](#); [Null, Kevin](#); [O'Brien, Kenneth](#); [O'Dowd, Dennis](#); [O'Dwyer, Gerard](#); [Olteanu, Carmen](#); [Orlikowski, Robert](#); [Orth, Steven](#); [Ospino, Tyrone](#); [Park, Joon](#); [Parker, Bryan](#); [Pelke, Patricia](#); [Pelke, Paul](#); [Peterson, Hironori](#); [Petrella, Vance](#); [Phillips, Charles](#); [Piccirillo, Darren](#); [Piskura, Deborah](#); [Pope, Michael](#); [Pusateri, Kevin](#); [R3, Citrixtest](#); [Rahlf, Shari](#); [Ray, Teresa](#); [Reeser, David](#); [Riemer, Kenneth](#); [Roach, Gregory](#); [Robbins, John](#); [Roberts, Darrell](#); [Rodriguez, Lionel](#); [Ruiz, Robert](#); [Rutkowski, John](#); [Sanchez Santiago, Elba](#); [Sanfilippo, Nathan](#); [Sargis, Daniel](#); [Schaup, William](#); [Schmidt, Colleen](#); [Seymour, Jesse](#); [Shaffer, Vered](#); [Shah, Nirodh](#); [Shaikh, Atif](#); [Shaughnessy, Patrice](#); [Sheldon, Stuart](#); [Shuaibi, Mohammed](#); [Skokowski, Richard](#); [Smagacz, Phillip](#); [Smith, Desiree](#); [Smith, Laura](#); [Sotiropoulos, Dina](#); [St. Peters, Courtney](#); [Steffes, Jakob](#); [Stoedter, Karla](#); [Stone, AnnMarie](#); [Stricklin, Rebecca](#); [Strohmeier, Daniel](#); [Sulaiman, Zahid](#); [Szwarc, Dariusz](#); [Taylor, Thomas](#); [Te, Ryan](#); [Tesar, Daniel](#); [Tomczak, Tammy](#); [Tran, Frank](#); [Vassos, John](#); [Velarde, Vanessa](#); [Warren, Geoffrey](#); [White-Jackson, Joan](#); [Wilk, Brenda](#); [Woerner, Gustave](#); [Zerth, Marjorie](#); [Ziołkowski, Michael](#); [Zoia, Charles](#); [Zurawski, Paul](#)

Subject: The Daily Morning Meeting News for February 13, 2019
Date: Wednesday, February 13, 2019 11:21:15 AM
Attachments: [DailyMorningMeetingNewsforJanuary9,2019.docx](#)

Note to requester:
The same text in the
attachment is in the
email here.

The Daily Morning Meeting News for February 13, 2019

Regional Duty Officer: Eric Duncan

Teleconference Number: (800) 779-9565; Passcode:

(b)(6)

Note: This newsletter may contain pre-decisional info. Do not distribute outside the NRC.

PREDICT/Leadership Model: Diversity in Thought – At the NRC, decision-making is enhanced when it incorporates a variety of viewpoints. For this reason, we cultivate a positive environment for the expression of diverse views, alternate approaches, critical thinking, collaborative problem-solving, unbiased evaluations, and honest feedback.

Support Issues:

- DRP:** End of Cycle meetings continue today; Results of a ROP Enhancement meeting held in headquarters will be shared soon and placed on the R: Drive.
- DRMA:** Today is Wear Red Day with a photo planned immediately following today's 0815 meeting; Feedback on the quality of our telephone connections is being requested – please provide this feedback to Mike King or Tom Magee.
- EICS:** A Post-SERP (Significance Determination Enforcement Review Panel) caucus for the Clinton Emergency Diesel Generator issue is scheduled for tomorrow in the Incident Response Center (IRC) at the special time of 12:30 pm CST.
- PAO:** See [NRC in the News Today](#)

Plant Status

BRANCH 1

Clinton: An Allegation Review Board (ARB) associated with a (b)(5) for Exelon was discussed on Monday; The new NRC Leadership Model Value of Diversity in Thought (the "D" in "PREDICT") was discussed and yesterday's ARB was used as a good example of active listening and a willingness to take the time to learn about alternative ideas.

Dresden:
U2: (b)(5)

BRANCH 2

(b)(5)

Perry:

(b)(5)

BRANCH 3

(b)(6)

Byron:

No contamination.

BRANCH 4

D.C. Cook:

(b)(5)

Fermi: Yesterday's ice storm made travel treacherous and delayed the opening of the resident inspector office (RIO) until the late morning; There is a high wind advisory in the area today until about noon EST; A public meeting is planned in headquarters for next Tuesday to discuss the licensee's plans to

(b)(5)

(b)(5)

Point Beach: A site visit by Commissioner Caputo is planned for later this month.

A G02 Emergency Diesel Generator (EDG) surveillance is planned for today that will slightly

increase risk.

Post 8:15 Meeting Topics – Frazil Ice

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: Alternate Treatment of EPS Recovery
Date: Thursday, February 14, 2019 8:08:45 AM
Attachments: [image001.png](#)

(b)(5)



Jeff Mitman

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: Clinton - recovery
Date: Thursday, February 14, 2019 7:07:00 AM
Attachments: [Credit for recovery examples.docx](#)

Months ago, I pulled together a few examples of recovery in past SDPs, to help show that what we are doing at Clinton is consistent with what we have done in the past.

Laura

(b)(5)

(b)(5)

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: Clinton Re-SERP Pre-Briefing Questions 02-12-2019.docx
Date: Thursday, February 14, 2019 8:10:56 AM
Attachments: [Clinton Re-SERP Pre-Briefing Questions 02-12-2019.docx](#)

Clinton re-SERP Pre-briefing Questions

02-17-2019

J. Mitman

(b)(5)



(b)(5)

(b)(5)

From: [Lara, Julio](#)
To: [Kozak, Laura](#)
Subject: Clinton_FinalSERP_Thoughts.docx
Date: Thursday, February 14, 2019 5:04:02 PM
Attachments: [Clinton_FinalSERP_Thoughts.docx](#)

LARA

(b)(5)



From: [Kozak, Laura](#)
To: [Wilson, George](#)
Subject: Clinton pictures
Date: Friday, February 15, 2019 1:16:00 PM
Attachments: [DSC01052.jpg](#)
[DSC01073.jpg](#)
[DSC01075.jpg](#)
[DSC01076.jpg](#)

Note to requester: Attachments are all non-responsive records due to clarifying the request to exclude licensee originated documents.

See attached

From: [Giessner, John](#)
To: [Kozak, Laura](#)
Subject: RE: Clinton
Date: Friday, February 15, 2019 10:08:00 AM

Not quite. I have one issue then should be able to stop up

From: Kozak, Laura
Sent: Friday, February 15, 2019 10:02 AM
To: Giessner, John <John.Giessner@nrc.gov>
Subject: RE: Clinton
You available to chat about this today?

From: Giessner, John
Sent: Friday, February 15, 2019 9:42 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>
Cc: Roberts, Darrell <Darrell.Roberts@nrc.gov>
Subject: RE: Clinton
ok

From: Kozak, Laura
Sent: Friday, February 15, 2019 9:09 AM
To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Giessner, John <John.Giessner@nrc.gov>; Roberts, Darrell <Darrell.Roberts@nrc.gov>
Subject: FW: Clinton

Just FYI. George Wilson called me to learn more about the Clinton issue after I offered to talk to him one-on-one. He is coming up to speed in case the decision gets bumped to him, Darrell and Ho. Just wanted you all to know what I sent him.
Laura

From: Kozak, Laura
Sent: Friday, February 15, 2019 9:00 AM
To: Wilson, George <George.Wilson@nrc.gov>
Subject: Clinton
George

(b)(5)

(b)(5)

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: Clinton - a few more points
Date: Saturday, February 16, 2019 11:45:25 AM

(b)(5)

Laura

From: [Lara, Julio](#)
To: [Hanna, John](#); [Kozak, Laura](#)
Subject: Clinton_FinalSERP_R3_Lara.docx
Date: Monday, February 25, 2019 1:24:01 PM
Attachments: [Clinton_FinalSERP_R3_Lara.docx](#)

Check me pls

February 27, 2019

**Clinton Preliminary White Finding
Region III Comments - J. Lara**

(b)(5)



From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: FW: Clinton EDG case - potential path forward
Date: Monday, February 25, 2019 6:23:39 AM
Importance: High

Laura, in the thread below, Mike asked for some more sensitivity calcs. I'm working on them and intend to get him results today (Monday). I expect that the combination will get the results below the Green/White threshold but that the others two by themselves will not.

However, I'm looking for other BE that if I increased them by a factor of 2 would keep them in the White range. Potential candidates include IEF, depressurization and isolation HEPS, and non-recovery of electrical distribution system if offsite power is recovered late.

I'm working at home this morning while I (b)(6) please call my cell when you get a chance.

Thanks.

Jeff Mitman

From: Fong, CJ
Sent: Wednesday, February 20, 2019 6:47 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: Re: Clinton EDG case - potential path forward

Thanks, Jeff.
CJ

From: Mitman, Jeffrey
Sent: Tuesday, February 19, 2019 5:58 PM
To: Franovich, Mike
Cc: Fong, CJ
Subject: RE: Clinton EDG case - potential path forward

Will do.

Jeff Mitman

From: Franovich, Mike
Sent: Tuesday, February 19, 2019 12:24 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>
Subject: RE: Clinton EDG case - potential path forward

Hi Jeff,

Ah yes.... I was not clear which HEP for Case 1. You are correct. I was referring to the HEP for non-recovery of EDG2 within one hour.

Thanks,

Mike

From: Mitman, Jeffrey
Sent: Tuesday, February 19, 2019 11:03 AM
To: Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>
Subject: RE: Clinton EDG case - potential path forward

Mike, for the Case 1 scenario, I assume that when you say you want a PSF of 5 instead of 10, you are referring to the HEP for non-recovery of EDG2 within one hour.

Am I correct?

Jeff Mitman

From: Franovich, Mike
Sent: Friday, February 15, 2019 4:29 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>
Subject: Clinton EDG case - potential path forward

Jeff,

(b)(5)



Thanks,

Mike

From: [Lambert, Kenneth](#)
To: [Lara, Julio](#); [Orlikowski, Robert](#); [O'Brien, Kenneth](#); [Sanfilippo, Nathan](#); [Roberts, Darrell](#); [Giessner, Jack](#); [Kozak, Laura](#); [Hanna, John](#)
Cc: [Sanchez Santiago, Elba](#); [Sargis, Daniel](#); [Phillips, Charles](#); [Mancuso, Joseph](#); [St. Peters, Courtney](#); [Alvarado Guilloty, Diana](#)
Subject: FW: NRR Areas of Disagreement for Clinton Follow-up SERP (EA-18-104)
Date: Tuesday, February 26, 2019 3:05:00 PM
Attachments: [DRA Areas of Disagreement Clinton.docx](#)
[DIRS Areas of Disagreement Clinton.docx](#)

Attached are the NRR DRA and DIRS position papers for the Clinton follow-up SERP on Thursday.

Ken

Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission
630-810-4376
kenneth.lambert@nrc.gov

From: Casey, Lauren
Sent: Tuesday, February 26, 2019 2:26 PM
To: Marshfield, Mark <Mark.Marshfield@nrc.gov>; Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Cc: Torres, Edgardo <edgardo.torrescollazo@nrc.gov>
Subject: NRR Areas of Disagreement for Clinton Follow-up SERP (EA-18-104)

Good afternoon,

Attached for OE and Region III's distribution are NRR's areas of disagreement for discussion at Thursday's follow-up SERP.

Thank you,

Lauren R. Casey
NRR Enforcement Coordinator
U.S. Nuclear Regulatory Commission
301-415-1038

DRA Areas of Disagreement/Discussion for Clinton Follow-up SERP (EA-18-104)

(b)(5)

A large rectangular area is completely redacted, indicated by a solid black border. The text "(b)(5)" is positioned at the top left corner of this redacted area.

DIRS Areas of Disagreement/Discussion for Clinton Follow-up SERP (EA-18-104)

(b)(5)



(b)(5)

(b)(5)

From: [Lara, Julio](#)
To: [Kozak, Laura](#)
Subject: Fw: Clinton_FinalSERP_R3_Lara_jbg.docx
Date: Tuesday, February 26, 2019 4:40:21 PM
Attachments: [Clinton_FinalSERP_R3_Lara_jbg.docx](#)

From: Giessner, John
Sent: Tuesday, February 26, 2019 12:21:49 PM
To: Lara, Julio
Cc: Roberts, Darrell
Subject: Clinton_FinalSERP_R3_Lara_jbg.docx

Well written!
Couple comments to consider.

Jack

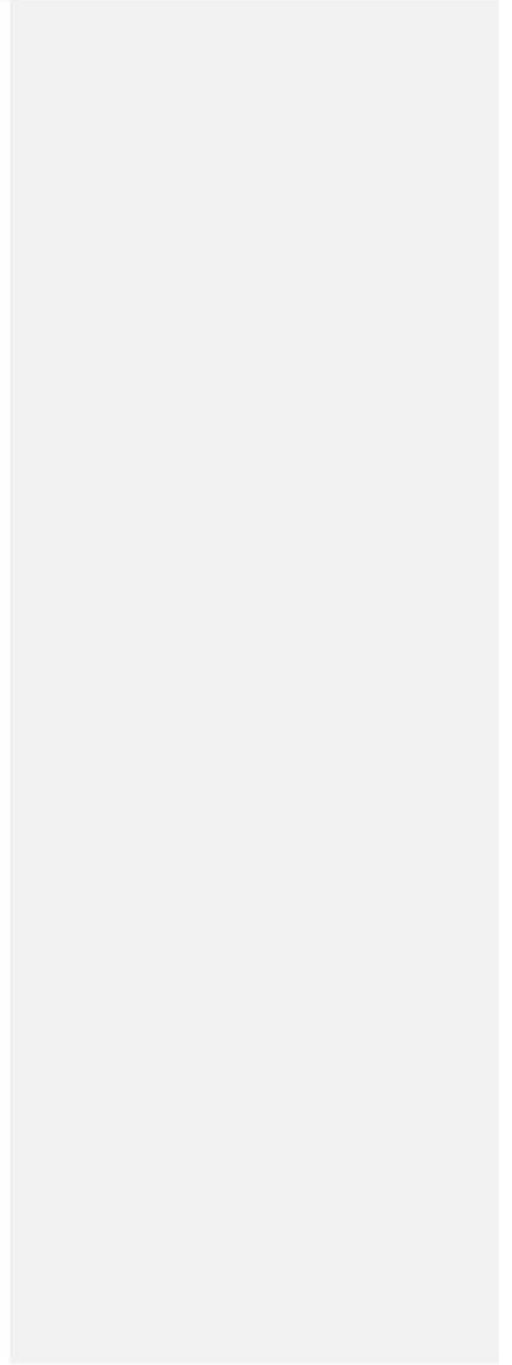
February 27, 2019

**Clinton Preliminary White Finding
Region III Comments - J. Lara**

(b)(5)



(b)(5)



Note to requester: The attachments to this email have been withheld in their entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton and ANO
Date: Wednesday, February 27, 2019 11:43:00 AM
Attachments: [ano final.pdf](#)
[qualitative factors final serp ano.pdf](#)

Jeff

I attached the final SDP letter for ANO and the final SERP OE worksheet. Nothing new here for you since you were involved.

The SERP describes the use of “qualitative” credit. When I read the final SDP letter, not sure I would call this consideration of “qualitative factors”.

For Clinton, we have considered qualitative information in forming the input assumptions. I believe that is how “qualitative factors” are used in the SDP.

Let’s talk

Laura

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: Clinton
Date: Wednesday, February 27, 2019 5:15:00 PM
Attachments: [Outline of Final Significance Determination Response rev 1.docx](#)

(b)(5)

Final Significance Determination

(b)(5)



From: [Lara, Julio](#)
To: [Hanna, John](#); [Kozak, Laura](#)
Cc: [Orlikowski, Robert](#)
Subject: final SERP version - sending in later this morning
Date: Wednesday, February 27, 2019 6:21:37 AM
Attachments: [Clinton_FinalSERP_R3.pdf](#)

February 27, 2019

**Clinton Preliminary White Finding
Region III Comments - J. Lara**

(b)(5)

From: [Kozak, Laura](#)
To: [Biemer, Kenneth](#)
Subject: FW: Clinton EDG - sensitivity cases
Date: Wednesday, February 27, 2019 12:23:42 PM
Attachments: [image003.png](#)

FYI

From: Mitman, Jeffrey
Sent: Monday, February 25, 2019 6:23 PM
To: Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton EDG - sensitivity cases

(b)(5)



Thanks for hearing me out.

Jeff Mitman

(b)(5)



(b)(5)

From: Franovich, Mike

Sent: Friday, February 15, 2019 4:29 PM

To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>

Cc: Fong, CJ <CJ.Fong@nrc.gov>

Subject: Clinton EDG case - potential path forward

Jeff,

(b)(5)



Thanks,

Mike

From: [O'Brien, Kenneth](#)
To: [Franovich, Mike](#)
Subject: Fwd: Clinton EDG Air Start Issue - DRA Director's Perspectives
Date: Wednesday, February 27, 2019 3:40:14 PM
Attachments: [Clinton EDG Air Start Issue - DRA Director Perspective SERP One-pager - final.pdf](#)

Outstanding effort Mike!

(b)(5)

My hat is off to you! Great, great effort!

From: "Lambert, Kenneth" <Kenneth.Lambert@nrc.gov>
Subject: FW: Clinton EDG Air Start Issue - DRA Director's Perspectives
Date: 27 February 2019 14:19
To: "Lara, Julio" <Julio.Lara@nrc.gov>, "Orlikowski, Robert" <Robert.Orlikowski@nrc.gov>, "O'Brien, Kenneth" <Kenneth.O'Brien@nrc.gov>, "Sanfilippo, Nathan" <Nathan.Sanfilippo@nrc.gov>, "Roberts, Darrell" <Darrell.Roberts@nrc.gov>, "Giessner, John" <John.Giessner@nrc.gov>, "Kozak, Laura" <Laura.Kozak@nrc.gov>, "Hanna, John" <John.Hanna@nrc.gov>, "Cameron, Jamnes" <Jamnes.Cameron@nrc.gov>
Cc: "Sanchez Santiago, Elba" <Elba.SanchezSantiago@nrc.gov>, "Sargis, Daniel" <Daniel.Sargis@nrc.gov>, "Phillips, Charles" <Charles.Phillips@nrc.gov>, "Mancuso, Joseph" <Joseph.Mancuso@nrc.gov>, "St. Peters, Courtney" <Courtney.St.Peters@nrc.gov>, "Alvarado Guilloty, Diana" <Lydiana.AlvaradoGuilloty@nrc.gov>

Folks,

Attached is additional information on the NRR DRA director's position on the Clinton EDG issue for tomorrows SERP

Ken

Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission
630-810-4376
kenneth.lambert@nrc.gov

From: Casey, Lauren
Sent: Wednesday, February 27, 2019 2:03 PM
To: Marshfield, Mark <Mark.Marshfield@nrc.gov>; Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Subject: FW: Clinton EDG Air Start Issue - DRA Director's Perspectives

Additional information from DRA.

From: Franovich, Mike

Sent: Wednesday, February 27, 2019 2:56 PM

To: Casey, Lauren <Lauren.Casey@nrc.gov>

Subject: Clinton EDG Air Start Issue - DRA Director's Perspectives

Good Afternoon Lauren,

Please find my attached perspectives on the Clinton case.

Thanks,

Mike

(b)(5)

(b)(5)

(b)(5)

From: [Franovich, Mike](#)
To: [O'Brien, Kenneth](#)
Subject: RE: Clinton EDG Air Start Issue - DRA Director's Perspectives
Date: Wednesday, February 27, 2019 4:10:42 PM

You are too much!

Many thanks for the generous, kind words.

From: O'Brien, Kenneth
Sent: Wednesday, February 27, 2019 5:08 PM
To: Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: Re: Clinton EDG Air Start Issue - DRA Director's Perspectives

Mike

In carefully reviewing your comments I was humbled by the quality and depth of your knowledge.

(b)(5)

Ken

On: 27 February 2019 16:03,
"Franovich, Mike" <Mike.Franovich@nrc.gov> wrote:

Ah... I treasure your feedback!

From: O'Brien, Kenneth
Sent: Wednesday, February 27, 2019 4:40 PM
To: Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: Fwd: Clinton EDG Air Start Issue - DRA Director's Perspectives

Outstanding effort Mike!

(b)(5)

My hat is off to you! Great, great effort!

From: "Lambert, Kenneth" <Kenneth.Lambert@nrc.gov>
Subject: FW: Clinton EDG Air Start Issue - DRA Director's Perspectives

Date: 27 February 2019 14:19

To: "Lara, Julio" <Julio.Lara@nrc.gov>, "Orlikowski, Robert" <Robert.Orlikowski@nrc.gov>, "O'Brien, Kenneth" <Kenneth.O'Brien@nrc.gov>, "Sanfilippo, Nathan" <Nathan.Sanfilippo@nrc.gov>, "Roberts, Darrell" <Darrell.Roberts@nrc.gov>, "Giessner, John" <John.Giessner@nrc.gov>, "Kozak, Laura" <Laura.Kozak@nrc.gov>, "Hanna, John" <John.Hanna@nrc.gov>, "Cameron, Jamnes" <Jamnes.Cameron@nrc.gov>
Cc: "Sanchez Santiago, Elba" <Elba.SanchezSantiago@nrc.gov>, "Sargis, Daniel" <Daniel.Sargis@nrc.gov>, "Phillips, Charles" <Charles.Phillips@nrc.gov>, "Mancuso, Joseph" <Joseph.Mancuso@nrc.gov>, "St. Peters, Courtney" <Courtney.St.Peters@nrc.gov>, "Alvarado Guilloty, Diana" <Lydiana.AlvaradoGuilloty@nrc.gov>

Folks,

Attached is additional information on the NRR DRA director's position on the Clinton EDG issue for tomorrows SERP

Ken

Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission
630-810-4376
kenneth.lambert@nrc.gov

From: Casey, Lauren

Sent: Wednesday, February 27, 2019 2:03 PM

To: Marshfield, Mark <Mark.Marshfield@nrc.gov>; Lambert, Kenneth <Kenneth.Lambert@nrc.gov>

Subject: FW: Clinton EDG Air Start Issue - DRA Director's Perspectives

Additional information from DRA.

From: Franovich, Mike

Sent: Wednesday, February 27, 2019 2:56 PM

To: Casey, Lauren <Lauren.Casey@nrc.gov>

Subject: Clinton EDG Air Start Issue - DRA Director's Perspectives

Good Afternoon Lauren,

Please find my attached perspectives on the Clinton case.

Thanks,

Mike

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: FW: Table of Clinton EDG2 SDP selected sensitivity cases.docx
Date: Thursday, February 28, 2019 6:49:00 AM
Attachments: [Table of Clinton EDG2 SDP selected sensitivity cases.docx](#)

I have not had a chance to review yet.

Working on the bullets on Mike's one-pager

From: Mitman, Jeffrey
Sent: Wednesday, February 27, 2019 5:21 PM
To: Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Table of Clinton EDG2 SDP selected sensitivity cases.docx

(b)(5)

Let me know if you have any questions.

Jeff Mitman

From: [Kozak, Laura](#)
To: [Miller, Chris](#)
Subject: RE: Can I get the "long version " HEP analysis you mentioned?
Date: Thursday, February 28, 2019 11:30:00 AM
Attachments: [HFE Task Analysis - SD- EPS-XHE-XM-NR10H \(EDG2\) Rev.2.doc](#)
[EA-18-104 Clinton Outline of Final Significance Determination Response rev 1.docx](#)

Not sure exactly what document you are referring to.

(b)(5)



Laura

From: Miller, Chris
Sent: Thursday, February 28, 2019 11:13 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Can I get the "long version " HEP analysis you mentioned?

Human Failure Event (HFE) ID: SD-EPS-XHE-XM-NR01H

(b)(5)

(b)(5)

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(b)(5)

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Final Significance Determination

(b)(5)

(b)(5)

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(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

From: [Giessner, John](#)
To: [Lara, Julio](#)
Cc: [Roberts, Darrell](#)
Subject: RE: Clinton SERP
Date: Thursday, February 28, 2019 8:38:00 AM

(b)(5)

From: Lara, Julio
Sent: Thursday, February 28, 2019 8:35 AM
To: Giessner, John <John.Giessner@nrc.gov>
Cc: Roberts, Darrell <Darrell.Roberts@nrc.gov>
Subject: FW: Clinton SERP
This thought is in Mike Franovich's paper.
He broached with me last night in our conversation.
Have not given it much thought till now

From: Miller, Chris
Sent: Thursday, February 28, 2019 8:07 AM
To: Lara, Julio <Julio.Lara@nrc.gov>
Subject: Clinton SERP
Hi Julio,

(b)(5)

thanks
chris
Christopher Miller
Director, Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
301-415-1004

From: [Franovich, Mike](#)
To: [Fong, CJ](#); [Mitman, Jeffrey](#)
Cc: [Kozak, Laura](#)
Subject: RE: Table of Clinton EDG2 SDP selected sensitivity cases.docx
Date: Thursday, February 28, 2019 8:12:39 AM

(b)(5)

Good perspectives. [REDACTED]

(b)(5)

From: Fong, CJ
Sent: Thursday, February 28, 2019 8:34 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Table of Clinton EDG2 SDP selected sensitivity cases.docx

Mike et al,

For the record, I agree with Jeff's technical position regarding uncertainty calculation. [REDACTED] (b)(5)

(b)(5)

Respectfully,
CJ

**NUREG-1829, f(LBLOCA, PWR), X95/X50 ~ 3, X50/X05 ~ 35. See Chapter 7.*

From: Mitman, Jeffrey

Sent: Wednesday, February 27, 2019 6:21 PM

To: Franovich, Mike <Mike.Franovich@nrc.gov>

Cc: Fong, CJ <CJ.Fong@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>

Subject: Table of Clinton EDG2 SDP selected sensitivity cases.docx

(b)(5)



Let me know if you have any questions.

Jeff Mitman

From: [Kozak, Laura](#)
To: [Robbins, John](#)
Subject: FW: Clinton SERP - Language from SPAR-H re additional personnel and its impacts on quantification
Date: Friday, March 01, 2019 10:28:00 AM

From: Mitman, Jeffrey
Sent: Friday, March 01, 2019 8:49 AM
To: Franovich, Mike <Mike.Franovich@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>; Bowman, Gregory <Gregory.Bowman@nrc.gov>
Subject: Clinton SERP - Language from SPAR-H re additional personnel and its impacts on quantification

(b)(5)

Jeff Mitman

NUREG/CR-6883, "The SPAR-H Reliability Analysis Method"

Executive Summary

Page xiii

"This report presents a simple HRA method for estimating the human error probabilities associated with operator and crew actions and decisions in response to initiating events at commercial U.S. nuclear power plants (NPPs)."

In addition to the above short method's applicability discussion, the document addresses "the crew" over 150 times. The takeaway from this for me is that the method is not addressing actions performed by an individual but the action of the combined operational crew. It recognizes and supplies guidance on how to quantify the reliability of that crew. In the context of our discussion regarding who would be in the EDG room troubleshooting the failure to start, I would argue that the SPAR-H method recognizes that the PRA needs to take into consideration the entire crew and not the lone individual. An additional important point is that the methodology is silent to crew size, composition, etc., and whether it includes expertise outside the operations department, e.g., maintenance and engineering. However, there is a discussion of the TSC/EOC and its impacts, I discuss it next.

3.6 Change in Time Performance Shaping Factor (PSF)

Page 52

“Time Advantage. Having three times the amount of time it normally takes the operators to place the system in service gives the operators more time to recover from their own errors, to troubleshoot, realign misalignments, and communicate with others outside the control room, such as auxiliary equipment operators that may be required to perform local manipulations, and, during emergencies, personnel staffing, the Technical Support Center (TSC), and Emergency Operations Center (EOC).”

This citation documents SPAR-H's only reference to the TSC/EOC. It instructs the analyst to lower the failure probability when the time available significantly exceeds the time required. This citation documents that the authors consider the impact of the availability of the TSC/EOC and factored it into the methodology via the available time PSF.

Section 5.1 Differences between At-Power and LP/SD

Starting on Page 65

“In the context of nuclear power plant operations, workload and stress are often closely related. Increased workload and stress were often cited in the literature as potential contributors to human error during LP/SD. The presence of a much larger staff, including less-experienced personnel at the plant, as well as the influence of extended work periods, can play significant roles in increasing the workload of operators. However, plant staff interviews indicate that high workload and stress, while potentially significant during LP/SD, did not appear to be at detrimental levels at the plant. It was stated that during an outage, the size of the operations crew is expanded and the shift organization is changed to minimize the impact of the increased workload and to reduce the stress of outage of operations. These measures were cited by the staff as effective in minimizing the impact of outage operations on workload and stress. Therefore, we believe that the addition of personnel may increase organizational load, as opposed to individual load. Increased organizational load can result in unsafe acts, leading to human failure events. Perhaps future research will evaluate staffing and organization factors more directly.”

(b)(5)

From: [Hanna, John](#)
To: [ALL_R3](#)
Subject: Information Only: 8:15 meeting notes for March 1, 2019
Date: Friday, March 01, 2019 10:49:17 AM

The Daily Morning Meeting News for March 1, 2019

Regional Duty Officer: John Hanna

Teleconference Number: (800) 779-9565; Passcode:

(b)(6)

Note: This newsletter may contain pre-decisional info. Do not distribute outside the NRC.

PREDICT/Leadership Model: Collaboration and Teamwork

Support Issues:

RA: No announcements.
DRP: Bob reminded us that there will be an agency wide presentation on Risk-Informed Decision Making. Julio and John will be presenting along with other Offices on case studies where risk was effectively used in our programs. The link to the iLearn course is below:

<https://drupal.nrc.gov/announcements/standard/event/50365>

To get credit in iLearn register in Course ID_464164

DRS: No announcements.
DNMS: Christine Lipa is onsite for the State of Ohio Integrated Management Performance Program (IMPEP) exit today. All indicators were found to be satisfactory.
EICS: The final SERP on Clinton EDG failure was held yesterday and finalized as a White finding/violation. Final significance determination letter to be sent to the licensee.
DRMA: The agency has been working with OPM et. al., on performance appraisal definitions of Outstanding, Excellent, Fully-Satisfactory. Look for a Yellow Announcement next week.
STATES: No announcements.
PAO: See [NRC in the News Today](#)

Event Notifications: Event Notice 53903. See the LaSalle write-up below.

Part 21: None.

Plant Status

BRANCH 1

Clinton:

Dresden: downpower for scheduled maintenance

LaSalle: U2: Mode 5 and Yellow shutdown risk; Time to Boil is 23 hours; (b)(5)

(b)(5)

Quad Cities:

U1: At 95 percent power and in coastdown.

BRANCH 2

Davis Besse: Unit will be down powering to 95% for Trip and Throttle Valve Testing

Duane Arnold: Ambulance on site.

Palisades: No issues.

Perry:

(b)(5)

(b)(5)

BRANCH 3

Braidwood: 100% no issues.

Byron:

100%. (b)(5)

(b)(5)

Monticello: At 86 percent power and in coastdown for a refueling outage. 3-4 inches of snow and -25F temps expected.

Prairie Island: 100%. 3-4 inches of snow and -25F temps expected. Licensee plans on

performing scheduled maintenance (approximately 1 week duration) on the D-5 EDG. (b)(5)

(b)(5)

BRANCH 4

D.C. Cook:

At 82 percent power and in coastdown for a March 6th refueling outage

U2: Replacement of Cell 14 of the safety-related 250 Volt CD battery went well and was completed within TS AOT.

Fermi: 1) downpower to 71% for Trip and Throttle Valve Testing & rod pattern adjustment, (b)(5)

(b)(5)

Point Beach: both units 100% no issues.

Other Issues – EWRA 30 for 30 starts.

Post 8:15 Meeting Topics – next week, discussion of Perry reactor trip.

From: [Mitman, Jeffrey](#)
To: [Fong, CJ](#); [Franovich, Mike](#); [Lara, Julio](#); [Wilson, George](#); [Miller, Chris](#)
Cc: [Kozak, Laura](#); [Casey, Lauren](#); [Dickson, Billy](#); [Aird, David](#); [Garmoe, Alex](#); [Bowman, Gregory](#)
Subject: RE: Clinton SERP - Language from SPAR-H re additional personnel and its impacts on quantification
Date: Friday, March 01, 2019 4:14:26 PM

(b)(5)

Jeff Mitman

From: Fong, CJ
Sent: Friday, March 01, 2019 3:58 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>; Bowman, Gregory <Gregory.Bowman@nrc.gov>
Subject: RE: Clinton SERP - Language from SPAR-H re additional personnel and its impacts on quantification

Jeff,

(b)(5)

Respectfully,
CJ

From: Mitman, Jeffrey
Sent: Friday, March 01, 2019 9:49 AM
To: Franovich, Mike <Mike.Franovich@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>; Bowman, Gregory <Gregory.Bowman@nrc.gov>
Subject: Clinton SERP - Language from SPAR-H re additional personnel and its impacts on quantification

(b)(5)

Jeff Mitman

NUREG/CR-6883, "The SPAR-H Reliability Analysis Method"

Executive Summary

Page xiii

"This report presents a simple HRA method for estimating the human error probabilities associated with operator and crew actions and decisions in response to initiating events at commercial U.S. nuclear power plants (NPPs)."

In addition to the above short method's applicability discussion, the document addresses "the crew" over 150 times. The takeaway from this for me is that the method is not addressing actions performed by an individual but the action of the combined operational crew. It recognizes and supplies guidance on how to quantify the reliability of that crew. In the context of our discussion regarding who would be in the EDG room troubleshooting the failure to start, I would argue that the SPAR-H method recognizes that the PRA needs to take into consideration the entire crew and not the lone individual. An additional important point is that the methodology is silent to crew size, composition, etc., and whether it includes expertise outside the operations department, e.g., maintenance and engineering. However, there is a discussion of the TSC/EOC and its impacts, I discuss it next.

3.6 Change in Time Performance Shaping Factor (PSF)

Page 52

"Time Advantage. Having three times the amount of time it normally takes the operators to place the system in service gives the operators more time to recover from their own errors, to troubleshoot, realign misalignments, and communicate with others outside the control room, such as auxiliary equipment operators that may be required to perform local manipulations, and, during emergencies, personnel staffing, the Technical Support Center (TSC), and Emergency Operations Center (EOC)."

This citation documents SPAR-H's only reference to the TSC/EOC. It instructs the analyst to lower the failure probability when the time available significantly exceeds the time required. This citation documents that the authors consider the impact of the availability of the TSC/EOC and factored it into the methodology via the available time PSF.

Section 5.1 Differences between At-Power and LP/SD

Starting on Page 65

“In the context of nuclear power plant operations, workload and stress are often closely related. Increased workload and stress were often cited in the literature as potential contributors to human error during LP/SD. The presence of a much larger staff, including less-experienced personnel at the plant, as well as the influence of extended work periods, can play significant roles in increasing the workload of operators. However, plant staff interviews indicate that high workload and stress, while potentially significant during LP/SD, did not appear to be at detrimental levels at the plant. It was stated that during an outage, the size of the operations crew is expanded and the shift organization is changed to minimize the impact of the increased workload and to reduce the stress of outage of operations. These measures were cited by the staff as effective in minimizing the impact of outage operations on workload and stress. Therefore, we believe that the addition of personnel may increase organizational load, as opposed to individual load. Increased organizational load can result in unsafe acts, leading to human failure events. Perhaps future research will evaluate staffing and organization factors more directly.”

(b)(5)

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: RE: Language from SPAR-H re additional personnel
Date: Friday, March 01, 2019 7:44:00 AM

yes

From: Mitman, Jeffrey
Sent: Thursday, February 28, 2019 4:52 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Language from SPAR-H re additional personnel

Laura, do you think it is worth distributing the below language to the SERP? The point would be to show that the formulators of the SPAR-H method contentiously considered additional personnel and made the decision to not debit or credit additional personnel during LP/SD.

Jeff Mitman

NUREG/CR-6883, "The SPAR-H Reliability Analysis Method"

Executive Summary

Page xiii

This report presents a simple HRA method for estimating the human error probabilities associated with operator and crew actions and decisions in response to initiating events at commercial U.S. nuclear power plants (NPPs).

In addition to the above short discussion of the methods applicability, the document addresses "the crew" over 150 times. The takeaway from this is that the method is not addressing individual actions performed by an individual but the action of the combined operational crew. It recognizes and takes into consideration the combined reliability of that crew. In the context of our discussion regarding who would be in the EDG troubleshooting the failure to start, I would argue that the SPAR-H method recognizes that the PRA needs to take into consideration the entire crew and not the lone individual. However, the methodology is silent to crew size composition, e.g., whether it includes expertise outside the operations department.

Section 5.1 Differences between At-Power and LP/SD

Starting on Page 65

In the context of nuclear power plant operations, workload and stress are often closely related. Increased workload and stress were often cited in the literature as potential contributors to human error during LP/SD. The presence of a much larger staff, including less-experienced personnel at the plant, as well as the influence of extended work periods, can play significant roles in increasing the workload of operators. However, plant staff interviews indicate that high workload and stress, while potentially significant during LP/SD, did not appear to be at detrimental levels at the plant. It was stated that during an outage, the size of the operations crew is expanded and the shift organization is changed to

minimize the impact of the increased workload and to reduce the stress of outage of operations. These measures were cited by the staff as effective in minimizing the impact of outage operations on workload and stress. Therefore, we believe that the addition of personnel may increase organizational load, as opposed to individual load. Increased organizational load can result in unsafe acts, leading to human failure events. Perhaps future research will evaluate staffing and organization factors more directly.

The above SPAR-H discussion shows that the methodology's authors were well aware of the difference between at-power and shutdown conditions as to the aspect of crew size and composition. The authors considered it during their formulation of the LP/SD differences, and in their judgment decided not to change the methodology to reflect that the plant's staff would be different during shutdown.

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton
Date: Monday, March 04, 2019 10:58:00 AM
Attachments: [Outline of Final Significance Determination Response rev 3.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

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A large rectangular area that has been redacted, indicated by a black border. The text "(b)(5)" is written in the top-left corner of this area.

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From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: FW: Clinton regulatory conference
Date: Monday, March 04, 2019 12:03:00 PM
Attachments: [Clinton Regulatory Conference SRA notes jtm.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

Just FYI. Provided this to a wide audience prior to the regulatory conference.

Good info here, not sure all involved made the most of this information.

From: Kozak, Laura
Sent: Thursday, November 29, 2018 3:48 PM
To: West, Steven <Steven.West@nrc.gov>; Roberts, Darrell <Darrell.Roberts@nrc.gov>; Giessner, John <John.Giessner@nrc.gov>; Loudon, Patrick <Patrick.Loudon@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Stoedter, Karla <Karla.Stoedter@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>; Sargis, Daniel <Daniel.Sargis@nrc.gov>
Subject: Clinton regulatory conference

Jeff and I put together the attached one-page document.

The document covers what we think is new information, what we think are areas of disagreement but is not new information, and some important points to keep in mind during tomorrow's meeting.

If anyone has any questions before the conference, we will both be available. Please share this document as necessary with others for information.

Laura

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From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: FW: Comments on Exelon presentation
Date: Monday, March 04, 2019 12:04:00 PM
Attachments: [CPS Div 2 DG Reg Conf Presentation \(11-19-18\)\(2a\).pdf](#)

Note to requester: Attachment is a non-responsive record due to clarifying the request to exclude licensee originated documents.

More good info

From: Kozak, Laura
Sent: Friday, November 30, 2018 8:13 AM
To: West, Steven <Steven.West@nrc.gov>; Roberts, Darrell <Darrell.Roberts@nrc.gov>; Giessner, John <John.Giessner@nrc.gov>; Loudon, Patrick <Patrick.Louden@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Stoedter, Karla <Karla.Stoedter@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>; Sargis, Daniel <Daniel.Sargis@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Zoulis, Antonios <Antonios.Zoulis@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: FW: Comments on Exelon presentation

All

Jeff marked up the licensee procedure with some comments and highlighted areas of new information and points of disagreement.

See attached.

Laura

From: Mitman, Jeffrey
Sent: Thursday, November 29, 2018 7:46 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Zoulis, Antonios <Antonios.Zoulis@nrc.gov>
Subject: Comments on Exelon presentation

Laura,

As promised.

Jeff Mitman

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton - I edited the paragraph below slightly. Are you okay with this?
Date: Wednesday, March 06, 2019 9:28:16 AM

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From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: Clinton discussion tomorrow
Date: Wednesday, March 06, 2019 10:02:33 AM

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Risk-informed, performance-based regulation will, at least in part, involve a shift in the NRC role from improving human reliability to one of monitoring human reliability. Past efforts were appropriately pro-active (rather than performance based) because the accident at TMI had clearly illustrated the serious deficiencies in programs to support effective and safe human performance.

The success of the human performance improvement programs allows the NRC to now take a more performance-based approach to regulatory oversight of human performance. Thus, if plant performance is acceptable (as monitored through risk-informed inspections and PIs), then the performance of plant personnel is assumed to be acceptable as well. That is, if risk-informed inspection and plant PIs for each cornerstone together indicate that plant performance

0308

is meeting the cornerstone objectives, then those findings also provide an indication of the acceptability of the associated human activities.

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: Clinton
Date: Wednesday, March 06, 2019 3:27:23 PM
Attachments: [Outline of Final Significance Determination Response rev 6.docx](#)

very slight wording change in this version.

Final Significance Determination

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From: [Kozak, Laura](#)
To: [Riemer, Kenneth](#)
Subject: Fw: input to Clinton final letter
Date: Wednesday, March 06, 2019 11:25:36 AM
Attachments: [Outline of Final Significance Determination Response rev 5.docx](#)

From: Kozak, Laura
Sent: Wednesday, March 6, 2019 11:15 AM
To: Lara, Julio
Subject: input to Clinton final letter

Please see attached for your review before forwarding to other SERP members.

Laura

Final Significance Determination

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Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Lambert, Kenneth](#)
To: [Kozak, Laura](#)
Subject: FW: Strategy Docs proposed for February Panels for Clinton.
Date: Wednesday, March 06, 2019 10:56:18 AM
Attachments: [EA-18-104-3 Clinton.MJM.pdf](#)

Laura,

Please review the attached Clinton strategy form 3 and let me know if you have any comments on the remarks section of the strategy form. I believe the remarks section captures the results of the SERP.

Ken

Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission
630-810-4376
kenneth.lambert@nrc.gov

From: Marshfield, Mark
Sent: Tuesday, March 05, 2019 3:42 PM
To: Lambert, Kenneth <Kenneth.Lambert@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: Strategy Docs proposed for February Panels for Clinton.

Please review.

Thanks,
Mark Marshfield
OE/EB

From: [Kozak, Laura](#)
To: [Riemer, Kenneth](#)
Subject: FW: Clinton changes made
Date: Thursday, March 07, 2019 11:30:55 AM
Attachments: [Outline of Final Significance Determination Response rev 7.docx](#)

From: Kozak, Laura
Sent: Thursday, March 07, 2019 11:21 AM
To: Lara, Julio <Julio.Lara@nrc.gov>
Subject: Clinton changes made

Are sending out informally first to SERP members? I thought this was what we agreed to.

Should I send, or do you want to?

Final Significance Determination

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From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: FW: Clinton Final Significance Determination Letter input
Date: Thursday, March 07, 2019 1:15:00 PM
Attachments: [Outline of Final Significance Determination Response rev 7.docx](#)

FYI. This version has incorporated some of Julio's initial comments.

From: Kozak, Laura
Sent: Thursday, March 07, 2019 1:13 PM
To: Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Subject: Clinton Final Significance Determination Letter input

Please see attached for your review and comment as requested at the last SERP meeting. This document will ultimately be the attachment to the final letter describing the assessment of the post-regulatory conference information. We are still working on the actual letter but wanted to get this out to ensure a timely review and issuance of the letter.

Please let me know if you have any questions.

Laura

Final Significance Determination

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Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton cover letter
Date: Friday, March 08, 2019 1:43:00 PM
Attachments: [final significance cover letter input.docx](#)

Jeff

I am working on a couple of paragraphs for the Clinton FSD cover letter. Can you help with the attached?

Thanks
Laura

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: Clinton cover letter input
Date: Monday, March 11, 2019 9:37:00 AM
Attachments: [final significance cover letter input rev 1.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

Comments?

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: RE: Clinton cover letter
Date: Monday, March 11, 2019 9:33:00 AM
Attachments: [image001.png](#)

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- see below excerpt from the ROP basis document.

The philosophy behind the establishment of the thresholds for PIs and inspection findings was essentially to assume that an increase in PI values or conditions indicated by the finding, would, if their root causes were uncorrected, be equivalent to accepting a de facto increase in the CDF and LERF metrics. This is clearer for the PIs than it is for the inspection findings, which may relate to a **time**-limited undesired condition. For such cases, the model used is that the event is indicative of an underlying performance issue that, if uncorrected, would be expected to result in similar occurrences with the same frequency.

From: Mitman, Jeffrey
Sent: Monday, March 11, 2019 9:25 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton cover letter

Laura, attached are my suggested edits.

Jeff Mitman

From: Kozak, Laura
Sent: Friday, March 08, 2019 2:44 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Clinton cover letter

Jeff

I am working on a couple of paragraphs for the Clinton FSD cover letter. Can you help with the attached?

Thanks
Laura

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Lambert, Kenneth](#)
Cc: [Riemer, Kenneth](#)
Subject: Clinton final significance determination letter
Date: Tuesday, March 12, 2019 12:25:00 PM
Attachments: [final significance cover letter input rev 2.docx](#)

Ken

See attached. This input is for the cover letter.

The input for the attachment to the letter has been sent to the SERP members for comment. We expect the comments back this week. After we address the comments, we will send the attachment to you.

Let me know if you have any questions.

Laura

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From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: revised Clinton FSD cover letter
Date: Tuesday, March 12, 2019 7:35:00 AM
Attachments: [final significance cover letter input rev 2.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

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From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton
Date: Wednesday, March 13, 2019 2:11:00 PM
Attachments: [Outline of Final Significance Determination Response rev 8.docx](#)

FYI. The attached version is what I gave to Julio after incorporating CJ's comments. Julio intends to review, reply to CJ, and then forward the input to be put in the final letter for concurrence.

I will be out of the office until next Wednesday.

Laura

Final Significance Determination

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From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Cc: [Riemer, Kenneth](#)
Subject: Clinton reply
Date: Wednesday, March 13, 2019 2:09:27 PM
Attachments: [Outline of Final Significance Determination Response rev 8.docx](#)

As we discussed, here are the changes I made based on CJ's comments. I accepted the vast majority of his comments. I did make a few changes to his edits and also made a few non-significant additional edits of my own.

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Final Significance Determination

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From: [Miller, Chris](#)
To: [Fong, CJ](#); [Wilson, George](#); [Kozak, Laura](#); [Lara, Julio](#); [Franovich, Mike](#)
Subject: RE: Clinton Final Significance Determination Letter input
Date: Wednesday, March 13, 2019 2:58:07 PM

All,

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chris

From: Fong, CJ
Sent: Wednesday, March 13, 2019 12:49 PM
To: Wilson, George <George.Wilson@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: RE: Clinton Final Significance Determination Letter input

Dear all,

(b)(5)

Respectfully,
CJ

From: Wilson, George
Sent: Wednesday, March 13, 2019 5:38 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>
Subject: RE: Clinton Final Significance Determination Letter input

I have given my comments to C J Fong

From: Kozak, Laura

Sent: Thursday, March 7, 2019 2:13 PM

To: Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>

Subject: Clinton Final Significance Determination Letter input

Please see attached for your review and comment as requested at the last SERP meeting. This document will ultimately be the attachment to the final letter describing the assessment of the post-regulatory conference information. We are still working on the actual letter but wanted to get this out to ensure a timely review and issuance of the letter.

Please let me know if you have any questions.

Laura

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: FW: Clinton Final Significance Determination Letter input
Date: Wednesday, March 13, 2019 12:10:00 PM
Attachments: [Outline of Final Significance Determination Response rev 7 \(CJF comments\).docx](#)

From: Fong, CJ
Sent: Wednesday, March 13, 2019 11:49 AM
To: Wilson, George <George.Wilson@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: RE: Clinton Final Significance Determination Letter input

Dear all,

(b)(5)

Respectfully,
CJ

From: Wilson, George
Sent: Wednesday, March 13, 2019 5:38 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>
Subject: RE: Clinton Final Significance Determination Letter input

I have given my comments to C J Fong

From: Kozak, Laura
Sent: Thursday, March 7, 2019 2:13 PM
To: Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Subject: Clinton Final Significance Determination Letter input

Please see attached for your review and comment as requested at the last SERP meeting. This document will ultimately be the attachment to the final letter describing the assessment

of the post-regulatory conference information. We are still working on the actual letter but wanted to get this out to ensure a timely review and issuance of the letter.

Please let me know if you have any questions.

Laura

Final Significance Determination

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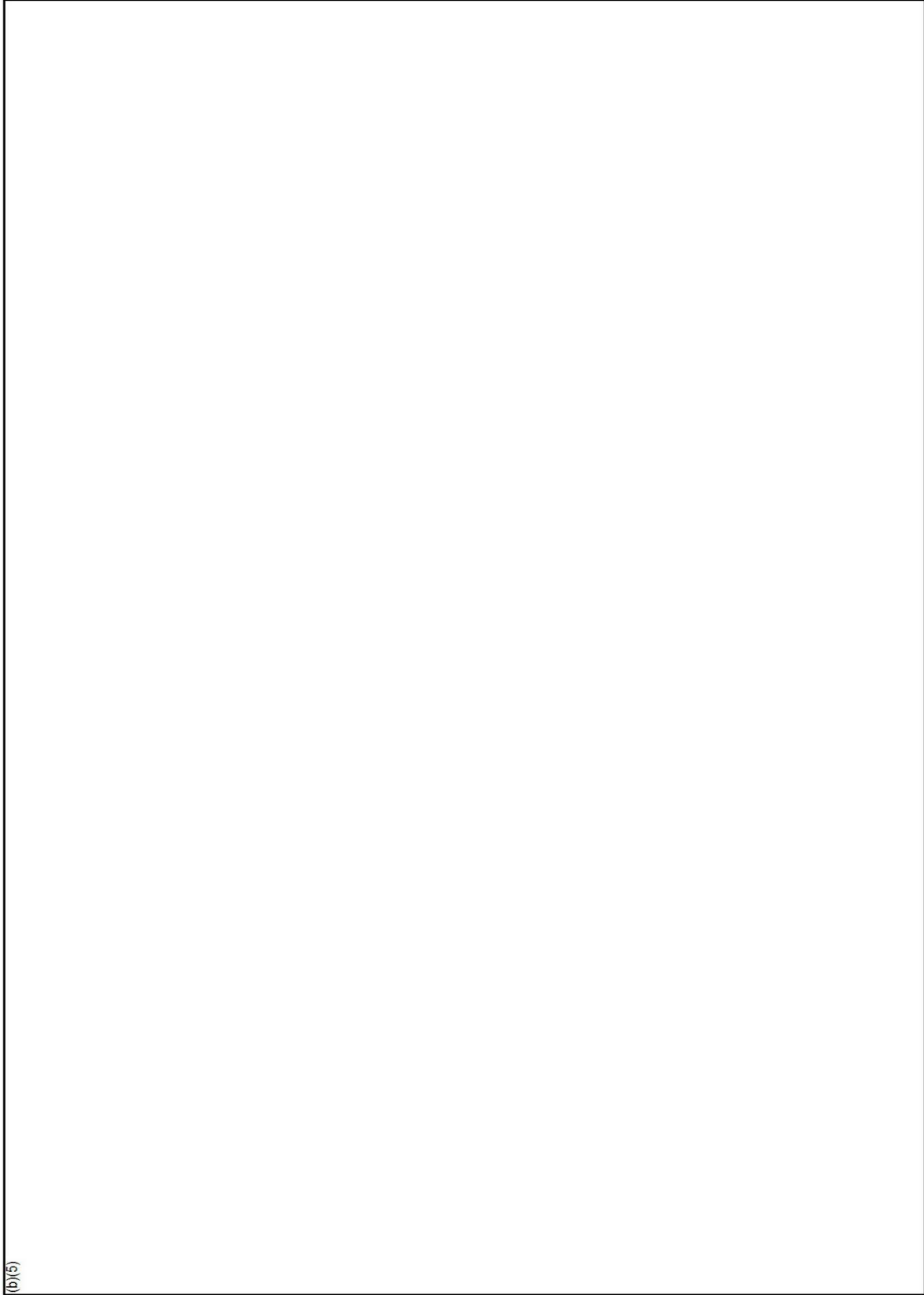
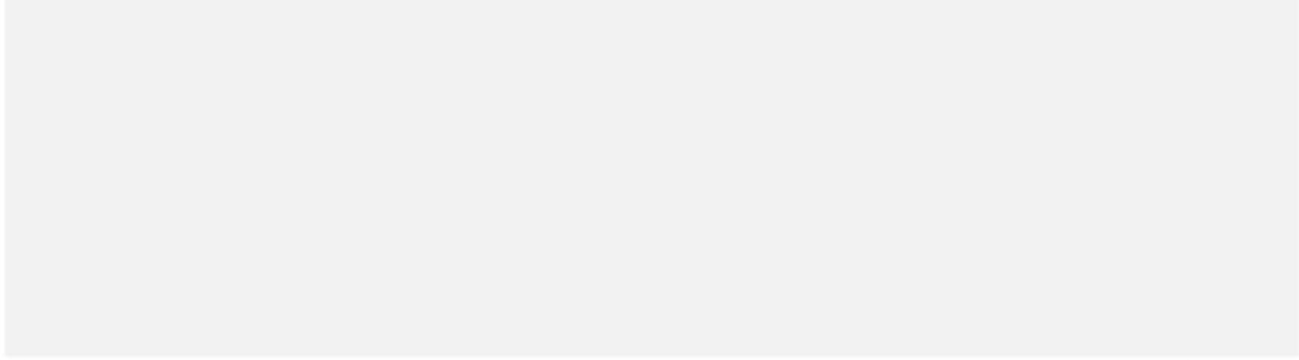
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From: [Lara, Julio](#)
To: [Fong, CJ](#); [Franovich, Mike](#); [Miller, Chris](#); [Wilson, George](#)
Cc: [Kozak, Laura](#)
Subject: FW: Clinton reply
Date: Wednesday, March 13, 2019 4:36:34 PM
Attachments: [Outline of Final Significance Determination Response rev 8.docx](#)

All,

Laura and I have reviewed the proposed edits CJ put forward.

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Please review. Once we agree on document, we would finalize the draft Letter with this attachment and forward to OE for distribution/review/concurrence.

From: Kozak, Laura
Sent: Wednesday, March 13, 2019 2:09 PM
To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>
Subject: Clinton reply

As we discussed, here are the changes I made based on CJ's comments. I accepted the vast majority of his comments. I did make a few changes to his edits and also made a few non-significant additional edits of my own.

However,

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Final Significance Determination

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From: [Franovich, Mike](#)
To: [Miller, Chris](#); [Fong, CJ](#); [Wilson, George](#); [Kozak, Laura](#); [Lara, Julio](#)
Subject: RE: Clinton Final Significance Determination Letter input
Date: Wednesday, March 13, 2019 4:23:55 PM

The themes below are consistent with my discussion with CJ this morning. That said, I support the approach.

From: Miller, Chris
Sent: Wednesday, March 13, 2019 3:58 PM
To: Fong, CJ <CJ.Fong@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: RE: Clinton Final Significance Determination Letter input

All,

(b)(5)



chris

From: Fong, CJ
Sent: Wednesday, March 13, 2019 12:49 PM
To: Wilson, George <George.Wilson@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: RE: Clinton Final Significance Determination Letter input

Dear all,

(b)(5)



Respectfully,
CJ

From: Wilson, George
Sent: Wednesday, March 13, 2019 5:38 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>
Subject: RE: Clinton Final Significance Determination Letter input

I have given my comments to C J Fong

From: Kozak, Laura
Sent: Thursday, March 7, 2019 2:13 PM
To: Lara, Julio <Julio.Lara@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Subject: Clinton Final Significance Determination Letter input

Please see attached for your review and comment as requested at the last SERP meeting. This document will ultimately be the attachment to the final letter describing the assessment of the post-regulatory conference information. We are still working on the actual letter but wanted to get this out to ensure a timely review and issuance of the letter.

Please let me know if you have any questions.

Laura

From: [Franovich, Mike](#)
To: [Lara, Julio](#); [Fong, CJ](#); [Miller, Chris](#); [Wilson, George](#)
Cc: [Kozak, Laura](#)
Subject: RE: Clinton reply
Date: Wednesday, March 13, 2019 4:47:33 PM

Thanks, Julio. I have no additional comments.

Looking forward to the draft final package.

Mike

From: Lara, Julio
Sent: Wednesday, March 13, 2019 5:37 PM
To: Fong, CJ <CJ.Fong@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: FW: Clinton reply

All,

Laura and I have reviewed the proposed edits CJ put forward.

(b)(5)

Please review. Once we agree on document, we would finalize the draft Letter with this attachment and forward to OE for distribution/review/concurrence.

From: Kozak, Laura
Sent: Wednesday, March 13, 2019 2:09 PM
To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>
Subject: Clinton reply

As we discussed, here are the changes I made based on CJ's comments. I accepted the vast majority of his comments. I did make a few changes to his edits and also made a few non-significant additional edits of my own.

(b)(5)

(b)(5)

From: [Miller, Chris](#)
To: [Lara, Julio](#); [Fong, CJ](#); [Franovich, Mike](#); [Wilson, George](#)
Cc: [Kozak, Laura](#); [Dickson, Billy](#)
Subject: RE: Clinton reply
Date: Thursday, March 14, 2019 11:14:11 AM

Julio,
I like the changes, and am good with the version you sent.
chris

From: Lara, Julio
Sent: Wednesday, March 13, 2019 5:37 PM
To: Fong, CJ <CJ.Fong@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: FW: Clinton reply

All,

Laura and I have reviewed the proposed edits CJ put forward.

(b)(5)

Please review. Once we agree on document, we would finalize the draft Letter with this attachment and forward to OE for distribution/review/concurrence.

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Sent: Wednesday, March 13, 2019 2:09 PM
To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>
Subject: Clinton reply

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(b)(5)

(b)(5)

From: [Lara, Julio](#)
To: [Lambert, Kenneth](#)
Cc: [Cameron, Jamnes](#); [Riemer, Kenneth](#); [Kozak, Laura](#)
Subject: FW: Clinton reply
Date: Thursday, March 14, 2019 12:52:30 PM
Attachments: [Outline of Final Significance Determination Response rev 8.docx](#)
Importance: High

Ken,

Please incorporate the attached as an attachment/Enclosure to the Clinton Final SDP letter. I believe Laura previously sent you input paragraphs for the cover letter.

I would like to see the final letter prior to sending it out for concurrence. I can turn it around the same day. Could you forward such to me when ready.

Given where we are now, what is a reasonable estimate for issuance?

Thanks
Julio

From: Lara, Julio
Sent: Wednesday, March 13, 2019 4:37 PM
To: Fong, CJ <CJ.Fong@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: FW: Clinton reply

All,

Laura and I have reviewed the proposed edits CJ put forward.

(b)(5)

Please review. Once we agree on document, we would finalize the draft Letter with this attachment and forward to OE for distribution/review/concurrence.

From: Kozak, Laura
Sent: Wednesday, March 13, 2019 2:09 PM
To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>

Subject: Clinton reply

As we discussed, here are the changes I made based on CJ's comments. I accepted the vast majority of his comments. I did make a few changes to his edits and also made a few non-significant additional edits of my own.

(b)(5)



Final Significance Determination

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(b)(5)

(b)(5)

(b)(5)

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(b)(5)



(b)(5)

(b)(5)

(b)(5)



(b)(5)

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Cc: [Lara, Julio](#)
Subject: RE: Clinton
Date: Thursday, March 14, 2019 3:16:39 PM
Attachments: [Outline of Final Significance Determination Response rev 8 itm.docx](#)

Lara and Julio, I've made a couple of minor tweaks to the language for your consideration.

Thanks.

Jeff Mitman

From: Kozak, Laura
Sent: Wednesday, March 13, 2019 3:12 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Clinton

FYI. The attached version is what I gave to Julio after incorporating CJ's comments. Julio intends to review, reply to CJ, and then forward the input to be put in the final letter for concurrence.

I will be out of the office until next Wednesday.

Laura

Final Significance Determination

(b)(5)

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(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)



From: [Wilson, George](#)
To: [Miller, Chris](#); [Lara, Julio](#); [Fong, CJ](#); [Franovich, Mike](#)
Cc: [Kozak, Laura](#); [Dickson, Billy](#)
Subject: RE: Clinton reply
Date: Thursday, March 14, 2019 11:25:13 AM

I am also good with this version

From: Miller, Chris
Sent: Thursday, March 14, 2019 12:14 PM
To: Lara, Julio <Julio.Lara@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>
Subject: RE: Clinton reply

Julio,
I like the changes, and am good with the version you sent.
chris

From: Lara, Julio
Sent: Wednesday, March 13, 2019 5:37 PM
To: Fong, CJ <CJ.Fong@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: FW: Clinton reply

All,

Lara and I have reviewed the proposed edits CJ put forward.

(b)(5)

Please review. Once we agree on document, we would finalize the draft Letter with this attachment and forward to OE for distribution/review/concurrence.

From: Kozak, Laura
Sent: Wednesday, March 13, 2019 2:09 PM
To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>
Subject: Clinton reply

As we discussed, here are the changes I made based on CJ's comments. I accepted the

vast majority of his comments. I did make a few changes to his edits and also made a few non-significant additional edits of my own.

(b)(5)

A large rectangular area of the document is redacted, indicated by a black border. The text "(b)(5)" is written in the top-left corner of this redacted area.

From: [Lara, Julio](#)
To: [Lambert, Kenneth](#)
Cc: [Cameron, Jamnes](#); [Riemer, Kenneth](#); [Kozak, Laura](#)
Subject: RE: Clinton reply
Date: Thursday, March 14, 2019 1:33:12 PM

Ok. Thanks ideally, we like to get it out NLT 3/27.

Exelon has a drop-in here on 3/28.

From: Lambert, Kenneth
Sent: Thursday, March 14, 2019 1:08 PM
To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton reply

Julio,

I will provide you the letter before I put into concurrence.

I would like to say that we could issue the action next week, but more realistically issue it the last week of March. Part of the complication is we need to issue an EN and need to wait until most of the concurrences are completed before issuing it.

Ken

Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission
630-810-4376
kenneth.lambert@nrc.gov

From: Lara, Julio
Sent: Thursday, March 14, 2019 12:52 PM
To: Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Cc: Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: FW: Clinton reply
Importance: High

Ken,

Please incorporate the attached as an attachment/Enclosure to the Clinton Final SDP

letter. I believe Laura previously sent you input paragraphs for the cover letter.

I would like to see the final letter prior to sending it out for concurrence. I can turn it around the same day. Could you forward such to me when ready.

Given where we are now, what is a reasonable estimate for issuance?

Thanks
Julio

From: Lara, Julio
Sent: Wednesday, March 13, 2019 4:37 PM
To: Fong, CJ <CJ.Fong@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: FW: Clinton reply

All,

Laura and I have reviewed the proposed edits CJ put forward.

(b)(5)

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To: Lara, Julio <Julio.Lara@nrc.gov>
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(b)(5)

(b)(5)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Lara, Julio](#)
To: [Kozak, Laura](#)
Subject: FW: Clinton final action for your review
Date: Wednesday, March 20, 2019 11:48:19 AM
Attachments: [EA-18-104 Clinton EDG final action LARAedits.docx](#)

No.

From: Lara, Julio
Sent: Friday, March 15, 2019 9:22 AM
To: Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Cc: Heller, James <James.Heller@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>; Wilk, Brenda <Brenda.Wilk@nrc.gov>
Subject: Re: Clinton final action for your review

Ken, Jim,

please see attached edits. looks pretty good, though im confused about enclosures and edits. comments contained within. made my edits with redline/strikeout so review one-by-one.
thanks

once incopt'd, forward as appropriate.

From: Lambert, Kenneth
Sent: Thursday, March 14, 2019 4:29 PM
To: Lara, Julio
Cc: Heller, James
Subject: Clinton final action for your review

Attached is the Clinton final action for your review and comments before I put it into concurrence.

We should be able to issue by or on 3/27. I will coordinate with OE to issue the EN on Thursday, 3/21.

Also, after today, I am out of the office until Tuesday.

If you want to get the action into typing tomorrow sent to Jim Clay and Jim Heller otherwise I will work on it on Tuesday morning. If Jim has any questions he can call

me.

Ken

Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission
630-810-4376
kenneth.lambert@nrc.gov

From: Lara, Julio
Sent: Thursday, March 14, 2019 1:33 PM
To: Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Cc: Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton reply

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To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton reply

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Ken Lambert
Sr. Enforcement Specialist
Region III
U.S. Nuclear Regulatory Commission

630-810-4376

kenneth.lambert@nrc.gov

From: Lara, Julio

Sent: Thursday, March 14, 2019 12:52 PM

To: Lambert, Kenneth <Kenneth.Lambert@nrc.gov>

Cc: Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>

Subject: FW: Clinton reply

Importance: High

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Thanks

Julio

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Sent: Wednesday, March 13, 2019 4:37 PM

To: Fong, CJ <CJ.Fong@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>

Cc: Kozak, Laura <Laura.Kozak@nrc.gov>

Subject: FW: Clinton reply

All,

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(b)(5)

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From: Kozak, Laura
Sent: Wednesday, March 13, 2019 2:09 PM
To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>
Subject: Clinton reply

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(b)(5)



From: [Kozak, Laura](#)
To: [Aird, David](#)
Subject: Re: Clinton White Finding Uncertainty
Date: Wednesday, March 27, 2019 7:26:46 AM
Attachments: [Risk Comms Clinton DG Air 9-25.pptx](#)

David

(b)(5)

I'd be happy to talk more and participate in this work.

Laura

From: Aird, David
Sent: Wednesday, March 27, 2019 7:05 AM
To: Mitman, Jeffrey; Kozak, Laura
Cc: Garmoe, Alex
Subject: Clinton White Finding Uncertainty

Jeff and Laura,

In thinking about RIDM and the use of qualitative factors, Alex and I are exploring the communication of PRA results to SERP decision makers.

(b)(5)

Also, I recall there being a one-pager that perhaps showed the model assumptions, early PRA results, etc. This may have been used for the IFRB. I should know more about this, but it was right around the time I started in DIRS and may have slipped through the cracks.

Finally, based on my research, the final determination letter should go out April 1. Let me know if that doesn't sound right.

Thanks!

David Aird

U.S. Nuclear Regulatory Commission
Reactor Operations Engineer
NRR/DIRS/IRAB
(301) 287 – 0725

CLINTON– SDP DETAILED RISK ASSESSMENT UNAVAILABILITY OF DIVISION 2 EMERGENCY DIESEL GENERATOR

PERFORMANCE DEFICIENCY – LOW TO MODERATE SAFETY SIGNIFICANCE (WHITE) The licensee failed to perform activities affecting quality in accordance with prescribed procedures and work instructions as required by 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," that resulted in the unavailability of the Division 2 EDG when it was relied upon for plant safety. Specifically, the inspectors identified six separate procedures or work instructions the licensee failed to follow which led to the concurrent inoperability of both emergency diesel generators.

EXPOSURE PERIOD

The Division 2 EDG was unavailable for over 6 days. Both divisions were unavailable for 3.5 days, while the unit was in mode 4. The inspectors identified six separate procedures or work instructions the licensee failed to follow which led to the concurrent inoperability of both emergency diesel generators.

INFLUENTIAL ASSUMPTIONS

(b)(5)

DOMINANT CORE DAMAGE SEQUENCES

(b)(5)

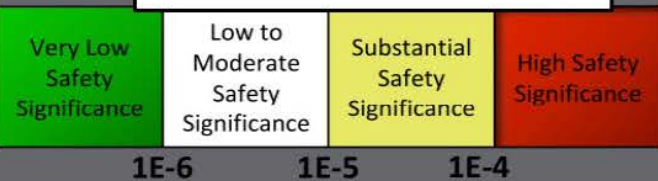
LICENSEE'S PERSPECTIVE OF THE ISSUE

The licensee concluded the finding was Green with a quantitative risk estimate of E-8. The main differences between the NRC and the licensee results are differences in human error probability estimates. The licensee's perspective is that time, resources and urgency of the diesel recovery provide high assurance of diesel generator recovery.

(b)(5)

UNCERTAINTY AND SENSITIVITY ANALYSES

(b)(5)



Key Messages The result of the evaluation is the preliminary significance determination. The NRC's evaluation is based on reasonable and realistic assumptions and has considered the licensee's perspectives to date. If new information is provided, it will be evaluated for impact on the significance before a final significance determination is made. (b)(5)

(b)(5)

From: [Lara, Julio](#)
To: [Roberts, Darrell](#); [Giessner, John](#)
Cc: [Sanfilippo, Nathan](#); [Shuaibi, Mohammed](#)
Subject: Exelon drop-in key messages
Date: Thursday, March 28, 2019 11:09:45 AM
Attachments: [image003.png](#)

(b)(5)

Julio Lara, P.E.
Division Director
Division of Reactor Projects, RIII
630-829-9600

logo-emails-1



From: [Roberts, Darrell](#)
To: [Haney, Catherine](#)
Cc: [McCoppin, Michael](#); [Giessner, John](#); [Mitlyng, Viktoria](#); [Chandrathil, Prema](#)
Subject: Plans for no press release on Clinton White FIN
Date: Thursday, March 28, 2019 4:48:10 PM
Attachments: [Fw Nuclear Industry Pushing For Fewer Inspections At Plants .msg](#)

Cathy,

(b)(5)



DJR

From: Cameron, Jamnes
Sent: Thu, 28 Mar 2019 14:09:11 +0000
To: Giessner, John; Roberts, Darrell
Subject: Fw: Nuclear Industry Pushing For Fewer Inspections At Plants

FYI

From: Peralta, Juan
Sent: Thursday, March 28, 2019 6:48 AM
To: Furst, David; Gulla, Gerald; Jones, David; Marenchin, Thomas; Marshfield, Mark; Sreenivas, Leelavathi; Torres, Edgardo; Woods, Susanne
Cc: Klukan, Brett; Kowal, Mark; Vasquez, Michael; Cameron, Jamnes; Einberg, Christian; Bowman, Gregory
Subject: Nuclear Industry Pushing For Fewer Inspections At Plants

Nuclear Industry Pushing For Fewer Inspections At Plants

By Ellen Knickmeyer

[Associated Press](#), March 14, 2019

The nuclear power industry is pushing the Nuclear Regulatory Commission to cut back on inspections at nuclear power plants and throttle back what it tells the public about plant problems.

The agency, whose board is dominated by Trump appointees, is listening.

Commission staffers are weighing some of the industry's requests as part of a sweeping review of how the agency enforces regulations governing the country's 98 commercially operating nuclear plants. Recommendations are due to the five-member NRC board in June.

Annie Caputo, a former nuclear-energy lobbyist now serving as one of four board members appointed or reappointed by President Donald Trump, told an industry meeting this week that she was "open to self-assessments" by nuclear plant operators, who are proposing that self-reporting by operators take the place of some NRC inspections.

The Trump NRC appointees and industry representatives say changes in oversight are warranted to reflect the industry's overall improved safety records and its financial difficulties, as the operating costs of the country's aging nuclear plants increase and affordable natural gas and solar and wind power gain in the energy market.

But the prospect of the Trump administration's regulation-cutting mission reaching the NRC alarms some independent industry watchdogs, who say the words "nuclear safety" and "deregulation" don't go together.

For example, "the deregulatory agenda at SEC is a significant concern as well, but it's not a nuclear power plant," said Geoffrey Fettus, a senior attorney for nuclear issues at the Natural Resources Defense Council, referring to the federal government's Securities Exchange Commission.

"For an industry that is increasingly under financial decline ... to take regulatory authority away from the NRC puts us on a collision course," said Paul Gunter, of the anti-nuclear group Beyond Nuclear. With what? "With a nuclear accident," Gunter said.

The industry made its requests for change in a letter delivered by the Nuclear Energy Institute group. A "high-priority" ask is to eliminate press releases about lower-level safety issues at plants — meaning the kind of problems that could trigger more inspections and oversight at a plant but not constitute an emergency.

The industry group also asked that the NRC reduce the “burden of radiation-protection and emergency-preparedness inspections.”

Nuclear plant operators amplified their requests at an annual meeting in the Washington, D.C, area this week.

Scaling back disclosure of lower-level problems at plants is “more responsible ... than to put out a headline on the webpage to the world,” said Greg Halnon, vice president of regulatory affairs for Ohio-based FirstEnergy Corp., which says its fleet of nuclear and other power plants supplies 6 million customers in the Midwest and Mid-Atlantic.

When the NRC makes public the problems found at a plant, utilities get “pretty rapid calls from the press, SEC filings get impacted because of potential financial impact,” Halnon said.

Requests by utilities for rate increases also can be affected, Halnon said.

Trump has said he wants to help both the coal and nuclear power industries. So far, it’s the more politically influential coal industry that’s gotten significant action on the regulatory rollbacks that it sought from the Environmental Protection Agency and other agencies.

In January, Trump appointees to the NRC disappointed environmental groups by voting down a staff proposal that nuclear plants be required to substantially — and expensively — harden themselves against major floods and other natural disasters.

The proposal was meant to be a main NRC response to the Fukushima nuclear plant disaster after Japan’s 9.0 earthquake and tsunami in 2011. 22

Caputo, who previously worked for nuclear plant operator Exelon Corp, told operators this week her aim was “risk-informed decision-making,” concentrating regulatory oversight on high-risk problems.

“We shouldn’t regulate to zero risk,” said David Wright, a former South Carolina public-utility commissioner appointed to the NRC board last year.

“The NRC mission is reasonable assurance of adequate protection — no more, no less,” Wright said.

Tony Vogel, a Texas-based reactor safety official for the NRC, pushed back when industry executives publicly made their case for fewer NRC inspections.

“It’s difficult to come across as an independent regulator and rely on self-assessment” from plants, Vogel said.

The current review, commissioned by the new NRC panel, was looking at the inspections issues and related ones, NRC spokesman Scott Burnell said. Commissioners will decide after receiving the staff recommendations whether to adopt any of them, Burnell said.

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From: [Mitlyng, Viktoria](#)
To: [Roberts, Darrell](#); [Giessner, John](#)
Cc: [Chandrathil, Prema](#); [Cameron, Jamnes](#); [Lara, Julio](#)
Subject: RE: press release strategy
Date: Thursday, March 28, 2019 10:42:02 AM

Darrell,
We were not planning to issue a press release on the Clinton White finding.
It may be useful for us to speak about the press release issue if you have time.
-Vika

From: Roberts, Darrell
Sent: Thursday, March 28, 2019 10:35 AM
To: Giessner, John <John.Giessner@nrc.gov>; Mitlyng, Viktoria <Viktoria.Mitlyng@nrc.gov>
Cc: Chandrathil, Prema <Prema.Chandrathil@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>
Subject: RE: press release strategy

(b)(5)

Thx,
DJR

From: Giessner, John
Sent: Thursday, March 28, 2019 10:22 AM
To: Mitlyng, Viktoria <Viktoria.Mitlyng@nrc.gov>
Cc: Chandrathil, Prema <Prema.Chandrathil@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Roberts, Darrell <Darrell.Roberts@nrc.gov>
Subject: press release strategy

Vika,

(b)(5)

Thanks!
Jack

From: [Wilk, Brenda](#)
To: [Orlikowski, Robert](#)
Subject: FW: EA-18-104 Clinton EDG final action.docx
Date: Friday, March 29, 2019 2:37:35 PM
Attachments: [EA-18-104 Clinton EDG final action.docx](#)

From: Olteanu, Carmen
Sent: Friday, March 29, 2019 9:52 AM
To: Wilk, Brenda <Brenda.Wilk@nrc.gov>
Subject: EA-18-104 Clinton EDG final action.docx

Please see attached.



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

April 1, 2019

EA-18-104

Mr. Bryan C. Hanson
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: CLINTON POWER STATION - FINAL SIGNIFICANCE DETERMINATION OF A
WHITE FINDING WITH ASSESSMENT FOLLOW-UP AND NOTICE OF
VIOLATION; NRC INSPECTION REPORT NO. 05000461/2018092**

Dear Mr. Hanson:

This letter provides you the final significance determination of the preliminary White finding discussed in our previous communication, dated November 6, 2018, which included Inspection Report 05000461/2018051. The preliminary finding involved an apparent violation of Title 10 of the *Code of Federal Regulations* (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and Technical Specification 3.8.2, Condition B.3, concerning the failure to follow multiple procedures regarding the emergency diesel generators (EDGs). The inspection report discussing the preliminary finding can be found in the U.S. Nuclear Regulatory Commission's (NRC's) Agencywide Documents Access and Management System (ADAMS) under Accession Number ML18311A151.

At your request, a Regulatory Conference was held on November 30, 2018, to discuss your views on this issue. A copy of the handout your staff provided at the meeting was entered into ADAMS under Accession Number ML18333A333. A NRC summary of the Regulatory Conference was entered into ADAMS under Accession Number ML18355A272. During the conference, your staff described your assessment of the significance of the finding, and the corrective actions taken to resolve it, including the root cause evaluation of the finding. Specifically, your staff agreed with the finding and violation but disagreed with the finding's preliminary determination of a White safety significance. Your staff presented their significance determination evaluation which differed from the one performed by the NRC. During the conference, the NRC staff requested additional information that your staff provided in a letter dated December 14, 2018 (ML19023A556).

After considering the information developed during the inspection, the information provided at the regulatory conference, and the supplemental information your staff submitted on December 14, the NRC has concluded that the finding is appropriately characterized as White, a finding of low to moderate safety significance. The risk quantitative estimate represents approximately a two in a million likelihood of core damage per year. The result is largely influenced by human reliability analysis and related assumptions. While the NRC considered the finding to be greater than very low safety significance (Green), the result indicates that plant operators would be very likely to be successful in mitigating the postulated event, if it occurred.

This was a complex shutdown significance determination. As first stated in the preliminary significance determination, mitigation of a postulated loss of offsite power event would rely completely on operator action and decision making. For 6 days, the Division 2 emergency diesel generator was not available to respond to a loss of offsite power event. For 3 of the 6 days, no emergency diesel generators were available and if a loss of offsite power had occurred, the plant would have been in a station blackout condition. Recovery of the diesel generator, recovery of offsite power, or use of other power recovery methods were available to mitigate the postulated event and were considered in the significance determination. The NRC used best estimate assumptions as described in both the preliminary and final analyses and considered Exelon's perspectives regarding plant staffing levels, operator knowledge and training, plant procedures, and the extensive time available to mitigate the event.

The NRC performed sensitivity evaluations to understand the influence of important assumptions. The sensitivity evaluations showed a range of outcomes from very low safety significance to substantial safety significance. The sensitivity evaluations were used to confirm the best estimate outcome. Enclosure 1, to this letter, "Final Significance Determination," provides details of the NRC's risk significance determination.

The NRC has also determined that a violation of 10 CFR Part 50, Appendix B, Criterion V, and Technical Specification 3.8.2, Condition B.3, was identified for the failure to follow multiple procedures involving the emergency diesel generators. The failure to follow the applicable procedures resulted in the unavailability and inoperability of the Division 2 EDG while the Division 1 EDG was already out-of-service for planned maintenance. The violation is cited in the enclosed Notice of Violation (Notice) (Enclosure 2). The circumstances surrounding the violation were described in detail in Inspection Report 05000461/2018051. In accordance with the NRC Enforcement Policy, the Notice is considered escalated enforcement action because it is associated with a White finding.

The NRC has concluded that the information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved is already adequately addressed on the docket in NRC Inspection Report 05000461/2018051. Therefore, you are not required to respond to this letter unless the description therein does not accurately reflect your corrective actions or your position.

As a result of our review of Clinton's performance, including this White finding, we have assessed Clinton Power Station to be in the Regulatory Response column of the NRC's Action Matrix, effective the third quarter of 2018. Therefore, we plan to conduct a supplemental inspection using Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," when your staff has notified us of your readiness for this inspection. This inspection procedure is conducted to provide assurance that the root cause and contributing cause of risk significant performance issues are understood, the extent of condition and the extent of cause are identified, and the corrective actions are sufficient to prevent recurrence.

You have 30 calendar days from the date of this letter to appeal the staff's determination of significance for the identified White finding. Such appeals will be considered to have merit only if they meet the criteria given in Inspection Manual Chapter 0609, Attachment 2. An appeal must be sent in writing to the Regional Administrator, Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. If you choose to respond, to the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Sincerely,

/RA/

Darrell J. Roberts
Regional Administrator

Docket No. 050-00461
License No. NPF-62

Enclosures:

1. Final Significance Determination
2. Notice of Violation

cc: Distribution via LISTSERV®

Letter to B. Hanson from D. Roberts, dated April 1, 2019

SUBJECT: CLINTON POWER STATION - FINAL SIGNIFICANCE DETERMINATION OF A
WHITE FINDING WITH ASSESSMENT FOLLOW-UP AND NOTICE OF
VIOLATION; NRC INSPECTION REPORT NO. 05000461/2018092

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| NAME | Lambert | Kozak | Riemer | Lara | Peralta 1 | Franovich 2 | Miller 3 | Cameron | Roberts |
| DATE | 3/20/19 | 3/21/19 | 3/21/19 | 3/21/19 | 3/26/19 | 3/25/19 | 3/25/19 | 3/26/19 | 3/28/19 |

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¹ E-mail received from Juan Peralta with OE concurrence on March 26, 2019.

² E-mail received from Mike Franovich with DRA concurrence on March 25, 2019.

³ E-mail received from Chris Miller with NRR/DIRS concurrence on March 25, 2019.

Final Significance Determination

A. Summary of Final Significance Determination

At the regulatory conference on November 30, 2018, Exelon ("the licensee") discussed their perspectives on the preliminary significance determination and provided new information that the NRC had not previously considered. Other discussion topics included a recap of known areas of disagreement on assumptions for which no new information was presented. Exelon and the NRC agreed at the end of the conference that respective staff members would have a separate discussion to specify the new information that needed to be submitted for consideration in the significance determination. On December 4, 2018, the NRC staff held a conference call with Exelon to discuss five areas of new supporting information: battery life, recovery of the diesel generator/declaration of extended loss of AC power (ELAP), isolation of shutdown cooling, pressure control without injection, and the Division 3 to Division 2 cross-tie. The NRC had also asked several questions during the conference. These questions were also communicated during the December 4 phone call. Exelon submitted the new information including answers to the NRC's questions from the regulatory conference, and a white paper documenting their positions discussed at the conference in a letter dated December 14, 2018 (ML19023A556).

The NRC considered EGC's perspectives and new information contained in the December 14th letter. This new information reduced the NRC's best estimate of the delta CDF associated with the finding from a preliminary estimate of $3.8\text{E-}6$ per year to a range of $2.2\text{E-}6$ per year to $1.4\text{E-}6$ per year. Additional modeling of battery life, isolation of shutdown cooling and pressure control without injection lowered the delta CDF to $2.2\text{E-}6$ per year. Further consideration of EDG recovery lowered the delta CDF to $1.4\text{E-}6$ per year. Therefore, although the estimated risk was reduced, the final significance was determined to be White, a finding of low to moderate safety significance.

The new information led to changes to the event tree (ET) structure used to quantify the risk. This ET is shown in Figure 1 below. The top two dominant core damage sequences were Sequences 18 and 37. Sequence 18 includes: LOOP initiates, failure of the emergency diesel generators (EDG), failure to recover either of the two EDGs and offsite power, successful ELAP diagnosis, successful early reactor depressurization, failure of low pressure injection (including FLEX), failure of high pressure injection, and failure of the Division 3 to Division 2 cross-tie. Sequence 37 includes: LOOP initiates, failure of the EDG, failure to recover either of the two EDGs and offsite power, failure to diagnose ELAP, successful early reactor depressurization, failure of high pressure injection, failure to perform the cross-tie.

After considering the information provided by Exelon, the NRC staff made changes to the detailed risk evaluation regarding recovery of the diesel generator, battery life, the isolation of the shutdown cooling and pressure control without injection. The NRC also modified the event tree to model declaration of ELAP and entry into FLEX strategies vs. remaining in the station blackout procedure.

Section B of this attachment discusses in detail the NRC's consideration of the new information provided by Exelon. Section C provides a table similar to Exelon's table of "Key Points of Disagreement" provided at the regulatory conference that summarizes NRC's final view on these points.

This was a complex shutdown significance determination. As stated in the preliminary significance determination, successful mitigation of a loss of offsite power event in the degraded plant condition that existed would depend heavily on operator action and decision making involving the interaction of various recovery strategies. Consistent with Inspection Manual Chapter (IMC) 0609 Attachment 1 "Significance and Enforcement Panel Review Process" the NRC staff performed sensitivity studies to understand the influence of important assumptions. The sensitivity evaluations indicated a range of outcomes from very low safety significance to substantial safety significance. The sensitivity evaluations were used to confirm the best estimate outcome.

B. Consideration of EGC's new information provided in the regulatory conference and in the follow-up submittal on December 14, 2018

During the development of the preliminary significance determination, the NRC staff routinely communicated with Exelon staff and considered a sizable amount of licensee information, including Exelon's risk evaluation of the finding, CL-SDP-010, "Risk Assessment – May 2018 Outage: Division 2 DG 1B Unavailable with Division 1 Bus Unavailable, Revision 0," August 3, 2018. This section describes NRC's consideration of the new information and how it was evaluated.

Recovery of the Emergency Diesel Generator (EDG)

A change to the NRC's analysis was the addition of consideration of the licensee's ability to recover the EDG between 1 and 4 hours into the SBO event. This second "4-hour" HEP was considered to have expansive time available to diagnose the cause of the EDG failure. It was determined to be dependent on the initial "1 hour" HEP for the failure to recover the EDG. In the 4-hour scenario, if the closed EDG starting air valves were found, a decision would be required to either continue with FLEX alignment (or the crosstie to Division 3) or to back out of the FLEX alignment (or the crosstie) and attempt to start the Division 2 EDG. If the crew decided to back out, the operator would need to realign the plant's electrical distribution system due to changes that would be in progress from implementing either the crosstie or FLEX procedures. At the regulatory conference, the licensee emphasized rapid implementation of the cross-tie as a means to provide high assurance of recovery of AC power and suggested that it could be performed very quickly. Realigning the electrical distribution system would be necessary because either the crosstie or FLEX implementation would have begun to modify the configuration of the electrical distribution system, which would impact operation of the EDG. This realignment is not governed by procedures or training. Modeling of EDG recovery beyond 1 hour into an SBO event is subject to significant uncertainties because of the high likelihood that other AC power strategies would be pursued, which would complicate further use of the EDG as the Division 2 power source. Varying recovery of the EDG from 1 to 4 hours results in a range of delta CDF outcomes from 2.2E-6 per year to 1.4E-6 per year.

Recovery of the EDG was a known area of disagreement prior to the regulatory conference. Specifically, Exelon disagreed with the NRC's evaluation of the performance shaping factors (PSF) for the EDG recovery HEP. At the regulatory conference, Exelon discussed several positions already considered by the NRC and new information that was available for review. The new information included training material, shift manager surveys, senior reactor operator (SRO) questionnaires, and a time validation. The licensee provided this information in writing via a letter dated December 14, 2018.

The written information provided by the licensee pertained to diesel generator malfunctions, including the most recent equipment operator (EO) training on the diesel generator air start flow path. It also included training on the different subsystems of the diesel generator, circuit breakers, and the auxiliary power system. Most of the material was generic and unrelated to the diesel generator air start system. The air start flow path training material provided diagrams of the air start system, however, these diagrams did not include the air receiver outlet valves that are the subject of this performance deficiency. The training covered diesel generator trips but did not specifically cover diesel generator failures, nor did it include potential repair or recovery actions. The NRC concluded that no changes were appropriate for the one-hour diesel generator operator recovery action based on the material provided.

Battery Life

The NRC's preliminary risk evaluation modeled the direct current (DC) power support function as requiring battery chargers for the batteries to complete the PRA mission based on the information provided by the licensee that battery life with load shedding was approximately 11 hours. At the regulatory conference, Exelon discussed the results of a new battery calculation. The NRC requested, and the licensee provided the calculation in the December 14 letter. The calculation showed that the battery life was longer than 11 hours and that the battery could perform its' PRA function for the 24-hour PRA mission time.

The NRC did not review the licensee's battery calculation in detail; however, the NRC accepted the conclusion that the batteries could last for the PRA mission time given that the initial condition of the plant is different from the pre-existing battery calculations that assume an extended loss of AC power event occurs with the plant initially operating at-power.

The NRC modified the shutdown SPAR model by adding in a dependency on the batteries with a failure probability of approximately $8E-6$. The impact of this change was to effectively eliminate losses of DC power from risk significance.

Declaration of ELAP

The NRC reviewed information presented on declaration of ELAP at 1 hour if the diesel generator had not been recovered. Specifically, the NRC reviewed the completed surveys of Clinton shift managers and completed questionnaires for 28 SROs from other stations.

The licensee stated that ELAP would not be declared at 1 hour. In reviewing the Clinton shift manager surveys, the NRC found that the shift managers were not provided the NRC postulated scenario. The Clinton shift managers were provided a scenario in which the diesel generator air start valves were identified as the cause of the diesel generator failure to start at 45 minutes into a station blackout event. The NRC is not challenging the licensee's assertion that an ELAP would not be declared if the cause of the EDG failure to start was actually known to the operators at 45 minutes. The NRC had discussed this point with licensee staff extensively prior to the regulatory conference. The NRC's risk assessment is driven by the scenario where at 1 hour the problem with the EDG has not been identified, requiring the operators to decide whether to declare an ELAP.

A second scenario presented to the Clinton shift managers in the survey also lacked information relevant to the PRA analysis. The shift managers were presented with information that offsite power would be restored within 3 hours. Although this scenario was not relevant, some of the Clinton SROs provided comments indicating that they would declare an ELAP at 1 hour if the problem with the Division 2 diesel generator had not been identified. This is the relevant PRA scenario and the responses are consistent with NRC's assumption in the risk evaluation.

The Clinton shift manager survey had a third scenario in which the diesel generator was recovered but subsequently failed for a different reason. This scenario is also not directly relevant to the NRC evaluation. However, in this scenario, the survey provided information that the technical support center (TSC) would be briefing plant personnel on performing the Division 3 cross-tie procedure and estimated that it could be completed in 3 hours. The survey asked Clinton shift managers if ELAP would be declared in this scenario. The Clinton shift managers generally responded "no," ELAP would not be declared in this scenario if they had confidence in the timeline associated with the Division 3 cross-tie. An alternative scenario was provided with a timeline to implement the cross-tie that exceeded 4 hours. In the Scenario 3 alternative, Clinton shift managers indicated that ELAP would be declared.

The NRC determined that the Clinton shift manager survey results did not provide conclusive information about whether operators would declare ELAP and implement FLEX and/or attempt to implement the Division 3 cross-tie. The surveys were conducted well after the event occurred and do not reliably represent the plant response at the time of the event. The survey question postulated the TSC providing information about planning to implement the cross-tie well before 1 hour, the time at which the TSC is generally estimated to be staffed. Throughout the NRC's review of this finding, no pre-event information (i.e., procedures or training) indicated that the availability of the Division 3 cross-tie would provide high assurance of the restoration of AC power to Division 1 or Division 2 and should be the preferred option for power recovery rather than declaring ELAP and implementing FLEX.

Other available information also supported the NRC perspective that operators would declare ELAP and implement FLEX before attempting to implement the Division 3 cross-tie. The examples below are excerpts from procedures, training, and the licensee's risk evaluation of the finding.

- The existing Loss of AC Power (CPS 4200.01) procedure requires a decision regarding ELAP at 1 hour into a station blackout (SBO) and it does not discuss the availability of the cross-tie as a means to provide "high assurance" of the restoration of power to avoid declaring ELAP. Per procedure, if ELAP is declared the Loss of AC Power procedure is exited and FLEX implementation (via CPS 4306.01) takes precedence over further efforts to recover the diesel generators or offsite power. While the cross-tie is referenced in the Loss of AC procedure, it is the very last step and would not be implemented if the procedure were exited. The cross-tie procedure (CPS 4303.01P023) was written for extensive damage/beyond design basis events and it appears that it was not well integrated with the Loss of AC Power and FLEX procedures and training to have an overall integrated approach to extended SBO conditions.
- Cross-connecting the Division 3 diesel generator is the first option in the FLEX Recovery procedure, CPS 4306.01P020, indicating that its use would be attempted after FLEX phase 2 implementation, not before.

- Section 4.2.4.1 of the licensee's risk evaluation (CL-SDP-010 dated August 3, 2018) states, "Given a SBO condition and failure to restore the EDG 1B, operators indicated that FLEX would be the initial system pursued for alternate RPV injection given the procedural direction in the Extended Loss of Power procedure." This comports with the NRC's risk evaluation assumptions and does not agree with the Exelon's stated position at the regulatory conference.
- Appendix C of the licensee's risk evaluation documents an HEP evaluation for implementing the cross-tie. The evaluation indicates that an ELAP is in progress at 1 hour and that the crosstie "might be the means" to determine "high assurance" that the SBO coping time would not be exceeded. The evaluation showed that it was not clear that the cross-tie capability was considered to be a method of AC power recovery that provides "high assurance" prior to the discovery of the Division 2 EDG problem and the evaluation of the risk significance of the finding.
- The NRC reviewed simulator training for an SBO event in which ELAP was declared (SE-LOR-4306-FLEX). For this at-power scenario, the high pressure core spray (HPCS) pump was unavailable but the Division 3 EDG was available. Despite the availability of the EDG during the simulator scenario, ELAP was declared and FLEX implementation was pursued, indicating that ELAP/FLEX was a preferred response. This at-power simulator training is very similar to the scenario of interest in this SDP.
- Appendix D of the licensee's risk evaluation (CL-SDP-010 dated 8/3/2018) documents many HEPs associated with FLEX actions. The licensee developed a "cognitive only" HEP for the failure to recognize the need for FLEX. The documentation indicates that ELAP is declared at 1 hour into the event based on discussions with operators and simulator observation.

The responses to the questionnaire for the 28 SROs also supported the NRC's assumption about ELAP. This questionnaire, like the CPS shift manager survey, also presented scenarios that were not relevant to the NRC evaluation because the scenario involved the successful diagnosis of the cause of the EDG failure. In the first two questions to the SROs, the valves were found in the closed position at 15 minutes and at 55 minutes, respectively. However, a third question asked about whether ELAP would be declared if the valves were discovered closed at 4 hours into an SBO. Although the SROs were instructed to answer "yes" or "no" to the question of whether to declare ELAP for these scenarios, a number of SROs provided additional comments on the scenarios. For the third scenario, many of the SROs stated that ELAP would have been declared at 1 hour. This is consistent with and supports NRC's assumption regarding the declaration of ELAP and implementation of FLEX before the cross-tie.

Finally, regarding modeling recovery of the EDG, FLEX, and the cross-tie, while some actions for each of these methods can be performed in parallel, they are not independent. That is the electrical distribution system cannot be lined up for FLEX implementation and for the Division 3 to Division 2 cross-tie simultaneously because the procedures conflict.

Based on the above understanding, the NRC concluded that its PRA modeling approach to declaring ELAP is reasonable and realistic. However, the NRC's PRA model was modified to test the assumption that operators declare an ELAP or remain in the station blackout procedure. The modified ET is shown in Figure 1. A new top event was added to the model as a decision point. If the decision is made to declare ELAP and enter the FLEX procedures, then the FLEX strategies are then tested. If the FLEX strategies fail, then the cross-tie is questioned.

For the revised risk model, if ELAP is not declared, the FLEX strategies are not implemented. In this case, the risk evaluation models the use of the crosstie. If the crosstie is not successful and offsite AC power is not recovered, then core damage is assumed. FLEX is not considered further in this part of the risk model for two reasons. First, there is no procedural direction to try FLEX in the crosstie procedure. Second, if the crosstie has failed, significant issues may have occurred because of the failure. The cross-tie procedure (CPS 4303.01P023) twice reiterates safety considerations that state in part "Steps in this procedure must be performed in order to avoid the risk of personnel injury or equipment damage." The cross-tie procedure would not be exited unless it had failed and per the caution, failure implies damage to the electrical distribution system that is required to implement the FLEX strategies.

In summary, these changes to the NRC's PRA model to specifically consider the ELAP declaration did not have a substantive impact on the risk results.

Isolation of SDC

The NRC's preliminary risk evaluation did not model the operator action to close the shutdown cooling isolation valves, similar to the licensee's risk evaluation. During the regulatory conference, Exelon stated that operators would take action to isolate shutdown cooling and that if the action was successful the time to core damage would be extended to 24 hours for all sequences, including those sequences where core damage occurs with the reactor at high pressure. The NRC asked Exelon to provide the procedure guidance and training for this operator action. The new information was provided in the December 14 letter.

Isolating shutdown cooling prevents the loss of inventory through RHR system relief valves and extends the time to core damage, allowing more time for recovery actions. If the reactor coolant system (RCS) heats up and pressurizes with the RHR system not isolated from RCS, four RHR relief valves will open as designed causing RCS leakage. CPS 3312.03, "RHR Shutdown Cooling and Fuel Pool Cooling Assist," Section 8.3 discusses recovering a loss of RHR shutdown cooling flow and clearly requires the RHR suction valves from the reactor recirculation system 1E12-F008 and 1E12-F009 valves remain open if recovery is anticipated. The NRC concluded that procedure guidance existed to isolate the RHR system if Mode 3 entry was anticipated but it alone may not have prompted operators to close the valves if recovery of shutdown cooling was anticipated. A better cue to isolate shutdown cooling was reactor heat-up and pressurization, including an alarm to alert operators to high pressure in the RHR system. Through discussions with the licensee, the NRC learned that the set-point of this alarm was close to the set-point of the relief valves in the RHR system.

A second cue would occur when RCS level starts to decrease due to the open RHR relief valves. Prior to the RHR relief valves opening, as the RCS heats up, the water inventory expands causing level to increase. When the RHR relief valves open, water level will turn and begin to decrease.

A third cue is received when water level decreases to the Level 3 scram setpoint. In addition, at Level 3 a containment isolation signal for RHR/SDC is received.

The NRC requested training material on the operator action to isolate RHR shutdown cooling. The licensee provided a simulator scenario for a postulated event that was much different from the scenarios evaluated here. The NRC concluded that the training was not very relevant to the actions under in this scenario.

To incorporate this new information, the NRC modified its risk analysis by adding a new event tree (ET) top event that tested for failure to isolate the RHR/SDC system from the RCS on high reactor pressure and decreasing reactor level. The modified ET is shown in Figure 1. This top event was evaluated using a new fault tree (FT). The FT tests for all three cues discussed above.

HEPs were developed for both isolation cues. It should be noted that the HEP associated with the third and final cue, on reaching Level 3, is always set to fail as the analysts determined that there was insufficient time between receiving the cue to close the F008 valve before core uncover occurred. Finally, dependency analysis for these HEPs was developed and incorporated into the model recovery rules as appropriate.

If the operators are successful in isolating the RHR/SDC system, then the time to core uncover is extended from the 10 to 13-hour range to about 18 hours allowing more time for other mitigating actions. This 18-hour assumption is based on the following: The licensee's Gothic analysis indicates time to core uncover (TTCU) without isolation at 10 to 13 hours. Other Gothic analyses indicate with isolation at 200F (about 4 hours after event initiation), the TTCU is about 26 hours. In the scenario of interest, isolation is estimated to occur about 1.5 hours after the first cue at about 100 psig (which occurs about 8 hours after event initiation) is between the two previous scenarios. If the isolation is unsuccessful, then time to uncover remains in the 10 to 13-hour range.

Pressure Control

The NRC's preliminary significance determination modeled operator failure to maintain the reactor depressurized in conjunction with the FLEX systems injection into the RCS. At the regulatory conference, the licensee stated that operators would maintain reactor vessel pressure between 60 psig and 100 psig using safety-relief valves even if FLEX or other low pressure injection was not available. The NRC reviewed the procedures and training provided by the licensee. The NRC also reviewed the licensee's risk evaluation and human probability evaluation for this action.

The licensee provided emergency operating procedures (EOPs) and EOP support procedures, CPS 4200.01, "Loss of AC procedure," CPS 4006.01, "Loss of Shutdown Cooling," and CPS 4411.09, "RPV Pressure Control Sources." In preparation of the preliminary analysis, the NRC had reviewed many procedures with respect to this operator action but had not reviewed CPS 4411.09. Neither of the two initial response procedures, "Loss of Shutdown Cooling" or "Loss of AC Power" direct the operator to maintain RCS pressure low. The "RPV Pressure Control Sources" procedure is to be used as directed by EOPs and the severe accident

guidelines (SAGs). For the postulated scenarios, the EOP entry condition would not be met until RPV level had decreased to Level 3, which would occur very late in the scenarios. The NRC concluded that these procedures did not provide direction to operators to maintain pressure between 60 psig and 100 psig if injection was not available to maintain inventory.

The licensee also provided information that EOP-1 for pressure control would be entered as directed by CPS 4306.01 "Extended Loss of AC power/Loss of Ultimate Heat Sink." This procedure does direct RPV pressure control in accordance with EOP-1 but is written from the perspective of an at-power extended Loss of AC power event and provides no specific direction to maintain pressure low absent an available low pressure injection source. Maintaining pressure low using EOP-1 and ELAP procedures conflicts with other licensee statements that ELAP would not be declared or that operators would pursue using RCIC by letting the reactor re-pressurize.

The licensee provided seven simulator training exercises. All the scenarios were at power events focusing on pressure control and/or depressurization. None were relevant to the shutdown station blackout scenario under review.

The licensee's risk evaluation, in (CL-SDP-010) Appendix L provided a human error probability evaluation for an operator action to manually control RPV pressure with SRVs. The NRC noted that the licensee's HEP evaluation also assumed that low pressure injection had been established and was in operation. The HEP evaluation referenced CPS 4306.01P004, "FLEX Low Pressure RPV Make-up" which contained instructions to first set up FLEX suppression pool cooling followed by instructions to re-align the system for injection. A procedure step stated the following "May need to throttle shut 1E12-F042A(B) RHR Pump 1A(B) Test Ret[urn] to Sup[pression] Pool Valve or further reduce RPV pressure to achieve the required Δp ." This step provides instruction to reduce RPV pressure after injection has been successfully implemented. It does not provide instruction to open SRVs to maintain pressure low without injection available.

The NRC concluded that the existing procedures and training do not currently support a strategy to extend the time to core damage by maintaining pressure between 60 psig and 100 psig for an extended station blackout event in Mode 4. Nonetheless, the risk model was modified to incorporate early depressurization of the RCS prior to setting up the FLEX or other low pressure systems. See Figure 1 for the event tree. The manual reactor depressurization top event previously associated with FLEX was repurposed to test for early depressurization regardless if FLEX or other low pressure injection was being implemented. (Note in those sequences where FLEX was implemented, a second opportunity to depressurize was given if the depressurization early had failed. This second opportunity was implemented by a modification to the existing FLEX fault tree.)

HEPs were developed for both the early depressurization independent of FLEX and for the late depressurization as part of FLEX. Finally, dependency analysis for these HEPs was developed and incorporated into the model recovery rules as appropriate.

The event tree (see Figure 1) tests for successful depressurization. If depressurization is successful, then time to core uncover is extended allowing additional time for subsequent mitigation actions.

Division 3 Cross-tie

The NRC's preliminary determination assumed the time available to perform the cross-tie was between 5 and 6 hours based on input found in the licensee's risk evaluation (CL-SDP-010). This activity is controlled by CPS 4303.01P023, "Cross-Connecting Division 3 to Division 1(2) ECCS Electrical Busses." Based on this information, the associated HEP PSF for time was set to nominal. At the regulatory conference, Exelon stated that the action was time-validated at 1.5 hours and disagreed with the NRC time required assumption. Exelon provided a copy of the time validation after the regulatory conference.

The portion of CPS 4303.01P023 providing guidance on the Division 3 to Division 2 cross-tie is found in Section 1.2. It takes 39 steps to perform in three plant locations, two of which are outside the MCR. As stated above, the NRC time required assumption was based on information in the licensee's risk evaluation (CL-SDP-010). On page 8 of that analysis, it states "Based on discussions with Operations, and a time validation study for connecting loads to the division, the cross-connect activities and the subsequent tasks to reload equipment onto the Division 2 bus can be accomplished in approximately 6 hours."

The NRC views the assumed 6 hours required in the licensee's risk analysis to be reasonable as it incorporates time to plan, perform the actual cross-tie and then restore SDC.

Based on the above re-evaluation and that fact that this cross-tie has never been performed, no changes were made to the NRC's risk evaluation.

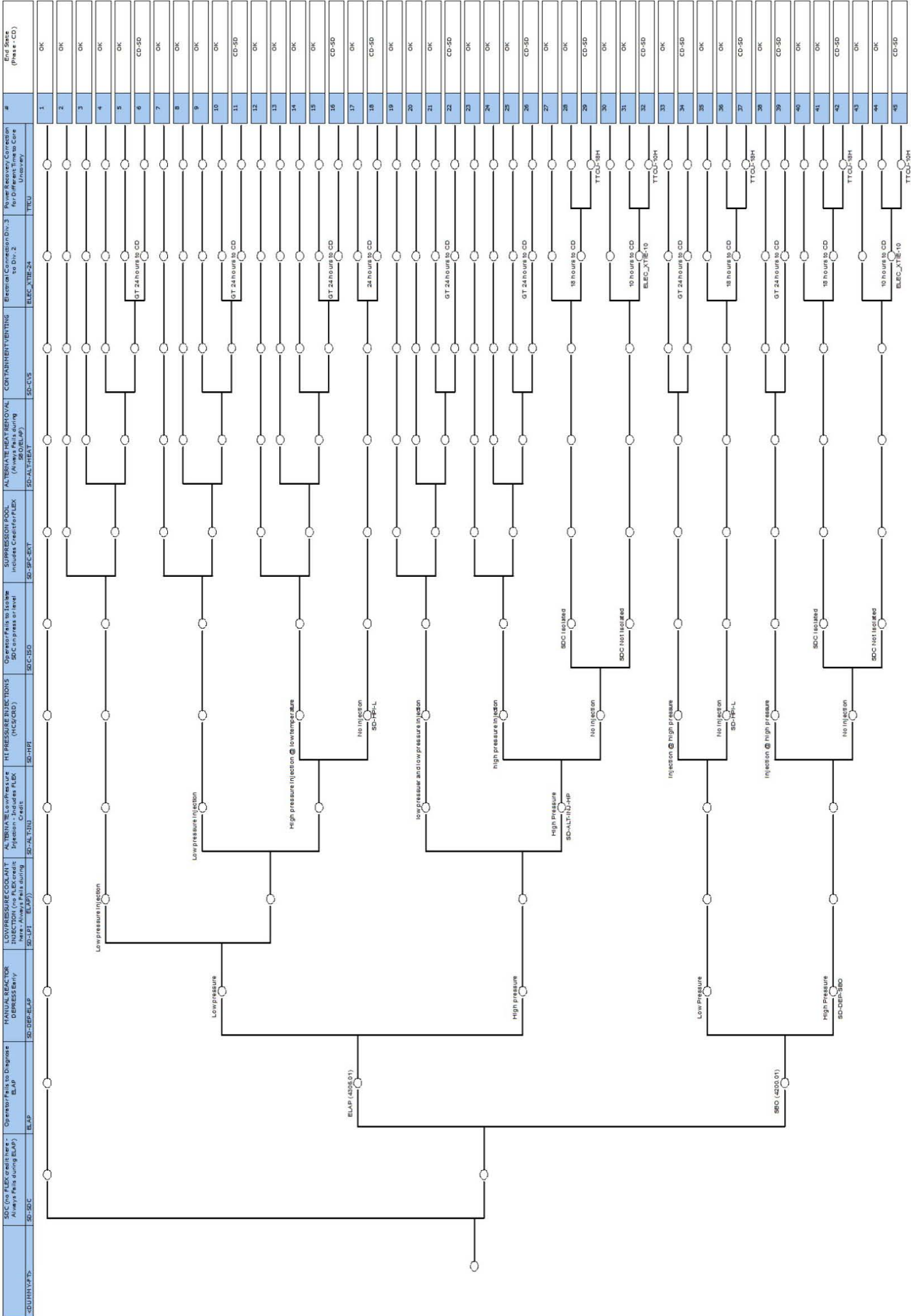
C. Key Regulatory Conference Disagreements

| NRC Preliminary Determination Assumptions | Exelon Position | New information provided | NRC Disposition in Final Significance Determination |
|--|---|---------------------------------|--|
| 12 | Air start valves found isolated within 29 minutes; ELAP not declared | Yes | No changes to the diesel generator recovery HEP or assumption about ELAP declaration. See detailed discussion in Section B |
| 12 | Load shed recovery proceduralized and does not complicate EDG recovery | No | Modified the diesel generator recovery HEP. Also modeled the additional complexity associated with recovering the EDG beyond 1 hour and up to 4 hours. Load shed removes control power from the EDG, potentially complicating diagnosis and recovery of the cause of the failure to start. Also, load shed, FLEX electrical alignment and/or Division 3 cross-tie alignment complicates further EDG recovery. Operator actions to back out of ELAP, FLEX, and load shedding to restore the EDG as the power source to Division 2 is not governed by procedures, is not a simple, skill of the craft task, and has no training. |
| 12 | ELAP not declared/FLEX staging only | Yes | See detailed discussion in Section B regarding how the PRA model was modified to test this assumption. |
| 13 | EDG air start valve position easily identified in knowledge-based or procedure-based mode | Yes | See detailed discussion in Section B. |

| | | | |
|------------|--|-----|--|
| 13 | Operators extensively trained on EDG malfunctions | Yes | No changes to diesel generator the training/experience PSF. See detailed discussion in Section B. |
| 2 | Operators will close one shutdown cooling valve per procedure to extend time to TAF from 10.8 hours to about 24 hours. | Yes | Operator action modeled with the addition of a fault tree with multiple HEPs. For sequences in which the action fails, the time to TAF remains the same as in the preliminary determination. If the action succeeds, the time to TAF is longer. See detailed discussion in Section B. |
| 14, 23, 24 | NRC inspections confirm that FLEX strategy meets regulatory requirements | No | No changes to FLEX HEPs. Compliance with regulatory requirements establishes feasibility but not reliability of the FLEX strategy. It does not establish or imply small human error probabilities for PRA, which must be evaluated on a case by case basis. The HEP analysis in this evaluation does not imply that the FLEX implementation does not meet current regulatory requirements. |
| 14, 23, 24 | FLEX trained in accordance with Systematic Approach to Training | No | No changes to FLEX HEPs. Training quality and frequency is evaluated as part of the HRA. The NRC agrees FLEX is trained in accordance with the Systematic Approach to Training. However, because the FLEX actions are trained in accordance with the Systematic Approach to Training does that dictate that the associated HEPs should be small. |

| | | | |
|------------|---|-----|--|
| 14, 23, 24 | FLEX tasks similar to normal EO tasks and performed in non-adverse conditions | No | No changes to FLEX HEPs. The overall evolution to set-up FLEX is complex and occurs under difficult conditions. Typical HRA methods assign “nominal” PSF values for control room actions under normal lighting and environmental conditions. In comparison, actions for establishing FLEX are outside the control room under significant inferior environmental conditions and do not warrant nominal ratings. |
| 15 | Division 3 cross-tie procedure is straightforward and not complex | No | No changes to the Division 3 cross-tie HEP. The procedure has 37 steps in multiple plant locations, under poor lighting conditions and thus does warrant a complex rating. See Section B. |
| 15 | Division 3 cross-tie is time-validated at 1.5 hours | Yes | No changes to the cross-tie HEP. The original licensee risk evaluation assumed 6 hours was required to perform these complex actions. This assumption appears more appropriate than the optimistic licensee position discussed at the regulatory conference. See Section B above for more details. |

Figure 1: Loss of Ofsite Power (LOOP) Event Tree



NOTICE OF VIOLATION

Exelon Generation Company, LLC
Clinton Power Station

Docket No. 050-00461
License No. NPF-62
EA-18-104

During a U.S. Nuclear Regulatory Commission (NRC) inspection conducted August 3 through September 4, 2018, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10 of the *Code of Federal Regulations* (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances and be accomplished in accordance with these procedures.

Clearance Order (C/O) 139455 instructions required the performance of CPS 3506.01P002, "Division 2 Diesel Generator Operations," Revision 3a, in conjunction with the removal of out-of-service tags on May 9, 2018.

Procedure OP-AA-108-103, "Locked Equipment Program," Revision 2, Step 4.1.5, stated, "If plant conditions require a locked component to be positioned in a manner other than that indicated on the locked equipment checklist or approved procedure, then UNLOCK and REPOSITION equipment in accordance with OP-AA-108-101, "Control of Equipment and System Status."

Procedure OP-AA-108-101, "Control of Equipment and System Status," Revision 14, Step 4.1.1.1, stated, "Utilize an ACPS for aligning equipment outside of routine operations."

Procedure OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.3, required that "if equipment will not be restored to the Equipment Line-up/Restoration position or the original condition, then another approved equipment status control mechanism shall be used to document equipment status (i.e., Equipment Status Tag, administrative clearance/tagout).

Procedure OP-AA-108-101, 'Control of Equipment and System Status,' shall be used to document abnormal equipment configuration and shall be immediately applied following equipment restoration."

Procedure OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.4.9, which stated, "Applicable Operating procedures are complete and any equipment line-ups directed to be completed by the Operating Procedures are completed."

Procedure OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.4.14, stated, "The system/equipment has been walked down as appropriate to verify that it can be safely operated to fulfill its design function."

Procedure OP-AA-109-101, "Clearance and Tagging," Revision 12, Step 10.2.1 stated, "If a lift position is determined to be different from the normal lineup position for the present plant condition and not tracked by another C/O or procedure, then the Shift Management shall be notified and equipment tracking initiated."

Enclosure 2

Technical Specification 3.8.2, "AC Sources-Shutdown," Condition B.3, requires, in part, that an inoperable EDG be restored to an operable status immediately.

Contrary to the above, between May 9 and May 17, 2018, the licensee failed to accomplish activities affecting quality in accordance with the following procedures:

Perform CPS 3506.01P002, "Division 2 Diesel Generator Operations," Revision 3a, in conjunction with the removal of C/O 139455 as required by the C/O restoration instructions.

Perform OP-AA-108-103, "Locked Equipment Program," Revision 2, Step 4.3, valves 1DG160 and 1DG161, normally locked open, were repositioned and an ACPS was not utilized to track valve status in accordance with procedure OP-AA-108-101.

Perform OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.3, when valves 1DG160 and 1DG161 were left in an abnormal position an approved equipment status control mechanism was not used to track equipment status.

Perform OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.4.9, when the equipment was declared operable the applicable operating procedure CPS 3506.01P002 had not been completed and equipment line-ups directed to be completed by the operating procedures were not completed.

Perform OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.4.14, when the system was declared operable without being walked down.

Perform OP-AA-109-101, "Clearance and Tagging," Revision 12, Step 10.2.1, when the as left position was different from the normal lineup for the present plant condition and equipment tracking was not initiated.

Additionally, because the licensee was not aware of the Division 2 EDG's inoperability between May 14 and May 17, 2018, the licensee failed to meet Technical Specification 3.8.2.b limiting condition for operation of one DG operable and the required action in Technical Specification 3.8.2, Condition B.3 was not followed.

This violation is associated with a White SDP finding.

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved is already adequately addressed on the docket in NRC Inspection Report No. 05000461/2018051. However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation, EA-18-104" and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352, and a copy to the NRC Resident Inspector at the Clinton Power Station, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

If you choose to respond, your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. Therefore, to the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days of receipt.

Dated this 1st day of April 2019

From: [Giessner, John](#)
To: [Roberts, Darrell](#)
Subject: FW: Action - today- Final White Clinton
Date: Friday, March 29, 2019 7:45:00 AM

From: Cameron, Jamnes
Sent: Friday, March 29, 2019 7:44 AM
To: Giessner, John <John.Giessner@nrc.gov>
Subject: Re: Action - today- Final White Clinton

(b)(5)

A large rectangular black box redacting the body of the email.

From: Giessner, John
Sent: Friday, March 29, 2019 6:48:31 AM
To: Cameron, Jamnes; Lara, Julio; Orlikowski, Robert; Hanna, John; Kozak, Laura; Lambert, Kenneth
Cc: Roberts, Darrell
Subject: Action - today- Final White Clinton

All,

(b)(5)

A large rectangular black box redacting the body of the email.

Jack

From: [Roberts, Darrell](#)
To: [Shuaibi, Mohammed](#); [Giessner, John](#); [Lara, Julio](#); [Lipa, Christine](#); [Sotiropoulos, Dina](#); [Orlikowski, Robert](#); [Sanfilippo, Nathan](#); [Pelton, David](#)
Cc: [O'Brien, Kenneth](#)
Subject: Re: 3/27/19: Notes from the Region III weekly update meeting w/ Cathy Haney (acting for Dan Dorman)
Date: Friday, March 29, 2019 7:44:24 AM

(b)(5)

No action required.

Thanks, Mo.

DJR

On: 28 March 2019 17:18,
"Shuaibi, Mohammed" <Mohammed.Shuaibi@nrc.gov> wrote:

(b)(5)

From: Roberts, Darrell
Sent: Thursday, March 28, 2019 5:22 PM
To: Giessner, John <John.Giessner@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Lipa, Christine <Christine.Lipa@nrc.gov>; Sotiropoulos, Dina <Dina.Sotiropoulos@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>; Sanfilippo, Nathan <Nathan.Sanfilippo@nrc.gov>; Pelton, David <David.Pelton@nrc.gov>
Cc: O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>
Subject: RE: 3/27/19: Notes from the Region III weekly update meeting w/ Cathy Haney (acting for Dan Dorman)

Ditto what Jack said. By the way, Exelon reps at the drop-in were not aware of the latest from industry on this.

DJR

From: Giessner, John
Sent: Wednesday, March 27, 2019 6:58 PM
To: Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Roberts, Darrell <Darrell.Roberts@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Lipa, Christine <Christine.Lipa@nrc.gov>; Sotiropoulos, Dina <Dina.Sotiropoulos@nrc.gov>; Orlikowski, Robert

<Robert.Orlikowski@nrc.gov>; Sanfilippo, Nathan <Nathan.Sanfilippo@nrc.gov>; Pelton, David <David.Pelton@nrc.gov>

Cc: O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>

Subject: Re: 3/27/19: Notes from the Region III weekly update meeting w/ Cathy Haney (acting for Dan Dorman)

I like your approach Mohammed.
Jack

On: 27 March 2019 18:23,
"Shuaibi, Mohammed" <Mohammed.Shuaibi@nrc.gov> wrote:

(b)(5)



On: 27 March 2019 14:26,
"Roberts, Darrell" <Darrell.Roberts@nrc.gov> wrote:

Folks,

I discussed the following with Cathy Haney (Acting DEDR for Dan next few weeks).

My items:

1. Clinton WHT finding pending issuance (planned for Monday); told her (or Margie) to be prepared for a phone call from Exelon
2. Three drop-ins this week (Xcel, Exelon and NEI)
3. All-Staff meeting this week: official roll-out of new vision!
4. Farewell celebration for Jared
5. Plans for DRS and DRP Deputy backfills (both the acting and, in DRS case, permanent plans)

6. Recent email on RIII management supporting differing views in light of RIC session comments/feedback on internal safety culture

Her items:

- (b)(5)

DJR

From: Roberts, Darrell

Sent: Thursday, February 28, 2019 10:25 AM

To: Lara, Julio <Julio.Lara@nrc.gov>; Lipa, Christine <Christine.Lipa@nrc.gov>; O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Sotiropoulos, Dina <Dina.Sotiropoulos@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>; Sanfilippo, Nathan <Nathan.Sanfilippo@nrc.gov>

Cc: Giessner, John <John.Giessner@nrc.gov>

Subject: 2/13/19: Notes from the Region III weekly update meeting w/ Dan Dorman

Folks,

I'm sending this two weeks late (just found it in my draft out box).

I discussed the following w/ Dan Dorman today.

My items:

1. Wear Red Day for heart health
2. EOCs this week: long philosophical discussion during Clinton. DNP impacts (existential, grand gulf, region I examples, precedent, most involve increase oversight);
3. Clinton WHT status – SERP planned 2/14; ARB on Monday (no 50.9; lots of differing views);
4. My planned drop-ins w/ Margie and Chmn on 2/25
5. Cmsr. Caputo rumored to be planning a visit to Point Beach on 2/26 (we're reaching out to OEDO to confirm)
6. RUG meeting on 2/25 – Jack attending (normal topics): ROP Enhancements
7. RIC session preps continuing – we've divided topics between the four regions (contested vios, operability, backfit)
8. (b)(5)

Dan items: none

Also, I plan to discuss Direct Reports Meeting results in Tuesday's leadership meeting.

Thanks,
DJR

From: Roberts, Darrell

Sent: Wednesday, February 06, 2019 3:29 PM

To: Lara, Julio <Julio.Lara@nrc.gov>; Lipa, Christine <Christine.Lipa@nrc.gov>; O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Sotiropoulos, Dina <Dina.Sotiropoulos@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>; Sanfilippo, Nathan <Nathan.Sanfilippo@nrc.gov>

Cc: Giessner, John <John.Giessner@nrc.gov>

Subject: 2/6/19: Notes from the Region III weekly update meeting w/ Dan Dorman and from the AMM

Folks,

I discussed the following w/ Dan today (note the meeting did not occur the past two weeks due to absence). Also included are some key items from the Agency Mission Meeting.

My items from the Dan Dorman call:

1. Pending Region III Management temporary changes through September (Ken to OI, Mo to DRS, DRP will use actors for Deputy)
2. Recent weather-related impacts – gave brief summary of plant impacts and office status – the most changes in office status in recent memory
3. Today's Black History month luncheon – decent turnout
4. (b)(5)

5. Region III Vision Statement re: Leading Change – still under development
6. My planned drop-ins (w/ Chairman and Margie) during the week of Marc's retirement

- and Dan's Direct Reports Meeting (2/25 – 28)
7. RIC Session Preps

Dan's items:

1. New ETA Mike McCoppin will be looking to schedule the July DEDR Direct Reports Meeting in Region I.
2. **He asked about the Clinton EDG response review status(?). I mentioned review should be finishing up, but I'd check.** I also mentioned the upcoming ARB.

AMM key items (full summary coming from OEDO):

1. OEDO's new ETAs are in place (McCoppin is the regional ETA rep)
2. The next FY20 WHLDP announcement is coming in the next week. We have until mid-May to submit nominees. Recall our own Rick Skokowski and Nathan Sanfilippo are the agency's last two reps.
3. NEIMA act. Tim Mossman has put together a matrix of tasks (particularly the required reports) associated with the new law.
4. NRC's Facebook followers went from 4900 to 10,000 last week, thanks to OPA's recent efforts.
5. CIO Dave Nelson discussed Verizon phone/IT outages over the past two weeks. Verizon's engineers and executives are involved. They have their arms around the various bottlenecks that contributed to the problem, and are working to resolve. The fixes may also address some previous voice quality issues we've been having w/ VTCs between HQs and regions.
6. Scott Moore is the Acting Office Director and John Tappert is the Acting Deputy OD for NMSS pending Cmsn's decision on new OD.
7. (b)(5)
8. Pilgrim Station will transition to Column 1 of the Action Matrix following completion of last CAL inspection, as well as this week's end-of-cycle meetings in Region I. This is a significant milestone and will likely create stir with public stakeholders. Plant is slated to permanently shut down later this year.

DJR

From: Roberts, Darrell

Sent: Wednesday, January 16, 2019 3:49 PM

To: Lara, Julio <Julio.Lara@nrc.gov>; Lipa, Christine <Christine.Lipa@nrc.gov>; O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Sotiropoulos,

Dina <Dina.Sotiropoulos@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>

Cc: Giessner, John <John.Giessner@nrc.gov>

Subject: RE: Region III weekly update meeting w/ Dan Dorman - 1/16/19

Folks,

I discussed the following w/ Dan today:

1. Our leadership retreat tomorrow (continuation of last week's, but w/ BCs).
2. Duane Arnold cessation letter pending. Told him we're not sure of date, but that there'd be a press release.
3. (b)(5)
4. While Cathy H. will be Acting DEDR for five weeks (after the RIC while Dan is away), Laura D. will be acting RA and Joel Munday will be acting DRA. They will likely solicit existing DDDs (agency-wide) to backfill Joel's spot.
5. This was ERB week, so there was no AMM today.

DJR

From: Roberts, Darrell

Sent: Wednesday, January 09, 2019 4:54 PM

To: Lara, Julio <Julio.Lara@nrc.gov>; Lipa, Christine <Christine.Lipa@nrc.gov>; O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Sotiropoulos, Dina <Dina.Sotiropoulos@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>

Cc: Roberts, Darrell <Darrell.Roberts@nrc.gov>; Giessner, John <John.Giessner@nrc.gov>

Subject: Region III weekly update meeting w/ Dan Dorman - 1/9/19

Folks,

I discussed the following items w/ Dan Dorman (including the items I provided him in the email below).

From Dan:

1. Direct Reports Meeting in RIV last week of February – any topics? RAs please let him know (DDs/Jack if there's anything you can think of, let me know).
2. After the RIC, Dan will be on international travel for 5 wks – Cathy H. will be acting DEDR.
3. (b)(5)
4. We should maintain awareness of and keep OEDO updated on FENOC's efforts to get legislation in Ohio (and PA) that would protect their plants, especially since

we're in planning stages for FY21 and later FY22 budgets, where their planned shutdowns would be affected. I've been sending him results of routine FENOC calls, but just a reiteration of the need for continued participation in those calls.

From Me:

1. I gave Dan a heads-up about our discussions (b)(5)
2. I discussed the items in the email below.

DJR

From: Roberts, Darrell

Sent: Wednesday, January 09, 2019 1:41 PM

To: Dorman, Dan <Dan.Dorman@nrc.gov>

Cc: Rivera-Varona, Aida <Aida.Rivera-Varona@nrc.gov>; Giessner, John <John.Giessner@nrc.gov>

Subject: Region III items

Hi Dan,

Happy New Year! I hope all is well with you in HQs and that you're not having to wear two hats while Steve is still in transition.

I wanted to give you a heads-up on some items I plan to discuss during our first call today, some of which I may mention at the AMM as well.

People/Org:

1. See the attached announcement to RIII staff re: Acting DRS Deputy Director SESCDP assignment for Nathan Sanfilippo, which begins on Jan. 20 (for three months). We coordinated through Amanda and Trish and they said I could mention as a courtesy at the next ERB (not the AMM). I may mention it at the AMM since it has all the players and the staff is already aware.
2. Our other management changes are in effect or pending. We have Mohammed Shuaibi in DNMS as Acting Division Director pending Dave Pelton's arrival. To backfill Mo in DRP we have a BC (Bob Orlikowski, normally the Ops Branch chief in DRS) acting as DRP Deputy Director. Mo will move into his permanent deputy director role in DRP when Pelton arrives in March.
3. Jack and I are up and running as RA/DRA with Julio in his new position as DRP Director (Louden retirement last week).
4. RIII senior mgmt. held a mini-retreat yesterday with the help of (b)(5)

(b)(5)

(b)(5)

(b)(5) (March 17), which will include development of RIII SOAPs (which support Margie's), with follow-on development of my vision statement for the coming year and foreseeable future (emphasizing change leadership).

Plants:

1. (b)(5)
- 2.

Materials:

1. (b)(5)

That's it for now.

Darrell

From: [Kozak, Laura](#)
To: [Giessner, John](#); [Cameron, Jamnes](#); [Lara, Julio](#); [Orlikowski, Robert](#); [Hanna, John](#); [Lambert, Kenneth](#)
Cc: [Roberts, Darrell](#)
Subject: RE: Action - today- Final White Clinton
Date: Friday, March 29, 2019 7:26:00 AM

(b)(5)

From: Giessner, John
Sent: Friday, March 29, 2019 6:49 AM
To: Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>; Hanna, John <John.Hanna@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Cc: Roberts, Darrell <Darrell.Roberts@nrc.gov>
Subject: Action - today- Final White Clinton

All,

(b)(5)

Jack

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Stoedter, Karla](#)
Subject: IFRB updates from me and Jeff
Date: Thursday, July 19, 2018 12:24:00 PM
Attachments: [Clinton EDG Unavailability IFRB jtm2 and LCK.docm](#)

From: [Kozak, Laura](#)
To: [Giessner, John](#)
Subject: FW: Clinton both EDGs Unavailable during Shutdown SERP Presentation
Date: Thursday, September 20, 2018 7:41:00 AM
Attachments: [Clinton Inop Both EDGs SD SERP 09-20-18 \(2\).pptx](#)

Just FYI. Very good summary here

From: Mitman, Jeffrey
Sent: Wednesday, September 19, 2018 9:27 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Felts, Russell <Russell.Felts@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: Clinton both EDGs Unavailable during Shutdown SERP Presentation

These are the slides we intend to use during Thursday's SERP. They may be modified slightly based on review comments.

Because on the limited time available, we only intend to cover Slides 3 through 7 during the meeting. These slides discuss:

- Conservatisms
- Non-conservatisms
- Risk results
- Sensitivity case results
- Dominant sequences

The rest are intended as supplemental/background information.

Jeff Mitman

(b)(5)



(b)(5)

Pre-Decisional

2

(b)(5)

Pre-Decisional

3

(b)(5)

Pre-Decisional

4

(b)(5)

Pre-Decisional

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Pre-Decisional

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Pre-Decisional

21

(b)(5)

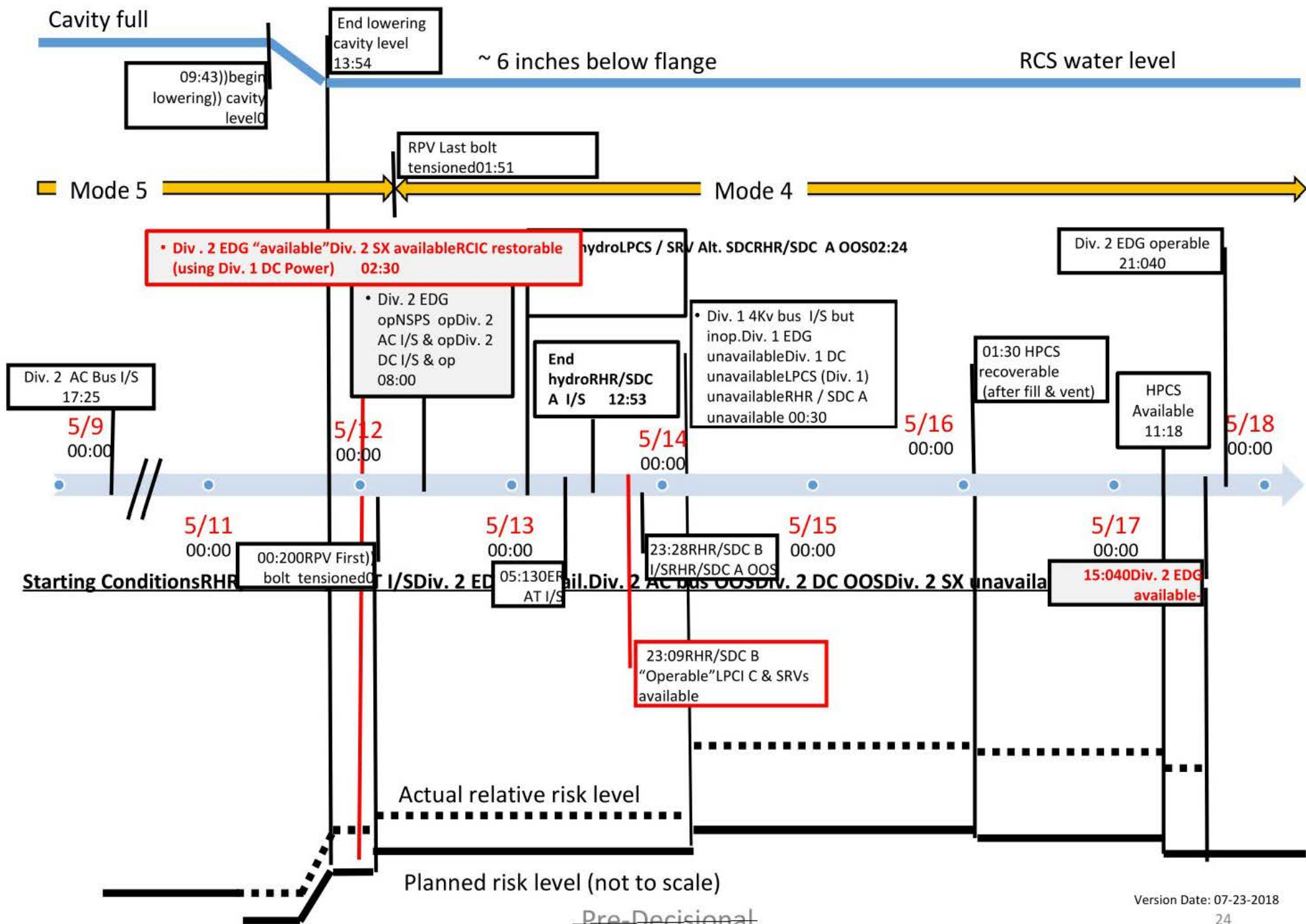
Pre-Decisional

22

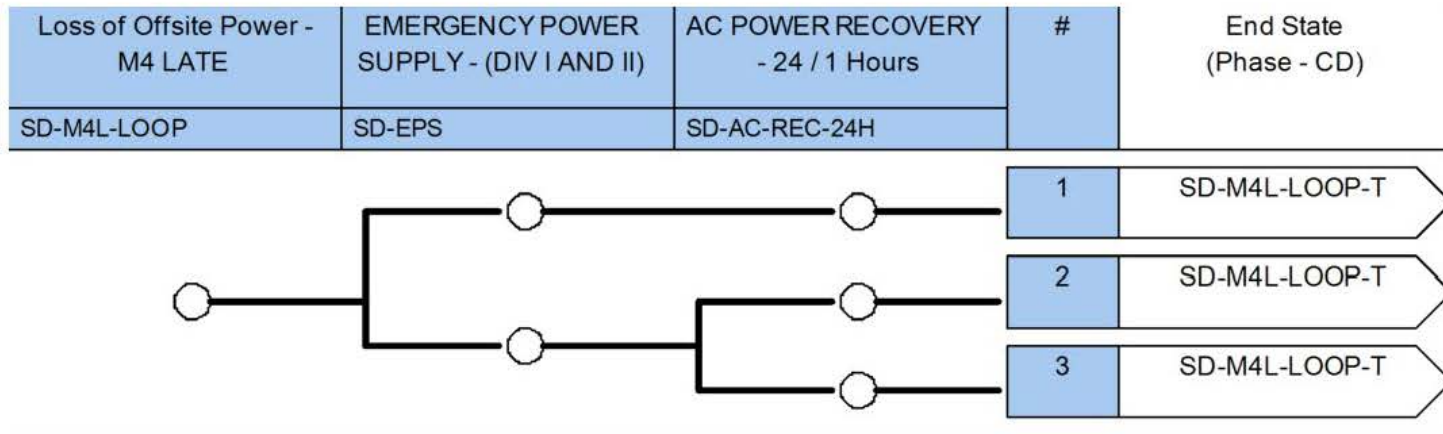
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Pre-Decisional

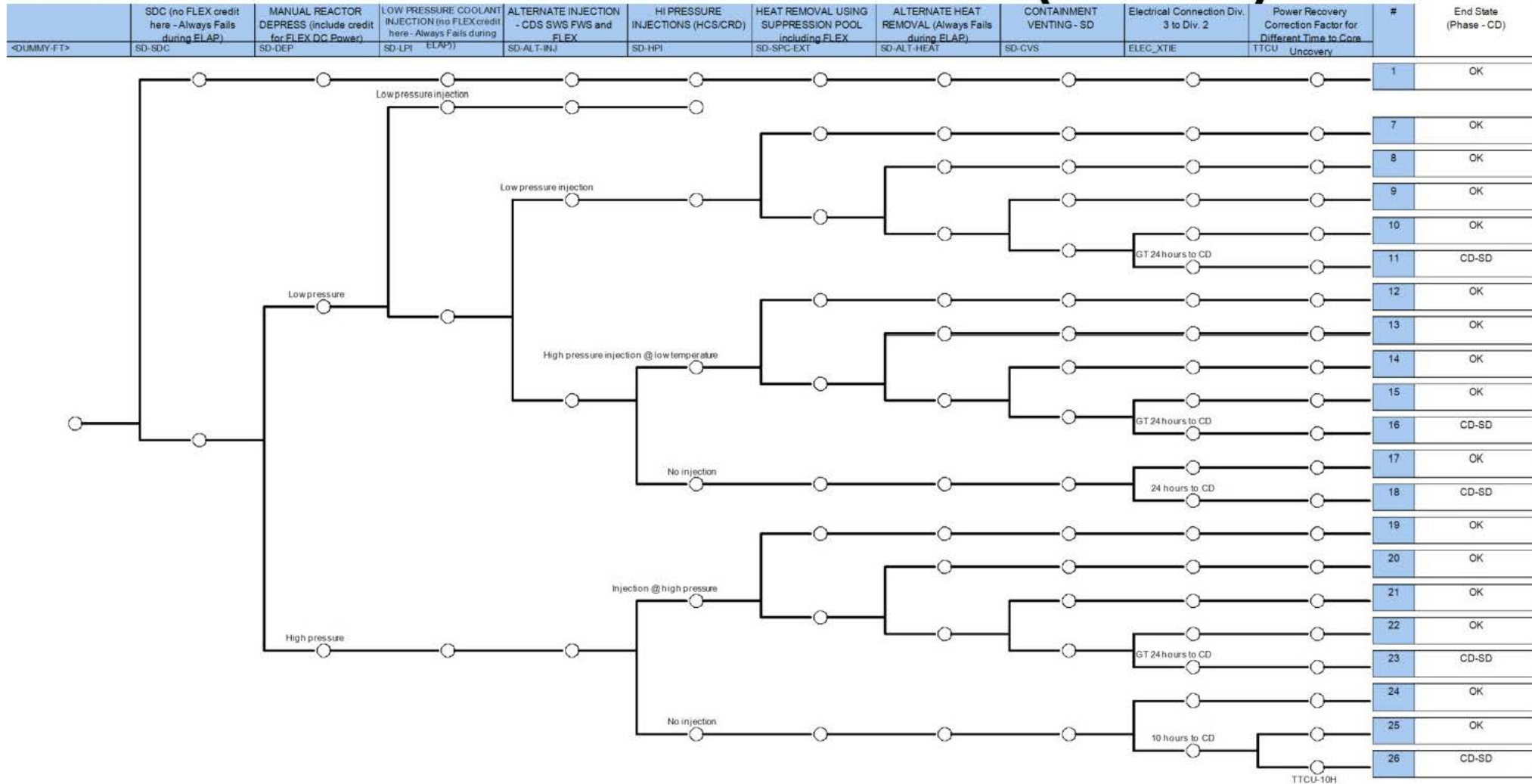
23



Shutdown LOOP ET



Shutdown LOOP ET (cont.)



(b)(5)

Pre-Decisional

(b)(5)

Pre-Decisional

28

(b)(5)

Pre-Decisional

29

Feb 14, 2019 9:26 AM

(b)(5)

Feb 14, 2019 9:26 AM

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From: [Kozak, Laura](#)
To: [Helton, Donald](#)
Subject: Clinton related documents
Date: Tuesday, September 18, 2018 1:58:00 PM
Attachments: [Briefing.docx](#)
[Credit for recovery examples.docx](#)

Note to requester: The first attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege). The second attachment is non-responsive due to narrowing the request to exclude licensee originated documents.

FYI

Clinton Division 2 EDG Significance Determination (9/20/18)

Key Messages

Evaluation of the significance of the finding is in progress. The preliminary significance evaluation indicates the finding could be White.

The preliminary significance evaluation and assumptions have been discussed in detail with licensee staff.

The significance of the finding is driven by human reliability. A LOOP event would have resulted in an SBO if it had occurred during the period of time both diesel generators were unavailable. Mitigation would require either operator recovery of the DG, offsite power recovery, complicated actions to implement FLEX, or the division 3 crosstie to provide power to division 2.

SDP

Both diesel generators, a portion of the Division 1 electrical system, and the HPCS pump were unavailable for 3.5 days.

Operator failure to recover the division 2 diesel generator is estimated at $2.0E-1$ (successful 80% of the time). The failure probability is driven by cognitive error.

Other human actions are also influential to the evaluation.

Licensee Perspective

Straightforward proceduralized response to recover the division 2 diesel generator.

Length of time available to provide mitigation response is substantial.

Multiple means exist for mitigation response.

Short exposure period

Closed diesel generator air start receiver valves would be discovered within 15 minutes. Operator failure probability is $4.6E-3$ (successful 99.5% of the time). The failure probability is driven by execution errors.

Finding is of very low safety significance (E-8).

NRC Risk Analyst perspectives

Multiple means exist for mitigation response (recovery, FLEX, crosstie) but they are not independent because they are all methods to recover power to division 2. FLEX and the cross-tie rely on complex operator actions and make recovery more difficult.

Diesel recovery and offsite power recovery are complicated by ELAP declaration and SBO DC load shed which are procedure-driven within 1 hour. The division 2 electrical system is significantly realigned to support FLEX or the crosstie.

The time to core damage for the dominant sequence is approximately 10 hours. While this is longer than for some at-power sequences because of higher than normal water level and lower decay heat, it is not necessarily "substantial" given some of the complex mitigation strategies.

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From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Briefing the RA on Clinton on Thursday morning
Date: Tuesday, September 18, 2018 10:51:00 AM
Attachments: [Briefing.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

FYI. Draft briefing sheet attached.

(b)(5)

From: [Kozak, Laura](#)
To: [Giessner, John](#)
Subject: Clinton
Date: Tuesday, September 18, 2018 3:09:00 PM
Attachments: [Briefing.docx](#)
[Credit for recovery examples.docx](#)

Note to requester: The attachments to this email have been withheld in their entirety under FOIA Ex. B5 (deliberative process privilege).

Just FYI because I know you are interested.

One page briefing sheet for meeting with West on Thursday.

2nd document is examples of other recovery examples to try to put the DG recovery in context – some will be familiar!

Laura

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: draft Clinton briefing
Date: Tuesday, September 18, 2018 10:59:00 AM
Attachments: [Briefing.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

Just FYI

Note to requester: Attachment is a non-responsive record due to clarifying the request to exclude licensee originated documents.

From: [Sanchez Santiago, Elba](#)
To: [Sargis, Daniel](#)
Subject: FW: email from Clinton
Date: Tuesday, September 18, 2018 9:01:02 AM
Attachments: [NRC CPS SDP SPAR Model Review Comments.docx](#)

FYI

From: Kozak, Laura
Sent: Tuesday, September 18, 2018 8:34 AM
To: Loudon, Patrick <Patrick.Loudon@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>
Cc: Stoedter, Karla <Karla.Stoedter@nrc.gov>; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>
Subject: email from Clinton

FYI – I just received a phone call and email from Clinton – the PRA staff has been provided 5 pages of comments for us to consider in our preliminary evaluation.

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CPS Review Comments Of NRC's SDP In-Process SPAR Model Results

The Exelon Clinton Station appreciates the opportunity to provide input to the NRC regarding the NRC in-process risk assessment associated with the CPS DG1B Unavailability SDP. The meeting on Tuesday September 11, 2018 at CPS where the in-process modeling was reviewed and discussed was helpful to gain insights into the current significant risk contributors, and the inputs related to those contributors. Based upon that review and discussion, Exelon Risk Management provides the following comments for consideration. It is understood that many of these comments were discussed in various levels of detail at the meeting. However, since the meeting Risk Management staff have performed additional reviews based on those discussions and our meeting notes. Specifically, since the in-process risk assessment results are notably driven by operator actions, additional review of the SPAR-H methodology used by the NRC was performed. The comments provided here are not intended to be exhaustive or a full summary of the discussions from the NRC interactions, but rather to focus on those areas that appear to be the most relevant to the dominant risk results. Additionally, it is understood that the NRC needs to reach a finalized risk estimate in a timely fashion. Therefore, some simple model change suggestions are provided for consideration.

DG1B Recovery

The human error probability (HEP) of DG1B recovery by operators is judged to be the most risk significant input in the assessment and is the most straight forward of the operator actions. Therefore, particular attention is paid to this model basic event. The Exelon HEP (previously provided to the NRC) was estimated to be approximately $5E-03$ using industry accepted methods, while the NRC initial estimate was 0.2 based on SPAR-H. CPS does not have the NRC's HEP calculations (e.g., the SPAR-H worksheets) for detailed review, but we have attempted to reproduce the overall values to gain insights related to the potential inputs employed. Based on our review (i.e., postulated inputs used), the following comments are provided regarding the 0.2 value obtained by the NRC:

- The current 0.2 value is predominantly "cognitive". As such, it appears to be reflective of the following inputs in SPAR-H worksheets:
 - A selection of "barely adequate time", reflective of a 1 hour time window for successful completion and a time to complete (the entire checklist) of approximately 40-45 minutes. No credit was yet in the model for continued operator recovery actions following this time.
 - A selection of "High" for the performance shaping factor of Stress.
- In discussions, CPS has noted that operators will not cease DG1B recovery efforts after one hour if the initial recovery attempts are unsuccessful. CPS needs to recover the DG even if offsite power were restored a few minutes after the postulated LOOP. Although CPS does not agree the 0.2 initial SPAR-H

CPS Review Comments Of NRC's SDP In-Process SPAR Model Results

estimate appropriately reflects the failure likelihood within one hour, it is used in the following illustration (i.e., assuming use of independent recovery teams if previous recovery teams have been unsuccessful) to demonstrate that DG1B would be restored with a very high probability well before the 11 hour time frame before batteries depleted.

| Timeline Interval | Recovery | Assumed DG Recovery Failure Probability | Cumulative DG Recovery Failure Probability |
|-------------------|----------|---|--|
| T = 0 to 1 hr | Team 1 | 0.2 | 0.2 |
| T = 1 to 2 hr | Team 2 | 0.2 | 0.04 |
| T = 2 to 3 hr | Team 3 | 0.2 | 0.008 |
| T = 3 to 4 hr | Team 4 | 0.2 | 0.0016 |

- In this illustration, the likelihood of failure to recover the DG at 4 hours is less than 0.2%, two orders of magnitude less than the first recovery attempt by Team 1, with still more than 6 hours of margin to the time of battery depletion.
- In the SPAR-H model, the following adjustments could be made to better reflect the time available for recovery and related considerations:
 - Selection of the “expansive time (>2x nominal and >30 min)” entry, instead of the “barely adequate” entry (for cognitive). Based on a recovery window of 11 hours, and a recovery attempt time of less than 1 hour (to complete the checklist), a “>10x time available” would be appropriate, but is not included in the SPAR-H model as an option.
 - The selection of an entry indicative of more time could reduce the HEP by up to two orders of magnitude.
 - Although the SBO condition is an unusual (not expected) event, the presence of additional personnel, experienced in diesel generator maintenance, troubleshooting, and operation, and additional Operations staff, when coupled with the fact that many hours were available (due to low decay heat load) to initiate and complete restoration and mitigative actions, provides a basis for reducing the Stress selection from “High” to “Nominal” for this HEP with occurs early in the event timeline.
 - Credit could be taken for self-correction of a diagnosis error and/or correction by other members of the crew (as illustrated in the table above with separate teams) to minimize undue conservatism by reducing the impact of performance shaping factors (PSFs), as discussed in the SPAR-H Step-by-Step Guidance (INL/EXT-10-18533 Rev. 2).

CPS Review Comments Of NRC's SDP In-Process SPAR Model Results

RPV Depressurization

The dominant sequences in the NRC in-process model are sequences involving a failure to depressurize the RPV. Currently the NRC model is only crediting FLEX in the RPV depressurization node. CPS has noted that two other alternative methods (independent of FLEX) exist to support RPV depressurization (i.e., portable power packs and B.5.b equipment). The NRC has not yet included these other two methods in the modeling, noting that the in-process results are currently driven by HEPs. While that may be the case, CPS presents the following to illustrate that inclusion of the other two methods may still have a significant impact upon the results.

- The NRC HEP for FLEX electrical (supporting RPV depressurization via SRVs) was estimated to be 0.3. Although CPS does not agree with this 0.3 initial estimate, it is assumed (as a surrogate) to also apply independently to the two other depressurization strategies of portable power packs and B.5.b equipment. Multiplying these three HEPs together ($0.3 \times 0.3 \times 0.3$) yields a probability of 0.03 (i.e., an order of magnitude reduction associated with modeling only the FLEX electrical strategy).
 - Different cues, locations, personnel, and timing of actions could reduce the dependencies between these actions. Even if moderate to high dependence is assumed, the joint HEP would reflect a reduction of 50% or more as compared to the HEP of a single action.
- In the SPAR calculation, the FLEX electrical HEP could be reduced from 0.3 to 0.03 to model, in a surrogate fashion, inclusion of these two other alternate methods in addition to FLEX.
- The SPAR-H worksheets include PSFs for Experience and Ergonomics, among other things. For these PSFs, the following modifications could be applied:
 - For Experience, the NRC applied a selection of "low" for many HEPs. A selection of "nominal" is more appropriate. From the Step-by-Step Guidance document, "Nominal—more than 6 months experience and/or training. This level of experience/training provides an adequate amount of formal schooling and instruction to ensure that individuals are proficient in day-to-day operations and have been exposed to abnormal conditions."
 - FLEX has been in place more than 6 months. Operators have trained on it. Simulations have been performed in which FLEX has been incorporated.
 - Selection of "nominal" reduces impacted HEPs by approximately a factor of 3.
 - For Ergonomics, the NRC applied a selection of "poor" for many HEPs. A selection of "nominal" appears more appropriate. The Step-by-Step

CPS Review Comments Of NRC's SDP In-Process SPAR Model Results

Guidance provides this input: "Ergonomics refers to the equipment, displays and controls, layout, quality, and quantity of information available from instrumentation, and the interaction of the operator/crew with the equipment to carry out tasks." These considerations are design oriented rather than strictly environmental (e.g., lack of ventilation, portable lighting, radiation) which may be more appropriately accounted for as potential stressors. As noted in the SPAR-H Step-by-Step Guidance, "...the analyst should make an effort to avoid any "double counting" of specific influencing factors." If Stress is assessed as "High", this would generally encompass environmental considerations and Ergonomics would more appropriately be selected as "nominal".

High Pressure Injection

The dominant sequences in the NRC in-process model are sequences involving a failure to depressurize the RPV. Without successful depressurization, the primary potential high pressure injection sources are RCIC and HPCS.

- RCIC was functional for the duration of the concurrent outage, but due to the high RPV water level the main stream lines were flooded. Use of RCIC with the RPV at high pressure would require waiting until the RPV boiled off inventory to a water level below the main steam lines. The NRC credited this with a HEP estimate of 0.75 (SPAR-H was not used to our knowledge). This value is judged high, and it is suggested that a more detailed HEP be developed. Based on other HEPs developed for the NRC risk assessment, a bounding value of 0.3 might be expected. This would represent a reduction factor of approximately 50% compared to the existing results for these dominant sequences.
- HPCS was in maintenance for a significant portion of the DG1B unavailability. The NRC modeled this configuration by assuming a HPCS T&M value of 0.9. For the last 38.25 hours (~1.6 days) of that unavailability, CPS estimates that HPCS was restorable (e.g., fill and vent) within 4 hours or less. This 1.6 days represents approximately 44% of the 3.6 day exposure period. If a screening HEP of 0.1 was applied to this time period when HPCS was restorable, a surrogate T&M estimate for HPCS could be applied in the model as follows:
 - $(0.1 \text{ HEP}) * (0.44 \text{ restorable period}) + (1.0 \text{ HEP}) * (0.56 \text{ non-restorable period}) = 0.60$

LOOP Frequency

The risk assessment result is contingent upon a LOOP event. A LOOP frequency of approximately 0.17/yr applicable to shutdown conditions was used in the NRC in-

CPS Review Comments Of NRC's SDP In-Process SPAR Model Results

process assessment based on available generic data. For the Exelon Risk Assessment, this generic data were reviewed and events that were found to only result from switchyard maintenance events or in a partial-LOOP were excluded, resulting in a LOOP frequency of 0.12/yr (a 29% frequency reduction), as documented in the risk assessment. CPS was not performing work in either switchyard during the exposure period in accordance with administrative protections. In discussions, the NRC noted that they disagreed with screening out the switchyard related events from the generic data. CPS notes that the administrative protections are put in place to reduce risk. Not accounting for the benefits of those protections implicitly includes a conservatism into the risk results (of approximately 29% per the Exelon estimate). If retained, this conservatism can be viewed to serve as a means to offset potential non-conservatisms that might be envisioned associated with the modeling of the event.

Summary Conclusions

Exelon appreciates the opportunity afforded to it to meet, review, and discuss the in-process NRC risk assessment. While PRA practices seek to obtain a "best estimate" risk result, it is understood that at times conservative inputs are used to facilitate modeling simplicity. However, conservatisms should be evaluated for their potential impact upon the conclusions of the risk assessment.

Based on the comments above, the NRC in-process risk assessment is estimated to be well over an order of magnitude high based on current conservatisms, summarized as follows:

- The DG1B Recovery HEP is estimated to be well over an order of magnitude high given the plants need to restore the DG and the available time.
- Not crediting two alternate RPV depressurization methods leads the dominant sequences to be approximately an order of magnitude high.
- Estimates of the SPAR-H inputs for calculating HEPs produces conservative HEPs that may be an order of magnitude high.
- Providing very limited credit for the use of RCIC and HPCS leads the dominant sequences to be high by approximately a factor two.
- The LOOP initiating event frequency includes events that may not be appropriate for the conditions examined, resulting in a frequency that could over-estimated by as much as 29%.

Inclusion of undue conservatism has the potential for producing results that stray from the objective of reflecting realistic inputs and plant response, thus impacting the conclusions of the risk assessment, which are discretized at orders of magnitude.

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: FW: SDP recovery examples
Date: Tuesday, September 18, 2018 12:49:00 PM
Attachments: [Credit for recovery examples.docx](#)

FYI – I have been trying to provide other similar examples of how we treated recovery in SDP. Please see attached.

From: Kozak, Laura
Sent: Tuesday, September 18, 2018 12:49 PM
To: Loudon, Patrick <Patrick.Loudon@nrc.gov>; Stoedter, Karla <Karla.Stoedter@nrc.gov>
Cc: Lara, Julio <Julio.Lara@nrc.gov>
Subject: SDP recovery examples

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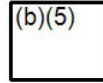


I will continue to find other ways to put the recovery credit in context.

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: HEP for offsite power recovery
Date: Tuesday, September 18, 2018 7:10:00 AM

Jeff

I evaluated the HEP using SPAR-H and put it on the share point site.



Laura

From: [Kozak, Laura](#)
To: [Louden, Patrick](#)
Subject: one page summary on current Clinton status
Date: Tuesday, September 18, 2018 3:06:00 PM
Attachments: [Briefing.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Giessner, John](#)
To: [Kozak, Laura](#)
Subject: RE: Clinton
Date: Tuesday, September 18, 2018 6:41:56 PM

Great summary! (b)(5)

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From: Kozak, Laura
Sent: Tuesday, September 18, 2018 3:09 PM
To: Giessner, John <John.Giessner@nrc.gov>
Subject: Clinton

Just FYI because I know you are interested.

One page briefing sheet for meeting with West on Thursday.

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Laura

From: Kozak, Laura
Sent: Tuesday, September 18, 2018 6:58 AM
To: Lara, Julio <Julio.Lara@nrc.gov>
Subject: RE: Clinton event tree

I wouldn't think so.

From: Lara, Julio
Sent: Tuesday, September 18, 2018 6:54 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton event tree

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From: Kozak, Laura
Sent: Tuesday, September 18, 2018 6:54 AM
To: Lara, Julio <Julio.Lara@nrc.gov>
Subject: RE: Clinton event tree

Battery depletion
Core damage

From: Lara, Julio
Sent: Tuesday, September 18, 2018 6:53 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton event tree

Bd=?
Cd=?

From: Kozak, Laura
Sent: Monday, September 17, 2018 5:21 PM
To: Lara, Julio <Julio.Lara@nrc.gov>
Subject: Clinton event tree

This is my simple event tree

From: [Lara, Julio](#)
To: [Kozak, Laura](#)
Subject: RE: draft Clinton briefing
Date: Tuesday, September 18, 2018 11:16:15 AM

For your consideration ..

I asked karla to get McGowan or tesar to help on the SDP comm tool as it could also help them .. within the comm tool, we should add some of these messages.

The red are my adds, if appropriate, to provide additional context o the uninformed.

The yellow is a but murky

Clinton Division 2 EDG Significance Determination (9/20/18)

Key Messages

Evaluation of the significance of the finding is in progress. The preliminary significance evaluation indicates the finding could be White.

The preliminary significance evaluation and assumptions have been discussed in detail with licensee staff.

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SDP

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Licensee Perspective

Straightforward proceduralized response to recover the division 2 diesel generator.

Length of time available to provide mitigation response is substantial.

Multiple means exist for mitigation response.

Short exposure period

Closed diesel generator air start receiver valves would be discovered within 15 minutes.

Operator failure probability is 4.6E-3 (successful 99.5% of the time). The failure probability is driven by execution errors.

Finding is of very low safety significance (E-8).

NRC Risk Analyst perspectives

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From: Kozak, Laura
Sent: Tuesday, September 18, 2018 10:59 AM
To: Lara, Julio <Julio.Lara@nrc.gov>
Subject: draft Clinton briefing

Just FYI

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Louden, Patrick](#); [Stoedter, Karla](#)
Cc: [Lara, Julio](#)
Subject: SDP recovery examples
Date: Tuesday, September 18, 2018 12:48:00 PM
Attachments: [Credit for recovery examples.docx](#)

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I will continue to find other ways to put the recovery credit in context.

From: [Kozak, Laura](#)
To: [Stoedter, Karla](#)
Subject: updated briefing
Date: Tuesday, September 18, 2018 9:35:00 AM
Attachments: [Briefing.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: Clinton Inop Both EDGs SD SERP 09-20-18 (1).ptx
Date: Wednesday, September 19, 2018 8:09:31 AM
Attachments: [Clinton Inop Both EDGs SD SERP 09-20-18 \(1\).ptx](#)

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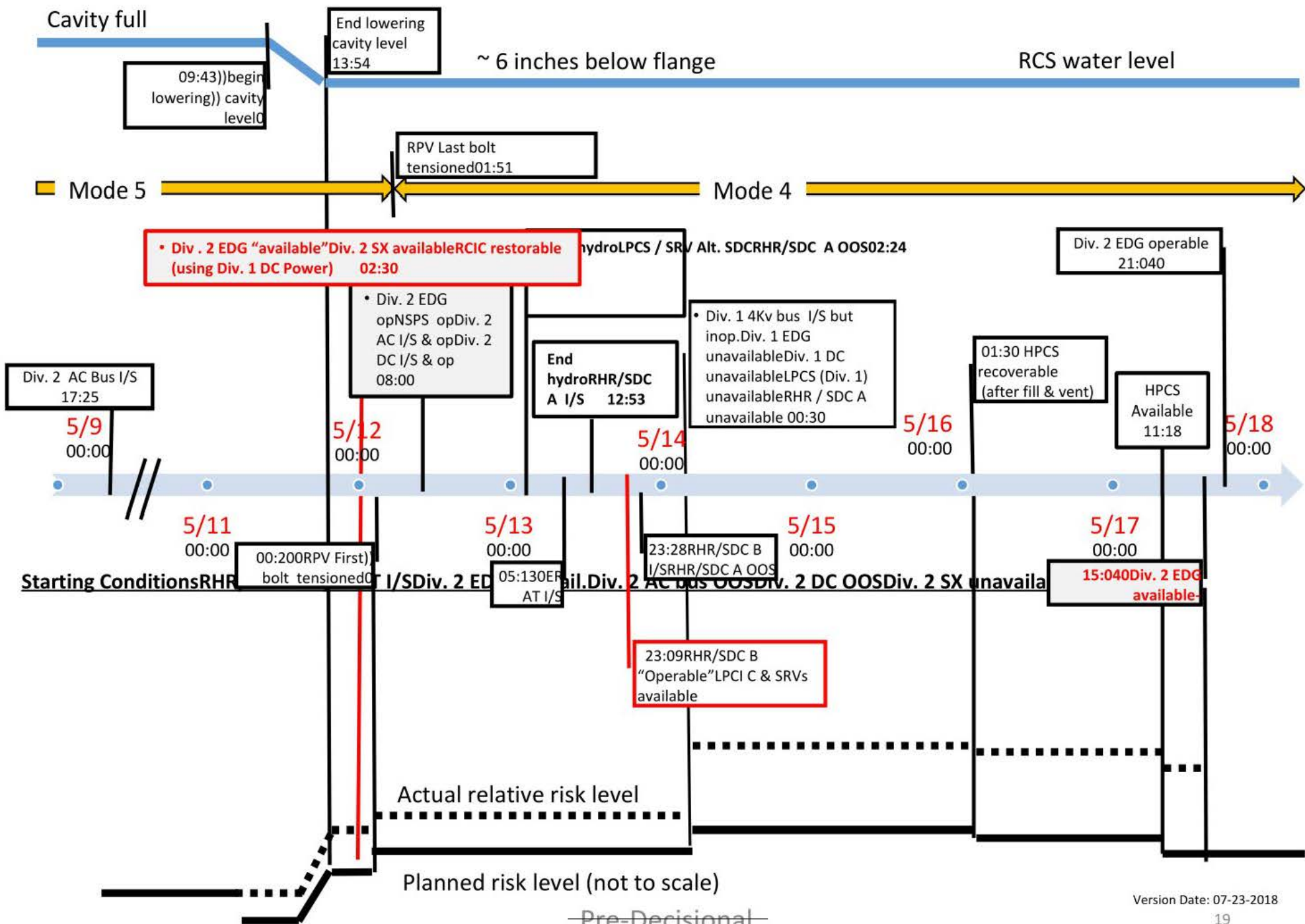
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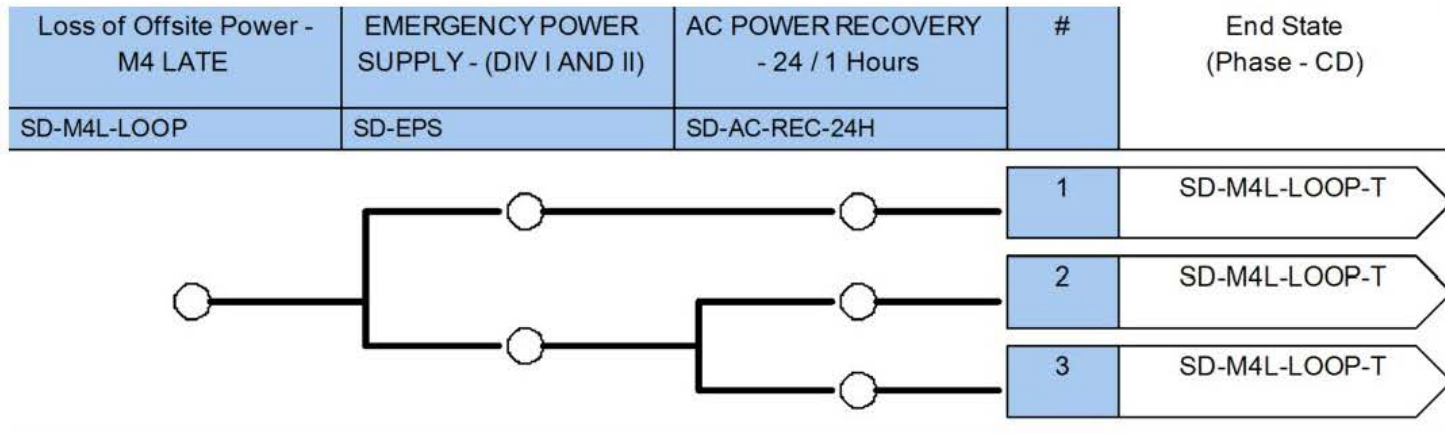
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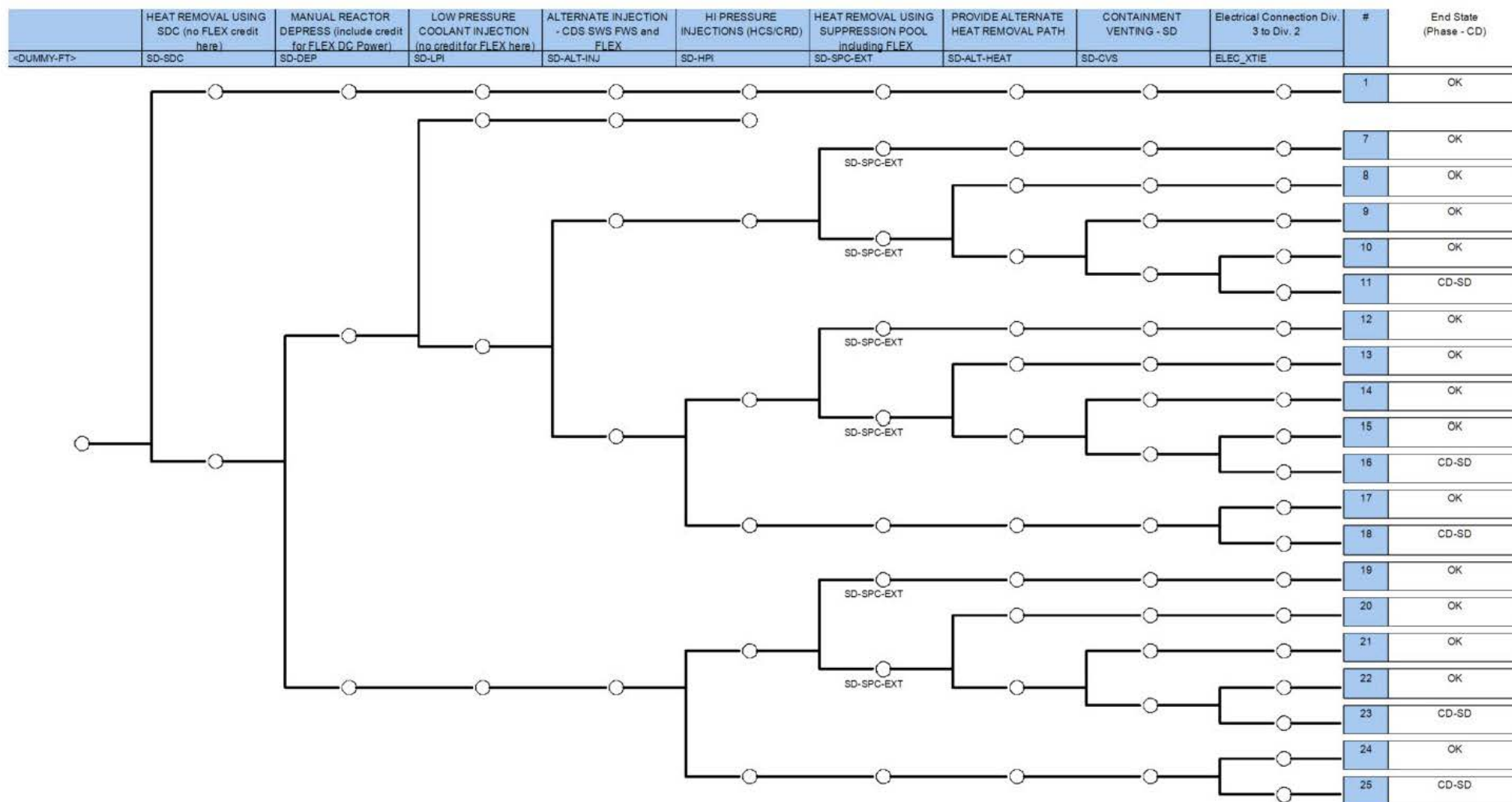
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Shutdown LOOP ET



Shutdown LOOP ET (cont.)



Pre-Decisional

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Pre-Decisional

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Pre-Decisional

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From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#); [Fong, CJ](#); [Felts, Russell](#); [Franovich, Mike](#)
Subject: Clinton both EDGs Unavailable during Shutdown SERP Presentation
Date: Wednesday, September 19, 2018 9:26:47 PM
Attachments: [Clinton Inop Both EDGs SD SERP 09-20-18 \(2\).pptx](#)

These are the slides we intend to use during Thursday's SERP. They may be modified slightly based on review comments.

Because on the limited time available, we only intend to cover Slides 3 through 7 during the meeting. These slides discuss:

- Conservatisms
- Non-conservatisms
- Risk results
- Sensitivity case results
- Dominant sequences

The rest are intended as supplemental/background information.

Jeff Mitman

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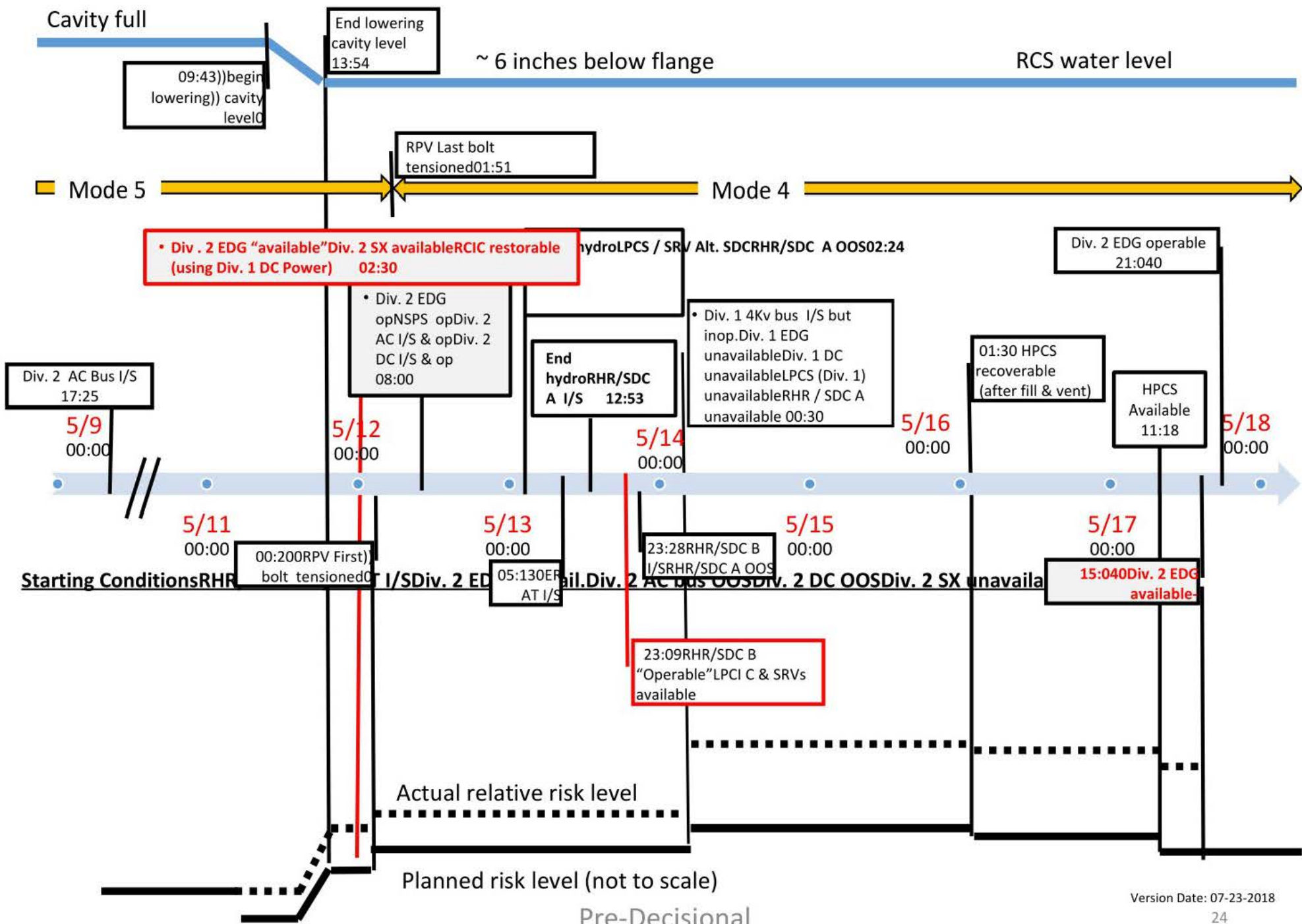
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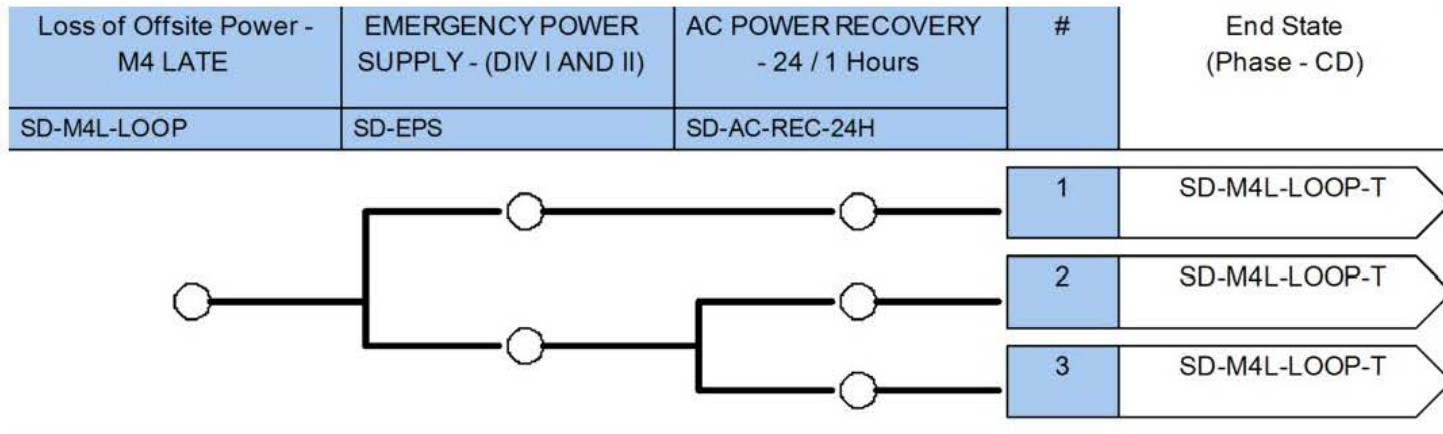
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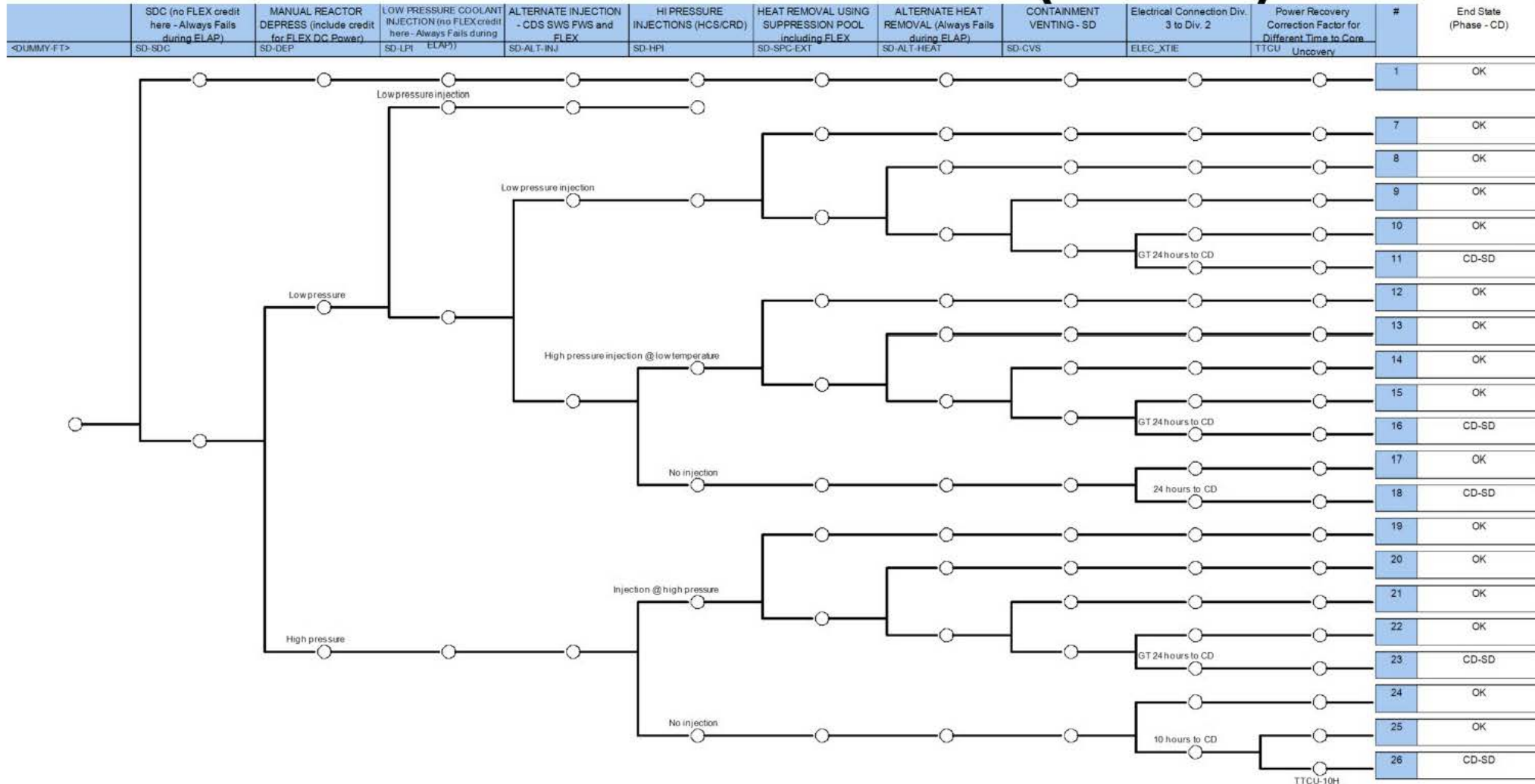
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Shutdown LOOP ET



Shutdown LOOP ET (cont.)



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Pre-Decisional

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Pre-Decisional

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Pre-Decisional

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From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Clinton presentation
Date: Wednesday, September 19, 2018 11:18:00 AM
Attachments: [Clinton Inop Both EDGs SD SERP 09-20-18 LCK rev.pptx](#)

Jeff,

I modified as requested and made a few other changes as well, please review.

Laura

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Pre-Decisional

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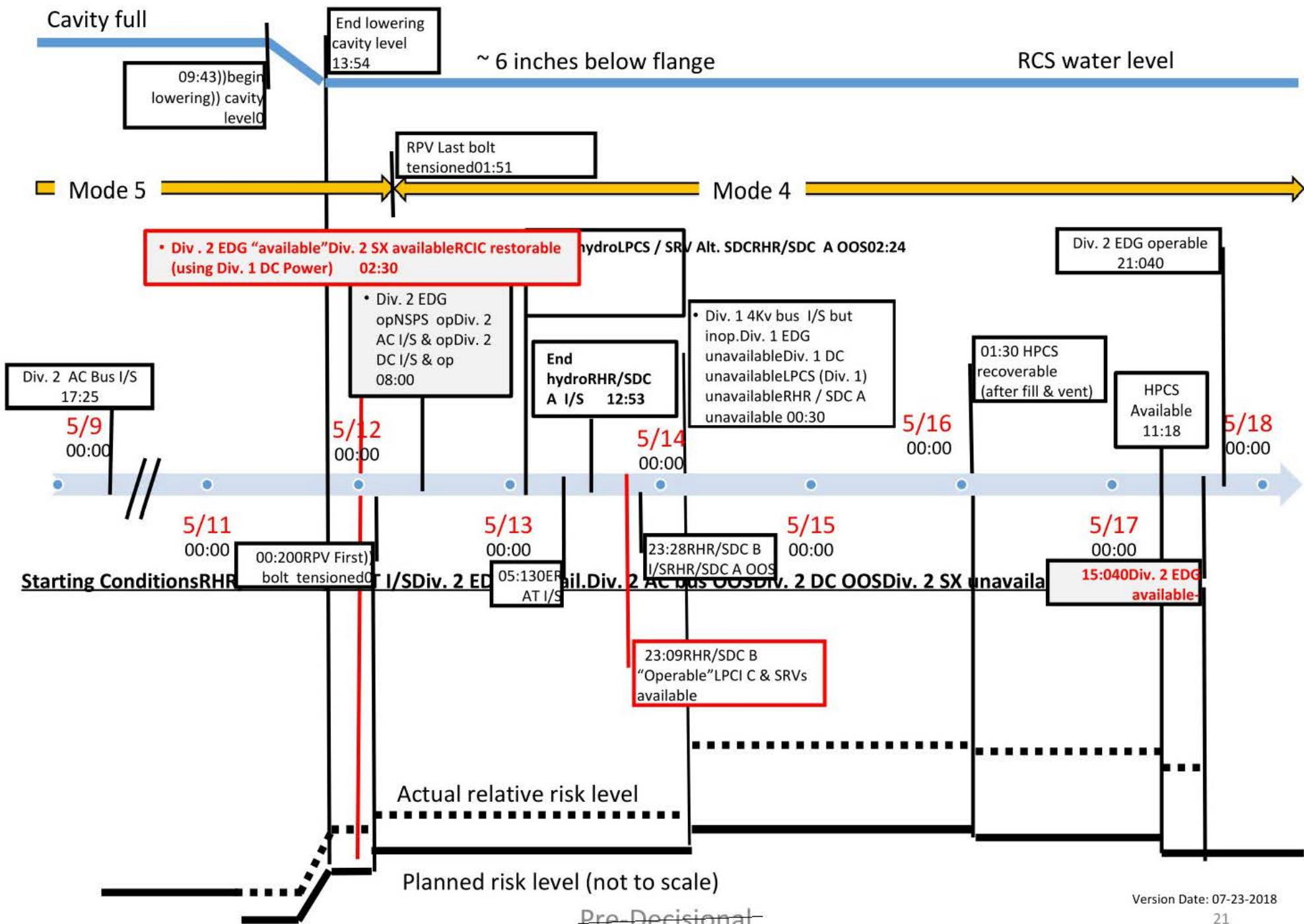
Pre-Decisional

19

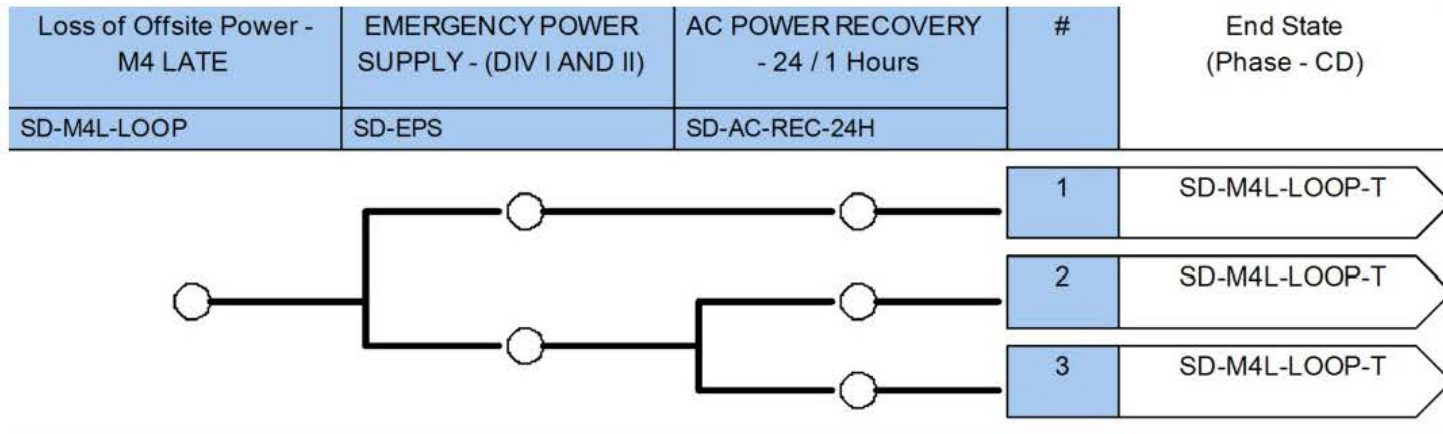
(b)(5)

Pre-Decisional

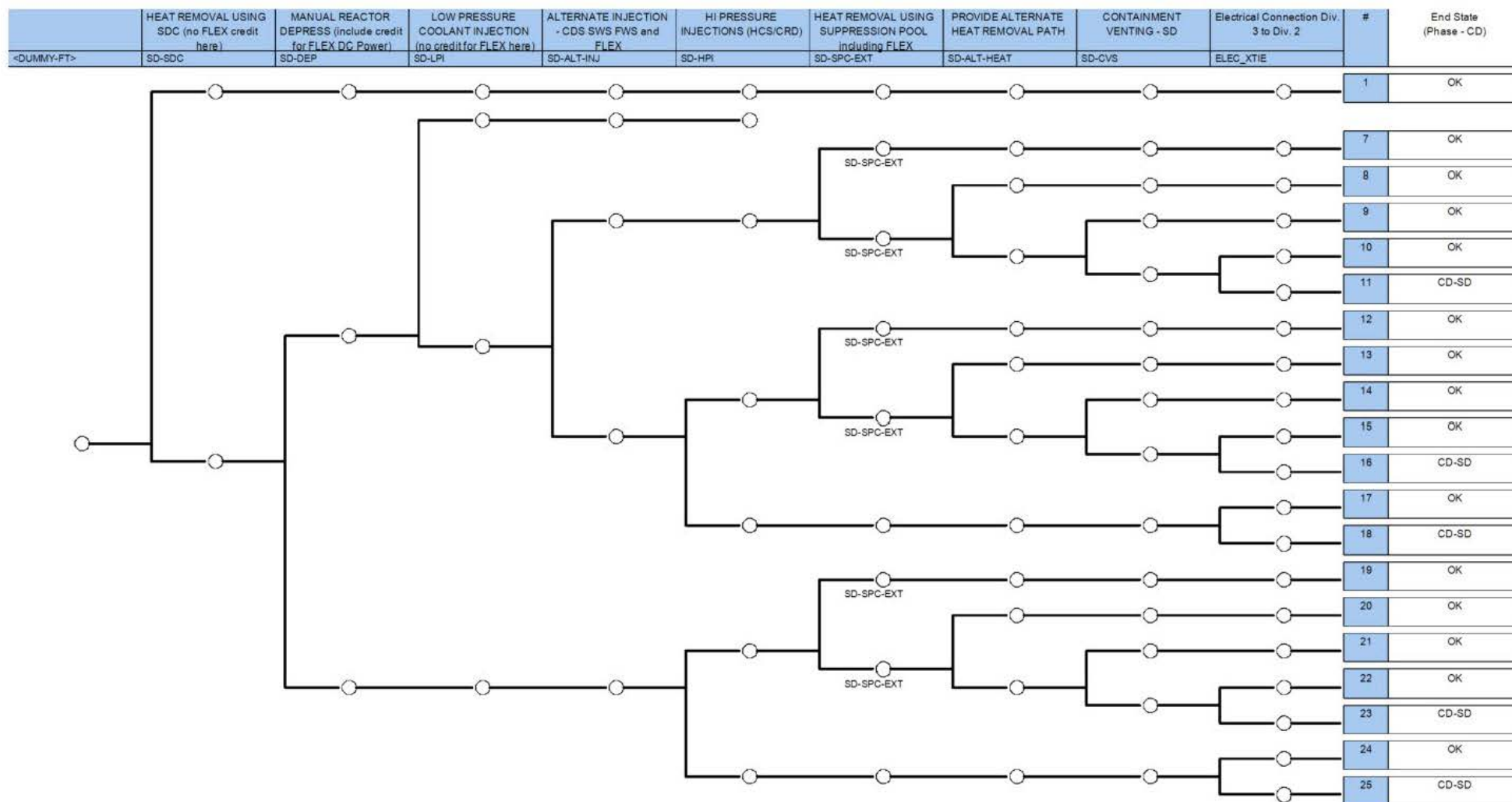
20



Shutdown LOOP ET



Shutdown LOOP ET (cont.)



Pre-Decisional

23

(b)(5)

Pre-Decisional

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(b)(5)

Pre-Decisional

25

(b)(5)

Pre-Decisional

26

(b)(5)

Pre-Decisional

27

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: Clinton Update
Date: Wednesday, September 19, 2018 9:32:49 PM

(b)(5)

I've put the "final" model on SharePoint. I've updated the risk results Excel Spreadsheet as well as the punch list. I sent the presentation to you and my management under separate email. Comments are always welcome.

Jeff Mitman

Note to requester: The first attachment to this email has been redacted in its entirety under FOIA Ex. B5 (deliberative process privilege), the second attachment is non-responsive due to narrowing the request to exclude licensee originated documents.

From: [Stoedter, Karla](#)
To: [Dickson, Billy](#)
Subject: FW: clinton risk comm tools
Date: Wednesday, September 19, 2018 11:16:00 AM
Attachments: [FW One pager summary of preliminary White finding for Clinton Division 3 SX pump failure.msg](#)
[FW Information Only Davis Besse SDP issue.msg](#)

From: Lara, Julio
Sent: Tuesday, September 18, 2018 8:33 AM
To: Stoedter, Karla <Karla.Stoedter@nrc.gov>
Subject: clinton risk comm tools
Let's talk sometime today. Thx

(b)(5)

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: RE:
Date: Wednesday, September 19, 2018 7:52:00 AM
Attachments: [image002.png](#)

Perfectly clear

From: Lara, Julio
Sent: Wednesday, September 19, 2018 7:07 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject:

(b)(5)

Julio Lara, P.E.
Deputy Director
Division of Reactor Projects, RIII
630-829-9601



From: [Mitman, Jeffrey](#)
To: [Robert F. Buell](#)
Cc: [Sancaktar, Selim](#); [Kozak, Laura](#)
Subject: RE: Clinton
Date: Wednesday, September 19, 2018 2:34:25 PM
Importance: High

Bob, this solve the problem!

Thanks for the help.

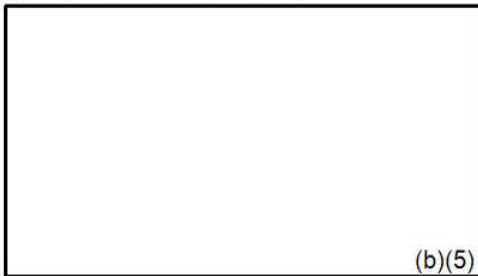
Jeff Mitman

From: Robert F. Buell [mailto:robert.buell@inl.gov]
Sent: Wednesday, September 19, 2018 3:21 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: [External_Sender] Clinton

Jeff,

Try these rules:

| Mitman's Shutdown Rules



Robert Buell

(b)(6)



From: [Kozak, Laura](#)
To: [Sanchez Santiago, Elba](#)
Subject: Another request - not urgent
Date: Thursday, September 20, 2018 4:09:00 PM
Attachments: [image001.png](#)

Elba

See loads below off 480V bus 1B – most of which are not on during FLEX. Can you find out for me the specific loads on DG Building MCC 1B, 1AP61E? (b)(5)

(b)(5)

Thanks
Laura

(b)(5)

From: [Kozak, Laura](#)
To: [Stoedter, Karla](#); [Sanchez Santiago, Elba](#)
Subject: briefing
Date: Thursday, September 20, 2018 9:00:38 AM
Attachments: [Briefing.docx](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [West, Steven](#); [Louden, Patrick](#); [Lara, Julio](#); [Riemer, Kenneth](#); [Cameron, Jamnes](#); [Stoedter, Karla](#); [Sanchez Santiago, Elba](#)
Subject: Clinton - what recovery HEP value would result in a Green finding
Date: Thursday, September 20, 2018 1:04:00 PM

To answer Steve's Q

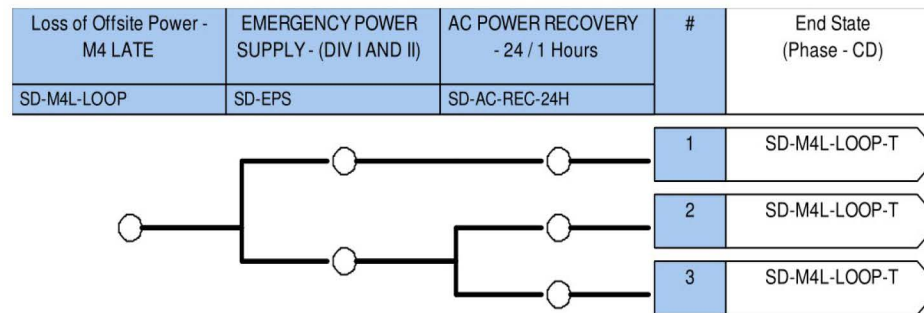
(b)(5)

Laura

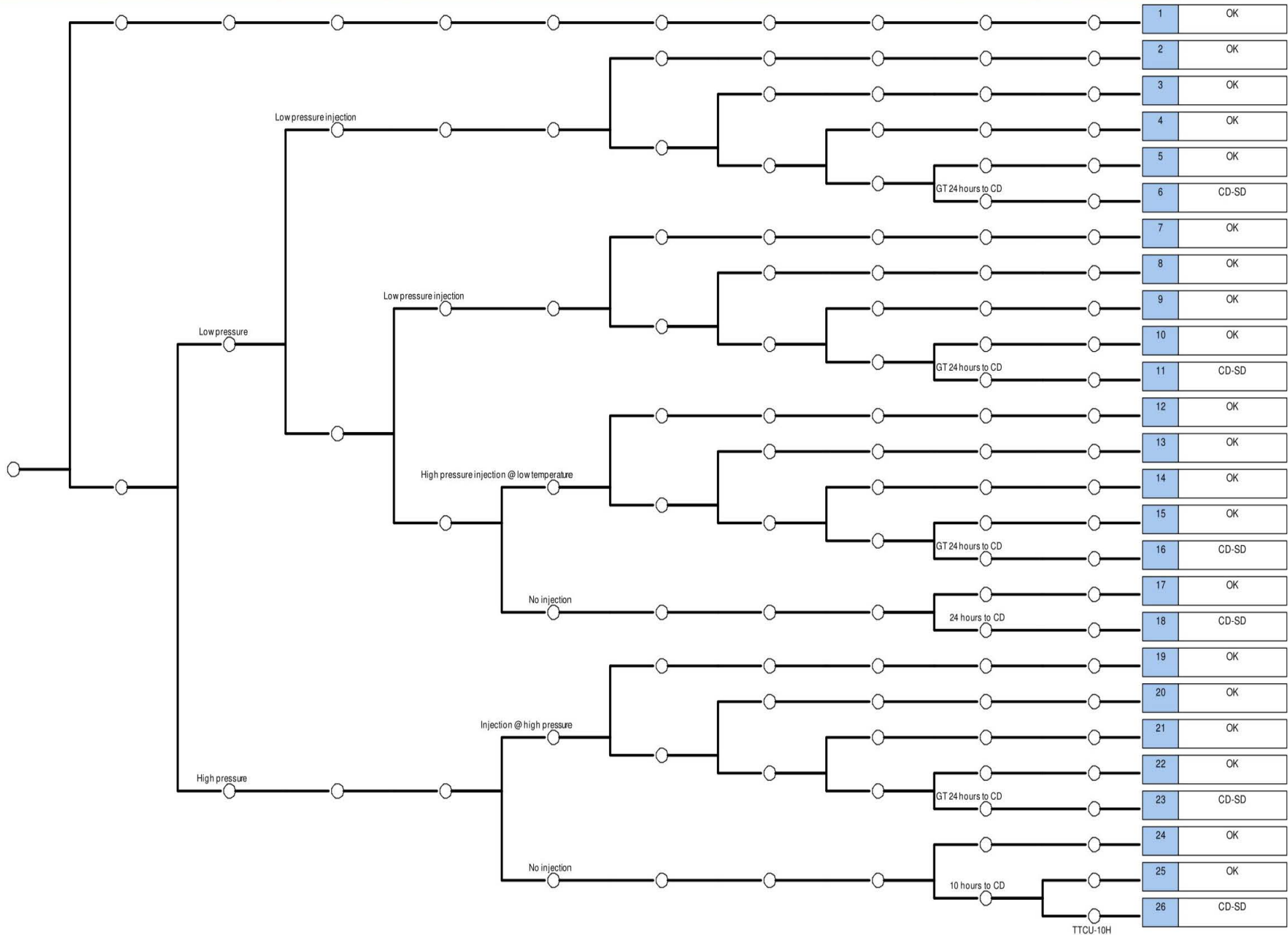
From: [Kozak, Laura](#)
To: [Tesar, Daniel](#)
Subject: Clinton
Date: Thursday, September 20, 2018 10:51:00 AM
Attachments: [Clinton Event Trees.pdf](#)
[Briefing.docx](#)

Note to requester: The second attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

Clinton Event Trees



| | SDC (no FLEX credit here - Always Fails during ELAP) | MANUAL REACTOR DEPRESS (include credit for FLEX DC Power) | LOW PRESSURE COOLANT INJECTION (no FLEX credit here - Always Fails during ELAP)) | ALTERNATE INJECTION - CDS SWS FWS and FLEX | HI PRESSURE INJECTIONS (HCS/CRD) | HEAT REMOVAL USING SUPPRESSION POOL including FLEX | ALTERNATE HEAT REMOVAL (Always Fails during ELAP) | CONTAINMENT VENTING - SD | Electrical Connection Div. 3 to Div. 2 | Power Recovery Correction Factor for Different Time to Core | # | End State (Phase - CD) |
|------------|--|---|--|--|----------------------------------|--|---|--------------------------|--|---|---|------------------------|
| <DUMMY-FT> | SD-SDC | SD-DEP | SD-LPI | SD-ALT-INJ | SD-HPI | SD-SPC-EXT | SD-ALT-HEAT | SD-CVS | ELEC_XTIE | TTCU Uncovery | | |



From: [Kozak, Laura](#)
To: [Tesar, Daniel](#)
Subject: Clinton
Date: Thursday, September 20, 2018 10:53:31 AM
Attachments: [Clinton Inop Both EDGs SD SERP 09-20-18 \(2\).pptx](#)

(b)(5)



(b)(5)

Pre-Decisional

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Pre-Decisional

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Pre-Decisional

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(b)(5)

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Pre-Decisional

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(b)(5)

Pre-Decisional

21

(b)(5)

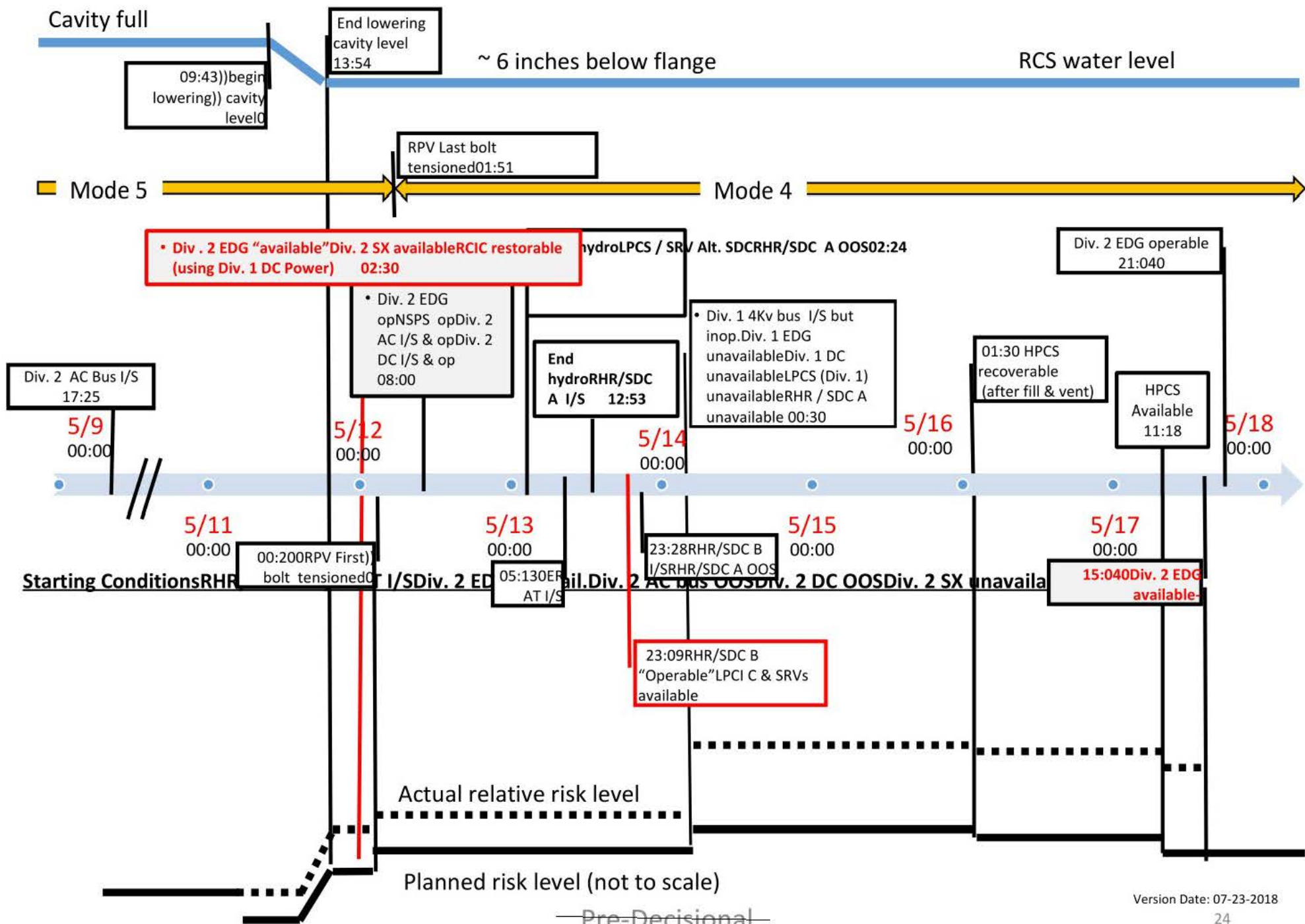
Pre-Decisional

22

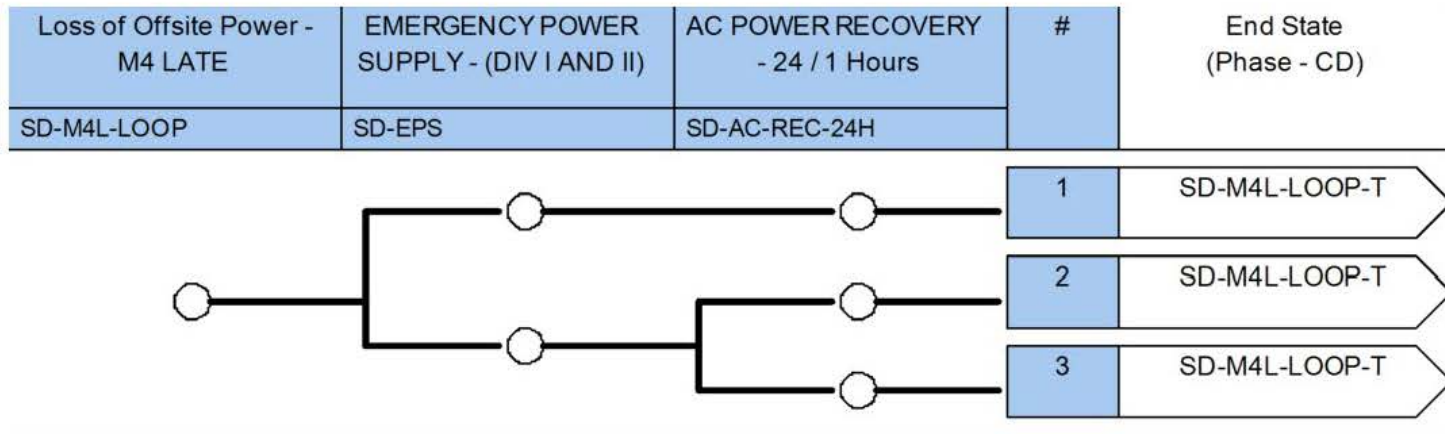
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Pre-Decisional

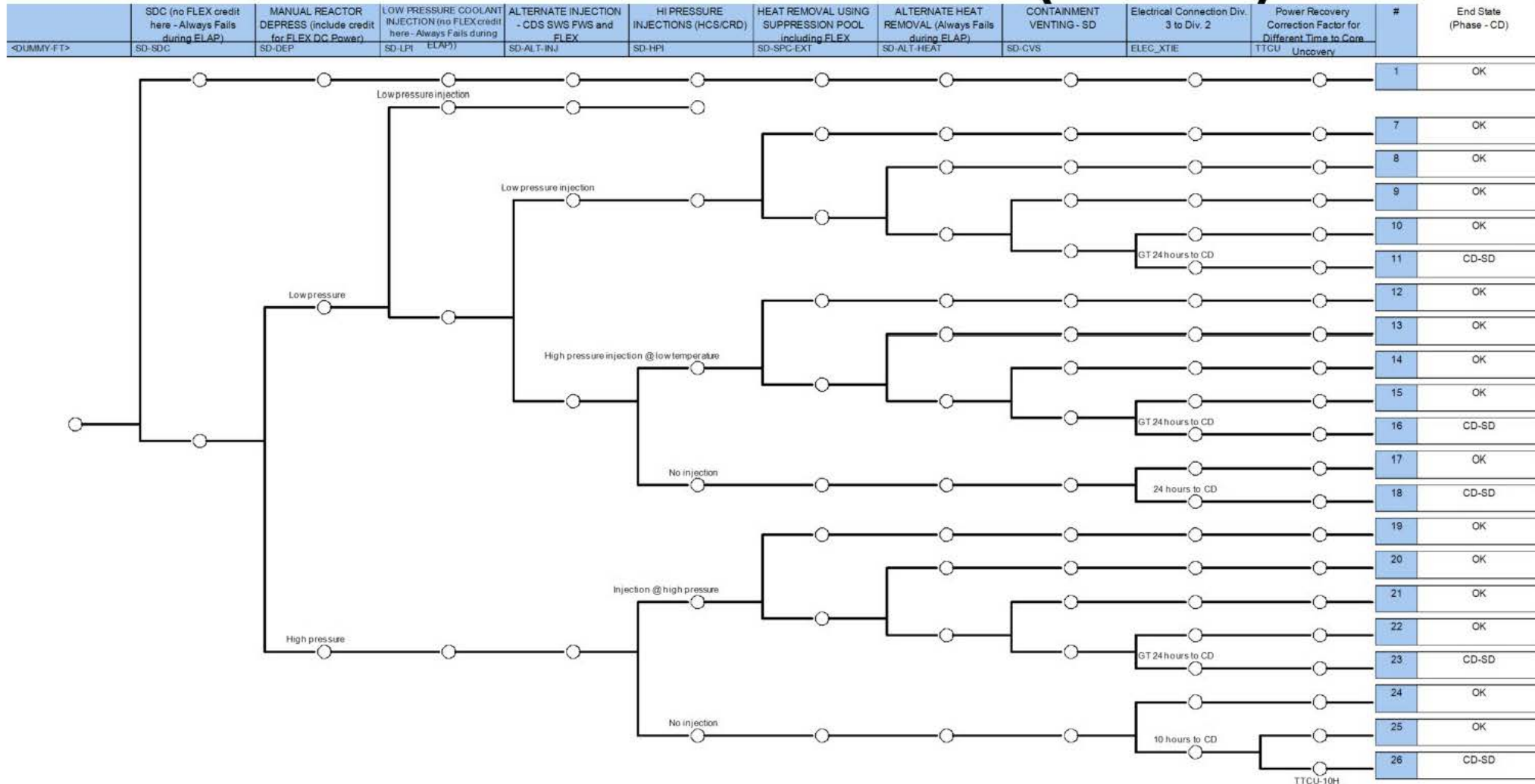
23



Shutdown LOOP ET



Shutdown LOOP ET (cont.)



(b)(5)

Pre-Decisional

27

(b)(5)

Pre-Decisional

28

(b)(5)

Pre-Decisional

29

NRC
nuclear regulatory Commission

Protecting People and the Environment

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: Clinton Answers
Date: Thursday, September 20, 2018 12:59:57 PM

Laura,

- (b)(5)
-

Jeff Mitman

From: [Kozak, Laura](#)
To: [Tesar, Daniel](#)
Subject: Clinton documents
Date: Thursday, September 20, 2018 10:45:21 AM
Attachments: [Clinton EDG Unavailability SERP rev2.docm](#)

EXHIBIT 1 – IFRB FINDING FORM

| <u>IFRB Cover Sheet</u> | |
|---|---|
| Facility Name/Location: Clinton | Name of Utility or Licensee: Exelon |
| Docket Number(s): 50-461 | EA Number: EA-18-104 |
| <div>(b)(5)</div> | |

Issue Date: (b)(5)

Exh1-1

0609.05TP

(b)(5)

Issue Date: (b)(5)

Exh1-2

0609.05TP

(b)(5)

Issue Date:

(b)(5)

Exh1-3

0609.05TP

(b)(5)



Issue Date:

(b)(5)



Exh1-4

0609.05TP

(b)(5)

Issue Date:

(b)(5)

Exh1-5

0609.05TP

(b)(5)

Issue Date: (b)(5)

Exh1-6

0609.05TP

(b)(5)



Issue Date: (b)(5)

Exh1-7

0609.05TP

(b)(5)

Issue Date: (b)(5)

Exh1-8

0609.05TP

(b)(5)

Issue Date:

(b)(5)

Exh1-9

0609.05TP

(b)(5)

Issue Date:

(b)(5)

Exh1-10

0609.05TP

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Issue Date:

(b)(5)

Exh1-11

0609.05TP

(b)(5)



Issue Date:

(b)(5)



Exh1-12

0609.05TP

(b)(5)

Issue Date: (b)(5)

Exh1-13

0609.05TP

(b)(5)

Issue Date:

(b)(5)

Exh1-14

0609.05TP

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Issue Date:

(b)(5)

Exh1-15

0609.05TP

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Issue Date: (b)(5)

Exh1-16

0609.05TP

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Issue Date: (b)(5)

Exh1-17

0609.05TP

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Issue Date: (b)(5)

Exh1-18

0609.05TP

(b)(5)

Issue Date:

(b)(5)

Exh1-19

0609.05TP

Issue Date: (b)(5)

Att1-1

0609.05TP

From: [Stoedter, Karla](#)
To: [Cameron, Jamnes](#); [Biemer, Kenneth](#); [West, Steven](#)
Subject: Clinton EDG information
Date: Thursday, September 20, 2018 10:28:00 AM
Attachments: [CLI 2018 050 SIT.docx](#)
[Clinton SERP package.msg](#)

The IFRB/SERP worksheets and the SIT report (which contains the documented PD and apparent violation) are attached for your convenience. Let us know if you have further questions.

Karla



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

August 23, 2018

EA-18-104

Mr. Bryan C. Hanson
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION—NRC SPECIAL INSPECTION REPORT
05000461/2018050

Dear Mr. Hanson:

On June 29, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed a reactive inspection at your Clinton Power Station. On August 3, 2018, the NRC inspectors discussed the results of this inspection with Mr. T. Stoner and other members of your staff. The results of this inspection are documented in the enclosed report.

Based on the results of this inspection, the NRC identified two issues that were evaluated under the risk significance determination process. Both of these issues were determined as having very-low safety significance (Green). The NRC has also determined that two violations are associated with these issues. Because the licensee initiated condition reports to address these issues, these violations are being treated as Non-Cited Violations (NCVs), consistent with Section 2.3.2 of the Enforcement Policy. These NCVs are described in the subject inspection report.

Additionally, Results Section (4) of the enclosed report discusses a finding with an associated apparent violation for which the NRC has not reached a preliminary significance determination. This finding involved the apparent failure of licensee personnel to follow multiple procedures resulting in the unavailability of the Division 2 Emergency Diesel Generator when it was relied upon for plant safety. Since the NRC has not made a final determination in this matter, a Notice of Violation is not being issued for this inspection finding at this time. In addition, please be advised that the characterization of the apparent violation described in the enclosed inspection report may change as a result of further NRC review.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement; and the NRC Resident Inspector at the Clinton Power Station.

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC resident inspector at Clinton Power Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Karla Stoedter, Chief
Branch 1
Division of Reactor Projects

Docket No. 50-461
License No. NPF-62

Enclosure:
Inspection Report 05000461/2018050

cc: Distribution via LISTSERV®

Letter to Bryan Hanson from Karla Stoedter dated August 23, 2018

SUBJECT: CLINTON POWER STATION—NRC SPECIAL INSPECTION REPORT
05000461/2018050

DISTRIBUTION:

Jeremy Bowen

RidsNrrDorlLpl3

RidsNrrPMClinton Resource

RidsNrrDirslrib Resource

Steven West

Darrell Roberts

Richard Skokowski

Allan Barker

DRSIII

DRPIII

ROPAssessment.Resource@nrc.gov

ADAMS Accession Number: ML18235A170

| | | | | |
|--------|--------------|------------|-----------|--|
| OFFICE | RIII | RIII | RIII | |
| NAME | CPhillips:bw | RSkokowski | KStoedter | |
| DATE | 8/15/2018 | 8/15/2018 | 8/23/2018 | |

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Numbers: 50-461

License Numbers: NPF-62

Report Numbers: 05000461/2018050

Enterprise Identifier: I-2018-050-0002

Licensee: Exelon Generation Company, LLC

Facility: Clinton Power Station

Location: Clinton, IL

Dates: June 25 through June 29, 2018

Inspectors: C. Phillips, Project Engineer
R. Murray, Senior Resident Inspector, Quad Cities
J. Draper, Health Physicist

Approved by: K. Stoedter, Chief
Branch 1
Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) monitored the licensee's performance by conducting a Special Inspection at Clinton Nuclear Power Station in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. Findings and violations being considered in the NRC's assessment are summarized in the table below.

List of Findings and Violations

| Failure to Follow Multiple Procedures | | | |
|---|--|---|--------------------------|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Mitigating Systems | TBD AV 05000461/2018050-01 Open EA-18-104 | [H.2] – Human Performance, Field Presence | 93812-Special Inspection |
| On May 17, 2018, a To-Be-Determined (TBD) finding and an associated Apparent Violation of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and Technical Specification 3.8.2, Condition B.3, were self-revealed for the licensee's failure to follow multiple procedures that affected quality. This resulted in the unavailability and inoperability of the Division 2 Emergency Diesel Generator when it was relied upon for plant safety. | | | |

| Failure to Identify a Condition Adverse to Quality | | | |
|---|---|---|--------------------------|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Mitigating Systems | Green NCV 05000461/2018050-02 Open/Closed | [H.12] – Human Performance, Avoid Complacency | 93812-Special Inspection |
| On May 17, 2018, a Green finding and an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," were self-revealed for the licensee's failure to promptly identify that the safety-related Division 2 Emergency Diesel Generator had its starting air receivers isolated, which was a condition adverse to quality that rendered the emergency diesel generator inoperable and unavailable. | | | |

| Equipment Operator Rounds Points Inadequate Acceptance Criteria | | | |
|--|---|---|--------------------------|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Mitigating Systems | Green NCV 05000461/2018050-03 Open/Closed | [H.6] – Human Performance, Design Margins | 93812–Special Inspection |
| On May 17, 2018, a Green finding and an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” were self-revealed for the licensee’s failure to include appropriate quantitative acceptance criteria for the Division 2 Emergency Diesel Generator parameters to ensure the Division 2 Emergency Diesel Generator could perform its safety function. | | | |

Additional Tracking Items

None.

INSPECTION SCOPE

Inspections were conducted using the appropriate portions of the inspection procedure (IP) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

OTHER ACTIVITIES—TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

93812—Special Inspection

In accordance with the Special Inspection Team Charter (ADAMS Accession Number ML18158A170), the inspection team conducted a detailed review of the event that led to both Division 1 and Division 2 Emergency Diesel Generators (EDGs) being inoperable and unavailable. The inspectors reviewed the following areas.

- (1) Develop a complete sequence of events related to the inoperability and unavailability of the Division 1 and Division 2 alternating current (AC) power systems from May 9 through May 17, 2018. The chronology should include plant mode changes, changes in the electrical power, decay heat removal, and inventory control shutdown safety/risk areas.
- (2) Understand the increased shutdown risk condition which existed when no emergency AC power sources were available for a period of approximately 3.5 days. Review the planned shutdown safety configuration compared to the actual configuration that existed. Understand the licensee's ability to respond to and mitigate a loss of offsite power event given the unavailability of both onsite emergency AC power sources.
- (3) Review the licensee's cause analysis efforts and determine if the evaluation's level of detail is commensurate with the significance of the problem.
- (4) Determine the probable cause(s) for the unavailability of the Division 1 and Division 2 EDGs during the 2018 refueling outage.
- (5) Understand whether there were any deficiencies in operator training (both licensed and non-licensed operators) which contributed to the EDG unavailability and the failure to identify the condition across multiple operating shifts.
- (6) Evaluation of the licensee's compliance with, and adequacy of, procedural guidance for performing system alignments, controlling equipment configuration, performing equipment tag-outs and control room log keeping as it pertains to the cause(s) of the event.

The inspectors identified several examples of situations where procedures and work instructions that were in place at the time of the event were not followed. These

examples are discussed in detail in an observation box in the results section associated with paragraph (4) of this report.

- (7) Evaluate licensee planned and completed corrective actions following the EDG event to the extent possible and assess if prior opportunities (e.g., surveillances, maintenance, and self or nuclear oversight assessments) existed to have identified the problem at an earlier point in time.
- (8) Determine whether recent internal and external operating experience involving configuration control, risk management and oversight of activities were appropriately evaluated and determine the adequacy of any corrective actions planned or completed.

INSPECTION RESULTS

93812—Special Inspection

- (1) Develop a complete sequence of events related to the inoperability and unavailability of the Division 1 and Division 2 AC power systems from May 9 through May 17, 2018. The chronology should include plant mode changes, changes in the electrical power, decay heat removal, and inventory control shutdown safety/risk areas.

| Observation | IP 93812 |
|---|----------|
| <p>On May 9, 2018, Clinton Power Station (CPS), Unit 1, was in Mode 5 during Refueling Outage C1R18. The reactor cavity was filled, and at 9:36 p.m. the Division 2 4160 Volt alternating current (Vac) bus (1B1) was energized from the reserve auxiliary transformer (RAT) to end a scheduled bus 1B1 maintenance window. The Division 1 AC distribution system, Division 1 EDG, and residual heat removal (RHR) 'A' system were operable during the 1B1 bus outage and remained operable upon restoration of bus 1B1.</p> <p>Earlier on May 9, 2018, the Division 2 EDG had been inoperable and unavailable as a result of the 1B1 bus outage. At 5:25 p.m., Clearance Order (C/O) 139455 was removed from the Division 2 EDG as part of 1B1 restoration activities. This C/O included a Special Instruction that stated "Restore Div 2 DG [diesel generator] to standby per CPS 3506.01P002 [Division 2 Diesel Generator Operations; Revision 3a] in conjunction with C/O removal." The inspectors found procedure CPS 3506.01P002 was not performed in conjunction with the C/O closure. Instead, a senior reactor operator (SRO 1) placed a note in the control room log stating CPS 3506.01P002 needed to be performed after restoration of the Division 2 shutdown service water (SX) system. Because CPS 3506.01P002 was not completed as part of the C/O closure, the position of the Division 2 EDG air receiver isolation valves was being controlled by the control room log entry instead of through an approved licensee process. By not completing CPS 3506.01P002 at that time, Division 2 EDG air receiver isolation valves (1DG160 and 1DG161) were left shut. Following the closure of the C/O, this log entry was the only method the licensee used to track the need to restore the Division 2 EDG to standby per CPS 3506.01P002.</p> <p>On May 10, 2018, during the day shift, a senior reactor operator (SRO 2) directed a non-licensed operator to perform a portion of CPS 3506.01P002 to restore fuses for the Division 2 EDG lubrication system, which had previously been removed from service prior to the 1B1 bus maintenance. When the non-licensed operator had completed the partial procedure, SRO 2 had already turned over duties to a different senior reactor operator (SRO 3), so the non-licensed operator returned the partial completed procedure to SRO 3.</p> | |

Even though the complete CPS 3506.01P002 procedure had not been performed, SRO 3 believed that all activities required to restore the Division 2 EDG had been completed.

On May 11, 2018, at 2:30 a.m., SRO 3 declared the Division 2 EDG available after Division 2 SX was restored and made available. At this time, the Division 2 EDG starting air valves (1DG160 and 1DG161) remained closed, isolating starting air from the EDG air start motors, making the EDG unable to start on any demand signal. On May 11, 2018, at 5:10 a.m., the licensee installed the reactor cavity gate in preparation for cavity drain down and reactor head installation. The cavity drain began at 9:43 a.m. and was completed at 1:54 p.m. The licensee began tensioning the reactor head studs at 12:20 a.m. on May 12, 2018, and completed tensioning the studs at 1:51 a.m., at which time operations department personnel declared the Unit in Mode 4.

On May 12, 2018, at 8:00 a.m., the licensee completed OP-AA-108-106, "Equipment Return to Service," Revision 5, for the Division 2 Nuclear System Protection System (NSPS), Division 2 essential switchgear cooling (VX), Division 2 direct current (DC), and Division 2 EDG, and declared each of these systems operable. The licensee did not perform post-maintenance testing on the Division 2 EDG as no maintenance was performed on the EDG.

On May 13, 2018, operations secured the RHR 'A' pump from operation in shutdown cooling mode from 2:24 a.m. until 12:53 p.m. to facilitate the reactor pressure vessel pressure test. During this time, the emergency reserve auxiliary transformer (ERAT) (which had been unavailable since May 5, 2018, at 5:03 p.m.), the second source of offsite power to the 4160 Vac safety-related buses, was declared available at 5:15 a.m. At 11:09 p.m., RHR 'B' was declared operable for shutdown cooling mode, and at 11:28 p.m., RHR 'A' was secured and RHR 'B' was started in shutdown cooling mode.

On May 14, 2018, at 12:30 a.m., since the licensee was unaware that the Division 2 EDG was inoperable and unavailable due to its inability to start caused by the 1DG160 and 1DG161 valves being closed, the licensee began a scheduled maintenance window for the Division 1 4160 Vac bus (1A1). As a result of taking bus 1A1 out of service, the Division 1 EDG was declared inoperable and unavailable along with other equipment powered from bus 1A1, including the low pressure core spray (LPCS) and RHR 'A' systems.

On May 16, 2018, at 1:30 a.m., the licensee completed filling and venting the high pressure core spray (HPCS) system following an extended maintenance window. On May 17, 2018, at 11:18 a.m., operations declared HPCS available, and after post-maintenance testing of the system on May 18, 2018, at 6:21 p.m., HPCS was declared operable.

On May 17, 2018, at 3:03 p.m., a non-licensed operator performing shift rounds identified that the 1DG160 and 1DG161 valves were closed and reported this condition to the control room. The licensee declared the Division 2 EDG inoperable and unavailable and investigated the condition. The licensee restored the valves to the open position and declared the Division 2 EDG available at 3:45 p.m. After the licensee performed OP-AA-108-106, the licensee declared the Division 2 EDG operable at 9:04 p.m.

- (2) Understand the increased shutdown risk condition which existed when no emergency AC power sources were available for a period of approximately 3.5 days. Review the planned shutdown safety configuration compared to the actual configuration that existed.

Understand the licensee's ability to respond to and mitigate a loss of offsite power event given the unavailability of both onsite emergency AC power sources.

| | |
|--|----------|
| Observation | IP 93812 |
| <p>As a result of several human performance errors the Division 2 EDG was inoperable and unavailable for over 6 days without the licensee's knowledge. Both Division 1 and Division 2 EDGs were inoperable and unavailable for over 3 days, May 14 through May 17, 2018, which was not allowed per Technical Specification (TS) 3.8.2 (this violation is in the results section of the report for Paragraph (4)).</p> <p>Had a loss of offsite power event occurred between May 14 and May 17, 2018, there would have been an immediate station blackout (SBO) event. The inspectors determined that the Division 2 EDG was recoverable. The inspectors determined that there were no other plant conditions that deviated from the stations shutdown risk plan during the time that both EDGs were unavailable. The inspectors determined that the licensee could have responded to an SBO in one of at least three ways. The licensee could have declared an extended loss of AC power (ELAP) event and deployed FLEX equipment. Additionally, the smaller Division 3 EDG could have been started and cross-tied to the Division 2 4160 Vac bus. The inspectors determined that the Division 3 EDG would have supported enough loads to restore one train of shutdown cooling. Finally, two diesel driven fire pumps and the safety-relief valves were available to provide feed and bleed cooling to the reactor core if necessary.</p> | |

- (3) Review the licensee's cause analysis efforts and determine if the evaluation's level of detail is commensurate with the significance of the problem.

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| Observation | IP 93812 |
| <p>The inspectors interviewed the licensee's root cause team lead and two additional root cause team members. At the time the inspection team arrived on site the licensee had completed their initial analysis of the events but had neither documented the results of their review nor had station management reviewed and approved the results. The inspectors reviewed numerous procedures, toured the applicable locations in the plant, and interviewed several operators involved in this event. The inspectors determined that the licensee appeared to be following their guidance for root cause investigations.</p> | |

- (4) Determine the probable cause(s) for the unavailability of the Division 1 and Division 2 EDGs during the 2018 refueling outage.

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| Observation | IP 93812 |
| <p>The inspectors determined that the cause of the event was the licensee's failure to follow multiple procedures and work instructions. The restoration instructions associated with the clearing of C/O 139455 that resulted in this event were not followed. The instructions stated that the performance of CPS 3506.01P002, "Division 2 Diesel Generator Operations," was required to be in conjunction with the clearance of the C/O. The standard Clinton operation's process for clearing out-of-service tags was to leave the valves in the out-of-service position and then complete a standby lineup afterwards to reposition the valves to the correct position. The SRO (SRO 1) that cleared C/O 139455 did not perform the standby lineup (CPS 3506.01P002) in conjunction with the clearing of the out-of-service because safety-related cooling water (SX) to the EDG was still inoperable. This resulted in the EDG air receiver isolation valves (1DG160 and 1DG161) remaining closed when the out-of-service cards were cleared. The inspectors asked the licensee if 1DG160 and 1DG161 needed to</p> | |

remain closed to protect the EDG based solely on the status of the safety-related cooling water to the EDG at the time. The licensee responded that it was not required for 1DG160 and 1DG161 to remain closed to protect the EDG based on the plant status at the time C/O 139455 was cleared. The failure to follow the C/O direction to complete procedure CPS 3506.01P002 was a failure to follow work instructions.

The SRO (SRO 1) stated in the control room operating logs that CPS 3506.01P002 was required to be performed at some later date. The inspectors identified that the specific abnormal positions of 1DG160 and 1DG161 were not logged into the operations log, only the requirement to complete CPS 3506.01P002. The inspectors also identified that no Exelon procedure existed that required or allowed the tracking of valves in an abnormal position by the use of the control room logs. A Clinton site specific procedure existed that allowed tracking of the status of some specific equipment in the operator logs until the end of the shift but that procedure was not applicable to this situation.

Valves 1DG160 and 1DG161 were normally locked open valves. Exelon procedure OP-AA-108-103, "Locked Equipment Program," Revision 2, Step 4.1.5, stated, "If plant conditions require a locked component to be positioned in a manner other than that indicated on the locked equipment checklist or approved procedure, then UNLOCK and REPOSITION equipment in accordance with OP-AA-108-101, 'Control of Equipment and System Status.'" Procedure OP-AA-108-101, "Control of Equipment and System Status," Revision 14, Step 4.1.1.1, stated, "Utilize an ACPS [abnormal component positioning sheet] for aligning equipment outside of routine operations. For situations, excluding routine operation, where a component, system, or structure is required to be placed in a position differing from its normal lineup, the alignment must be done utilizing an Abnormal Component Position Sheet (ACPS). The ACPS will document proper evaluation, performance and restoration of the alignment, ensuring plant configuration control is maintained." An ACPS was not used to track the positions of 1DG160 and 1DG161. This was a failure to follow procedure.

Exelon procedure OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.3, required that "if equipment will not be restored to the Equipment Line-up/Restoration position or the original condition, then another approved equipment status control mechanism shall be used to document equipment status (i.e. Equipment Status Tag, administrative clearance/tagout). Procedure OP-AA-108-101, 'Control of Equipment and System Status,' shall be used to document abnormal equipment configuration and shall be immediately applied following equipment restoration." This was not performed and constituted a failure to follow procedure.

In addition, Exelon procedure OP-AA-109-101, "Clearance and Tagging," Revision 12, Step 10.2.1, stated, "If a lift position is determined to be different from the normal lineup position for the present plant condition and not tracked by another C/O or procedure, then Shift Management shall be notified and equipment tracking initiated." In an interview between the inspectors and SRO 1, he stated that he thought the positions of 1DG160 and 1DG161 were being tracked via a procedure (CPS 3506.01P002). Licensee operations management stated that entering the procedure into the operations log was not the same as tracking via procedure. Tracking the position of the air start valves by the use of another C/O or procedure was not performed and constituted a failure to follow procedure.

When the licensee restored safety-related cooling water to the EDG, a second SRO (SRO 2) directed a partial performance of CPS 3506.01P002 in order to restore fuses for control power for the EDG lube oil pumps. Per the inspectors interview with SRO 2 the fuses were pulled

during a previous outage activity to prevent starting of the DC lube oil pumps when the AC power was removed for the 1B1 bus outage.

When the non-licensed operator returned with the partially performed copy of CPS 3506.01P002, he turned it over to a third SRO (SRO 3). Since procedure CPS 3506.01P002 was not marked as a partially performed procedure, SRO 3 believed it to be a fully performed procedure.

Even though the complete CPS 3506.01P002 procedure had not been performed, SRO 3 believed that all restoration activities on the Division 2 EDG had been performed. Therefore after Division 2 SX was restored and made available on May 11, 2018, SRO 3 declared the Division 2 EDG available. At this time, the Division 2 EDG starting air valves (1DG160 and 1DG161) remained closed, preventing starting air from reaching the EDG air start motors, making the EDG unable to start on any demand signal.

The next day on May 12, 2018, at 8:00 a.m., the licensee determined that OP-AA-108-106, "Equipment Return to Service," for the Division 2 NSPS, Division 2 essential switchgear cooling (VX), Division 2 direct current (DC) and Division 2 EDG, was complete and declared each of these systems operable. The licensee did not perform post-maintenance testing on the Division 2 EDG as no maintenance was performed on the EDG. The inspectors determined operating management personnel did not perform procedure OP-AA-108-106, "Equipment Return To Service," Revision 5, Step 4.4.9, which stated, "Applicable Operating procedures are complete and any equipment line-ups directed to be completed by the Operating Procedures are completed," because CPS 3506.01P002 had not been completed. In addition, licensee operations department management personnel did not perform Step 4.4.14, which stated, "The system/equipment has been walked down as appropriate to verify that it can be safely operated to fulfill its design function." The SRO told the inspectors that because no maintenance was performed on the EDG he did not think it was necessary. The failure to perform these steps was a failure to follow procedure.

| Failure to Follow Multiple Procedures | | | |
|---------------------------------------|---|---|--------------------------|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Mitigating Systems | TBD 05000261/2018050-01 Open EA-18-104 | [H.2] – Human Performance, Field Presence | 93812–Special Inspection |

On May 17, 2018, a To-Be-Determined (TBD) finding and an associated Apparent Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," and Technical Specification 3.8.2, Condition B.3, were self-revealed for the licensee's failure to follow multiple procedures that affected quality. This resulted in the unavailability and inoperability of the Division 2 Emergency Diesel Generator when it was relied upon for plant safety.

Description:

Earlier on May 9, 2018, the Division 2 EDG was inoperable and unavailable as a result of the 1B1 bus outage. At 5:25 p.m., C/O 139455 was removed from the Division 2 EDG as part of bus 1B1 restoration activities. This C/O included a Special Instruction that stated "Restore Div 2 DG to standby per CPS 3506.01P002 [Division 2 Diesel Generator Operations; Revision 3a)] in conjunction with C/O removal." This procedure (CPS 3506.01P002) was not performed prior to closure of the C/O; and an SRO (SRO 1) noted in the control room

narrative logs that the Division 2 EDG remained in maintenance lockout pending restoration of the Division 2 shutdown SX system from its planned maintenance window, and that restoration per CPS 3506.01P002 would need to be performed to restore the Division 2 EDG to standby. By not completing CPS 3506.01P002, isolation valves from the EDG starting air receiver (1DG160 and 1DG161) were left shut. Following the closure of the C/O, this log entry was the only method the licensee used to track the need to restore the Division 2 EDG to standby per CPS 3506.01P002.

On May 10, 2018, during the day shift, a senior reactor operator (SRO 2) directed a non-licensed operator to perform a portion of CPS 3506.01P002 to restore fuses for the Division 2 EDG lubrication system, which had previously been removed from service prior to the 1B1 bus maintenance. When the non-licensed operator had completed the partial procedure, SRO 2 had already turned over duties to a different senior reactor operator (SRO 3), so the non-licensed operator returned the completed partial procedure to SRO 3. Even though the complete CPS 3506.01P002 procedure had not been performed, SRO 3 believed that all restoration activities had been performed. After Division 2 SX was restored and available on May 11, 2018, at 2:30 a.m., SRO 3 declared the Division 2 EDG available. At this time, the Division 2 EDG starting air valves (1DG160 and 1DG161) remained closed, isolating starting air from the EDG air start motors, making the EDG unable to start on any demand signal.

On May 14, 2018, at 12:30 a.m., since the licensee was unaware that the Division 2 EDG was inoperable and unavailable due to its inability to start caused by the 1DG160 and 1DG161 valves being closed, the licensee began a scheduled maintenance window for the Division 1 4160 Vac bus (1A1). As a result of taking bus 1A1 out of service, the Division 1 EDG was declared inoperable.

On May 17, 2018, at 3:03 p.m., a non-licensed operator performing shift rounds identified that the 1DG160 and 1DG161 valves were closed and reported this condition to the control room. The licensee declared the Division 2 EDG inoperable and investigated the condition.

Corrective Actions: Operations Director memos were sent to the operations shift managers related to accountability and procedure use and adherence. These memos, which were required to be acknowledged by all operations department personnel and briefed by the operations shift managers, covered various administrative procedural requirements including: procedure use and adherence, control of plant equipment, stop work criteria, operations decision making, and operability procedure requirements. The inspectors reviewed an operations director memo from May 18, 2018, "Issue Response Expectation for Clinton Operations Management." The inspectors also reviewed an operations director memo from May 23, 2018, "Manager Accountability for Performance." Interviews with operations department personnel indicated personnel were aware of the content of the memos.

The Operations Director and operations department leaders conducted face-to-face discussions with each member of the operations department.

Just-in-time training was given to all operations department staff on the requirements of HU-AA-104-101, "Procedure Use and Adherence," Revision 5. The inspectors' Interviews with operations personnel indicated that personnel were aware of the requirements of HU-AA-104-101.

The licensee changed the clearance and tagging method to include signed restoration steps. Restoration steps were previously included as restoration instruction "notes." These notes were expected to be completed as a procedure; however, the clearance order was allowed to be closed without documenting that these restoration steps had been completed. The inspectors reviewed several clearance orders and verified the licensee's corrective action was being implemented.

The licensee implemented a "Procedure-in-Progress" program for procedures that are not completed within one shift. The inspectors toured the control room and discussed the process with operators and observed it was being implemented.

The licensee conducted a three day stand-down with all station personnel and covered case studies and learnings from the event. The inspectors reviewed the material covered during the stand-down and interviewed plant personnel, who were aware of the details of the stand-down.

The licensee revised the equipment operator rounds points to include logging emergency diesel generator starting air manifold pressures, located down-stream of the air tank isolation valves. The inspectors reviewed the revised 'C' area rounds points and verified operators were logging EDG air manifold pressures.

Operations shift managers were reviewing logs and at least two completed procedures at the end-of-each shift. The inspectors requested to review any condition reports associated with these reviews and were informed that since this had been implemented, there had been no condition reports generated as a result of these shift manager reviews.

Corrective Action Reference: Action Request (AR) 4138790, "Division 2 DG Air Receiver Found Isolated Rounds," dated May 17, 2018.

Performance Assessment:

Performance Deficiency: The licensee failed to perform activities affecting quality in accordance with prescribed procedures and work instructions as required by 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," that resulted in the unavailability of the Division 2 EDG when it was relied upon for plant safety. Specifically, the licensee failed to:

Perform CPS 3506.01P002, "Division 2 Diesel Generator Operations," Revision 3a, in conjunction with the removal of C/O 139455 as required by the C/O restoration instructions on May 9, 2018.

Perform OP-AA-108-103, "Locked Equipment Program," Revision 2, Step 4.1.5, which stated, "If plant conditions require a locked component to be positioned in a manner other than that indicated on the locked equipment checklist or approved procedure, then UNLOCK and REPOSITION equipment in accordance with OP-AA-108-101, 'Control of Equipment and System Status.'" Valves 1DG160 and 1DG161 were normally locked open valves. Licensee procedure OP-AA-108-101, "Control of Equipment and System Status," Revision 14, Step 4.1.1.1, stated, "Utilize an ACPS [abnormal component positioning sheet] for aligning equipment outside of routine operations. For situations, excluding routine operation, where a component, system, or structure is required to be placed in a position differing from its normal lineup, the alignment must be done utilizing an Abnormal Component

Position Sheet. The ACPS will document proper evaluation, performance and restoration of the alignment, ensuring plant configuration control is maintained."

Perform OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.3, which required that "if equipment will not be restored to the Equipment Line-up/Restoration position or the original condition, then another approved equipment status control mechanism shall be used to document equipment status (i.e. Equipment Status Tag, administrative clearance/tagout). Procedure OP-AA-108-101, 'Control of Equipment and System Status,' shall be used to document abnormal equipment configuration and shall be immediately applied following equipment restoration." In addition, neither Step 4.4.9 of OP-AA-108-106 which stated, "Applicable Operating Procedures are complete and any equipment line-ups directed to be completed by the Operating Procedures are completed," nor Step 4.4.14, which stated, "The system/equipment has been walked down as appropriate to verify that it can be safely operated to fulfill its design function," were completed as required.

Perform OP-AA-109-101, "Clearance and Tagging," Revision 12, Step 10.2.1, which stated, "If a lift position is determined to be different from the normal lineup position for the present plant condition and not tracked by another C/O or procedure, then Shift Management shall be notified and equipment tracking initiated." In an interview between the inspectors and SRO 1, he stated that he thought the positions of 1DG160 and 1DG161 were being tracked via a procedure (CPS 3506.01P002). Licensee operations management stated that entering the procedure into the operations log was not the same as tracking via procedure.

Screening: The inspectors determined the performance deficiency was more than minor because it adversely affected the configuration control attribute of the Mitigating Systems Cornerstone and its objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to follow the above station procedures/work instructions resulted in the unavailability of the Division 2 EDG when it was relied upon for plant safety in a shutdown condition.

Significance: The inspectors evaluated the finding against the guidance of IMC 0609 Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings." The finding impacted the Mitigating Systems Cornerstone, specifically the Electric Power Availability Safety Function. The finding represented a loss of system safety function for the EDGs for greater than its TS 3.8.2, Condition B.3, allowed outage time of Immediately which required a phase 2 Appendix G evaluation.

The phase 2 evaluation was conducted using IMC 0609 Appendix G, Attachment 3, and "Phase 2 Significance Determination Process Template for BWR during Shutdown." A Region III senior reactor analyst (SRA) completed the phase 2 evaluation and concluded that a phase 3, or detailed risk evaluation, would be needed to refine the phase 2 evaluation.

For the phase 2 evaluation, the applicable initiating event was a loss of offsite power (LOOP) event. The phase 2 evaluation focused on the 3 day exposure period in which both EDGs were unavailable and the plant was in plant operating state (POS) 1, with the reactor vessel head installed. The full exposure period for the finding is approximately 6 days. During the first 3 days, the Division 1 EDG remained available. The time to boil was approximately 5 hours and the time to uncover the core was approximately 12 hours, based on information provided by the licensee during the NRC's Management Directive (MD) 8.3 evaluation of the condition.

To solve the phase 2 worksheet for a loss of offsite power in POS 1, the following assumptions were made:

The LOOP initiating event likelihood (IEL) was assigned a value of "3" consistent with an exposure time of less than 3 days. Although the actual time that both EDGs were unavailable was slightly over 3 days, the SRA determined that it would be overly conservative to use the IEL for an exposure time of 3 to 30 days.

The emergency AC power function was assigned a value of "0" because neither EDG was available.

The recovery of LOOP in 20 hours was assigned a value of "2" which is the maximum value used in phase 2 of the shutdown SDP. The function represents the recovery of AC power after battery depletion with successful injection from an AC-independent source.

The AC-independent injection before core damage (ACI) function was assigned a value of "3," the maximum value used in phase 2, to represent the potential to use an AC power independent source of injection such as the permanently installed diesel-driven fire pump. The inspectors and the SRA determined that other plant-specific options to mitigate the event were more likely to be used by operators. The plant-specific options included the use of the Division 3 EDG to power Division 2 equipment or FLEX equipment.

The recovery of LOOP in 8 hours was assigned a value of "1," the maximum value used in phase 2.

Recovery of the Division 2 EDG was assigned a value of "1," the maximum value used in phase 2. The inspectors determined that annunciator response and operating procedures would direct actions to restore the air receiver outlet valves to the open position.

Using the assumptions above, the two core damage sequences were solved with a value of "6" and "8," representing an overall delta core damage probability (CDP) in the range of E-6. The dominant core damage sequence is a LOOP event, no emergency AC power, successful AC-independent injection, but failure to recover offsite power in 20 hours (after battery depletion but before core damage).

A phase 3 SDP evaluation will be performed to further evaluate recovery of the Division 2 EDG, plant-specific mitigating system strategies such as the Division 3 cross-tie to Division 2, use of FLEX, and the recovery of offsite power. As a result the significance of this finding is to be determined (TBD).

Cross-cutting Aspect: The finding had a cross-cutting aspect in the Field Presence component of the Human Performance cross-cutting area, which states that Leaders are commonly seen in the work areas of the plant observing, coaching, and reinforcing standards and expectations. Deviations from standards and expectations are corrected promptly. Senior managers ensure supervisory and management oversight of work activities, including contractors and supplemental personnel. Specifically, the operators controlling the return to service of the Division 2 EDG were not properly coached to ensure that procedures required to maintain configuration control of the Division 2 EDG were carried out to ensure that it became and remained operable and available when relied upon for nuclear safety. (H.2)

Enforcement:

Apparent Violation: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances and be accomplished in accordance with these procedures.

Clearance Order 139455 instructions required the performance of CPS 3506.01P002, "Division 2 Diesel Generator Operations," Revision 3a, in conjunction with the removal of out-of-service tags on May 9, 2018.

Procedure OP-AA-108-103, "Locked Equipment Program," Revision 2, Step 4.1.5, stated, "If plant conditions require a locked component to be positioned in a manner other than that indicated on the locked equipment checklist or approved procedure, then UNLOCK and REPOSITION equipment in accordance with OP-AA-108-101, "Control of Equipment and System Status." Procedure OP-AA-108-101, "Control of Equipment and System Status," Revision 14, Step 4.1.1.1, stated, "Utilize an ACPS for aligning equipment outside of routine operations."

Procedure OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.3, required that "if equipment will not be restored to the Equipment Line-up/Restoration position or the original condition, then another approved equipment status control mechanism shall be used to document equipment status (i.e. Equipment Status Tag, administrative clearance/tagout). Procedure OP-AA-108-101, 'Control of Equipment and System Status,' shall be used to document abnormal equipment configuration and shall be immediately applied following equipment restoration."

Procedure OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.4.9, which stated, "Applicable Operating procedures are complete and any equipment line-ups directed to be completed by the Operating Procedures are completed."

Procedure OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.4.14, stated, "The system/equipment has been walked down as appropriate to verify that it can be safely operated to fulfill its design function."

Procedure OP-AA-109-101, "Clearance and Tagging," Revision 12, Step 10.2.1 stated, "If a lift position is determined to be different from the normal lineup position for the present plant condition and not tracked by another C/O or procedure, then the Shift Management shall be notified and equipment tracking initiated."

Technical Specification 3.8.2, "AC Sources-Shutdown," Condition B.3, states, in part, that an inoperable EDG be restored to an operable status immediately.

Between May 9 and May 17, 2018, the licensee apparently failed to:

Perform CPS 3506.01P002, "Division 2 Diesel Generator Operations," Revision 3a, in conjunction with the removal of C/O 139455 as required by the C/O restoration instructions.

Perform OP-AA-108-103, "Locked Equipment Program," Revision 2, Step 4.3, valves 1DG160 and 1DG161 were normally locked open valves and an ACPS was not utilized to track valve status.

Perform OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.3, when valves 1DG160 and 1DG161 were left in an abnormal position an approved equipment status control mechanism was not used to track equipment status.

Perform OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.4.9, when the equipment was declared operable the applicable operating procedure CPS 3506.01P002 had not been completed and equipment line-ups directed to be completed by the operating procedures were not completed.

Perform OP-AA-108-106, "Equipment Return to Service," Revision 5, Step 4.4.14, when the system was declared operable without being walked down.

Perform OP-AA-109-101, "Clearance and Tagging," Revision 12, Step 10.2.1, when the lift position was different from the normal lineup for the present plant condition and equipment tracking was not initiated.

Additionally, because the licensee was not aware of the EDG's inoperability the required action in TS 3.8.2, Condition B.3 was not followed.

Disposition: The disposition of this violation is TBD.

- (5) Understand whether there were any deficiencies in operator training (both licensed and non-licensed operators) which contributed to the EDG unavailability and the failure to identify the condition across multiple operating shifts.

| Observation | IP 93812 |
|---|----------|
| <p>The inspectors reviewed training materials and had discussions with training management about the training program aspects and topics related to the event for the previous 2 years. Training related to configuration control, including clearance and tagging processes used at CPS, was given in formal classroom training sessions during initial training for equipment operators (EOs), reactor operators (ROs), and SROs. Additional training on the implementation of configuration control procedures was given during initial qualifications and continuing training as "on-the-job" training. Passport was the software program used at CPS for implementing the clearance and tagging program. Similar to configuration control, the licensee gives initial training to operators on the use of Passport, and additional training related to Passport is considered on-the-job training. The inspectors did not identify any formal continuing training related to configuration control that was conducted in the previous 2 years, with the exception of one lesson related to clearance and tagging. The inspectors determined that the initial training material reviewed covered the requirements of station administrative procedures for configuration control. However, based on inspector discussions with SROs and members of the root cause team, the inspectors determined that SROs believed that component configuration was allowed to be tracked in the logs. This practice had been normalized at CPS. The practice of tracking configuration of components in the narrative log was not in accordance with any procedural guidance reviewed by the inspectors.</p> <p>The knowledge gap between what was allowed by approved processes and procedures versus the actual methods and standards that CPS had been implementing was addressed in immediate station corrective actions that were implemented following this event. Corrective actions taken by the licensee are discussed in Section (7) of this report.</p> | |

Additionally, the inspectors reviewed training materials and held discussions with training management related to training of equipment operators associated with plant tours and general area observations (i.e. "operator rounds"). The inspectors confirmed the equipment operators are given both initial and continuing training related to operator rounds performance standards. Inspector reviews and discussion with training management indicated a thorough training program related to operator rounds. The inspectors did not conclude that training deficiencies for equipment operators contributed to this event; however, the inspectors were concerned that equipment operators' standards for thorough tours, attention to detail in the plant, perceived time pressure, and understanding of plant status were contributors to the event.

Failure to Promptly Identify a Condition Adverse to Quality

| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
|--------------------|---|---|--------------------------|
| Mitigating Systems | Green NCV 05000461/2018050-02 Open/Closed | [H.12] – Human Performance, Avoid Complacency | 93812–Special Inspection |

On May 17, 2018, a Green finding and an associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," were self-revealed for the licensee's failure to promptly identify that the safety-related Division 2 EDG had its starting air receivers isolated, which was a condition adverse to quality that rendered the EDG inoperable and unavailable.

Description:

On May 11, 2018, at 2:30 a.m., the licensee declared the Division 2 EDG available following the removal of a clearance order supporting maintenance; at 8:00 a.m. on May 12, 2018, the licensee declared the Division 2 EDG operable. On May 14, 2018, the Division 2 EDG was put into a protected status for maintenance on the Division 1 EDG, when the Division 2 EDG would be the only source of emergency power available to the station. On May 17, 2018, at 3:03 p.m., an equipment operator on rounds found the two starting air receiver isolation valves, 1DG160 and 1DG161, in the closed position, which prevented starting air from reaching the Division 2 EDG, and the licensee declared the Division 2 EDG inoperable and unavailable.

After the licensee declared the Division 2 EDG available on May 11, 2018, the licensee performed area rounds checks of the Division 2 EDG room at least once per shift. From May 11 through May 17, 2018, five different equipment operators performed 'C' area rounds checks, which included the D2 EDG room. Those five operators had at least 12 opportunities to identify the problem before it was finally found. The licensee's failure to promptly identify the isolated valves resulted in the plant being in an elevated risk condition that was not allowed by plant procedures for three and one half days without their knowledge.

On May 17, 2018, at approximately 5:35 p.m., a sixth equipment operator identified that isolation valves 1DG160 and 1DG161 were in the closed position and reported them to the control room. The inspectors interviewed the operator that found the valves in the closed position and he stated that it was obvious that the valves were in the wrong position as soon as he entered the room. During a tour of the diesel room, the inspectors noted the relative large size of the air receiver isolation valves (2 inch ball valves with a handle approximately 6 inches long) that were located at knee level while standing on the platform adjacent to the air receivers and were also strapped in the closed position by long black plastic straps. The

inspectors also noted that there were two indications for air manifold pressures on each of the two local EDG panels in the Division 2 EDG room. At the time of the event these air manifold pressure gages read zero psig which was a clear indication that there was no starting air pressure available to the Division 2 EDG.

The inspectors conducted interviews with licensee personnel, reviewed the licensee's procedure for operator rounds, toured the Division 2 EDG room, and concluded that it was reasonably within the licensee's ability to identify the condition of the Division 2 EDG prior to return to service and during several opportunities following return to service, during normal equipment operator rounds. Considering all of the information reviewed, the inspectors determined that the licensee did not promptly identify this condition adverse to quality when it was reasonably within their ability to do so.

Normally, items found by the licensee while conducting operator rounds would be considered licensee identified in accordance with IMC 0612, "Issue Screening." However, Block 5 of IMC 0612, Appendix B, states that past experience, related precedents and the over-arching regulatory message should be considered when determining a finding's identification credit. After careful consideration of the above items, the inspectors characterized the finding as self-revealing to align with the NRC's over-arching message regarding the need for improved operation department performance.

Corrective Actions: The licensee placed valves 1DG160 and 1DG161 into their correct position and performed a valve lineup of the Division 2 EDG system. Subsequent corrective actions included adding the EDG air start manifold pressure indications to the 'C' area rounds points log.

Corrective Action Reference: Action Request 4138790, "Division 2 DG Air Receiver Found Isolated Rounds," dated May 17, 2018

Performance Assessment:

Performance Deficiency: The inspectors determined that the licensee's failure to promptly identify the Division 2 EDG air start receiver isolation valves were not in the correct position was a performance deficiency.

Screening: The inspectors determined this issue was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Human Performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee, including multiple equipment operators, failed to promptly identify a condition adverse to quality, when multiple indications were available, that indicated the Division 2 EDG was inoperable and unavailable when it was being relied upon as a source of emergency power. As a result, the Division 2 EDG was not capable of responding to initiating events such as a loss of offsite power which placed the plant in an elevated risk condition.

Significance: The inspectors evaluated the significance of the finding using IMC 0609, Appendix G, Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings, Exhibit 3, Mitigating Systems, and determined the finding screened as having very low safety significance (Green) because all of screening questions were answered "no". Specifically, the failure to promptly identify the valves in the wrong position was not considered to be the proximate cause of the valves being in the wrong position.

Cross-cutting Aspect: The finding had a cross-cutting aspect in the Avoid Complacency component of the Human Performance cross-cutting area, which states that individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. Specifically, equipment operators that toured the Division 2 EDG room on multiple occasions did not identify the latent issues that existed on the EDG and did not implement appropriate human performance tools to conduct intrusive tours of the EDG room with a questioning attitude and attention to detail. (H.12)

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that conditions adverse to quality, such as failures, deficiencies, deviations, and non-conformances are promptly identified.

Contrary to the above, from May 11 to May 17, 2018, the licensee failed to promptly identify a condition adverse to quality. Specifically, over the course of 6 days, the safety-related Division 2 EDG starting air receivers were isolated from the EDG air start motors, while it was relied upon for plant safety, which was a condition adverse to quality that rendered the EDG inoperable and unavailable.

Disposition: This violation is being treated as a Non-Cited Violation, consistent with Section 2.3.2 of the Enforcement Policy.

| Equipment Operator Rounds Points Inadequate Acceptance Criteria | | | |
|--|---|---|--------------------------|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Mitigating Systems | Green NCV 05000461/2018050-03 Open/Closed | [H.6] – Human Performance, Design Margins | 93812-Special Inspection |
| On May 17, 2018, a Green finding and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," were self-revealed for the licensee's failure to include appropriate quantitative acceptance criteria for the Division 2 EDG parameters to ensure the Division 2 EDG could perform its safety function. | | | |

Description:

On May 11, 2018, at 2:30 a.m., the licensee declared the Division 2 EDG available; at 8:00 a.m. on May 12, 2018, the licensee declared the Division 2 EDG operable. On May 17, 2018, at 3:03 p.m., an equipment operator on rounds in the field found the two air receiver isolation valves, 1DG160 and 1DG161, in the closed position and the licensee declared the Division 2 EDG inoperable and unavailable. During the review into this issue, the licensee noted that the EDG air start manifold pressures were not a recorded value in the 'C' area round points performed by equipment operators. The inspectors were concerned that the 'C' area rounds points did not contain readily available information (air start manifold pressures) that would provide an indication of the EDGs ability to perform its safety function. With the air start tanks isolated, the air start manifold pressures read 0 psig which would have provided an additional indication that the diesel was not available to start.

Corrective Action: On May 29, 2018, during the root cause investigation, the licensee revised the 'C' area rounds points to include EDG air start manifold pressure indications on the local EDG control panels.

Corrective Action Reference: Action Request 4138790, "Division 2 DG Air Receiver Found Isolated Rounds," dated May 17, 2018

Performance Assessment:

Performance Deficiency: The inspectors determined that the licensee's failure to include the Division 2 EDG air start manifold pressures in the 'C' area rounds points was a performance deficiency.

Screening: The inspectors determined this issue was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, by not including the air start manifold pressures in the operator round points, the licensee failed to recognize the Division 2 EDG was inoperable when it was being relied upon as a source of emergency power.

Significance: The inspectors evaluated the significance of the finding using IMC 0609, Appendix G, Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings, Exhibit 3, Mitigating Systems, and determined the finding screened as having very low safety significance (Green). The failure to have the air manifold pressures in the rounds points was not considered to be the proximate cause of the valves being in the wrong position.

Cross-cutting Aspect: The inspectors determined the finding had a cross-cutting aspect of Design Margin in the Human Performance area, which states that the organization operates and maintains equipment within design margins and special attention is placed on maintaining safety related equipment (WP.2). Specifically, the operator round points which did not include the EDG air start manifold pressures failed to verify the EDG could maintain its safety function. (H.6)

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions and procedures shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. The licensee established the 'C' area round points as the implementing procedure for logging Division 2 EDG parameters to ensure its ability to perform its intended safety function, an activity affecting quality.

Contrary to the above, prior to May 29, 2018, the licensee's 'C' area rounds points failed to include appropriate quantitative acceptance criteria for the Division 2 EDG parameters to ensure the Division 2 EDG could perform its safety function.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

- (7) Evaluate licensee planned and completed corrective actions following the EDG event to the extent possible and assess if prior opportunities (e.g., surveillances, maintenance, and self or nuclear oversight assessments) existed to have identified the problem at an earlier point in time.

| | |
|--|----------|
| Observation | IP 93812 |
| <p>At the time of this inspection, the licensee had not completed their root cause evaluation; however, the inspectors reviewed the following immediate corrective actions taken by the licensee:</p> <ul style="list-style-type: none"> • Operations director memos were sent to the operations shift managers related to accountability and procedure use and adherence. These memos, which were required to be acknowledged by all operations department personnel and briefed by the operations shift managers, covered various administrative procedural requirements including: procedure use and adherence, control of plant equipment, stop work criteria, operations decision making, and operability procedure requirements. The inspectors reviewed an operations director memo from May 18, 2018, "Issue Response Expectation for Clinton Operations Management." The inspectors also reviewed an operations director memo from May 23, 2018, "Manager Accountability for Performance." Interviews with operations department personnel indicated personnel were aware of the content of the memos. • The operations director and operations department leaders conducted face-to-face discussions with each member of the operations department. • Just-in-time training was given to all operations department staff on the requirements of HU-AA-104-101, "Procedure Use and Adherence," Revision 5. The inspectors' Interviews with operation's personnel indicated that they were aware of the requirements of HU-AA-104-101. • The licensee changed the clearance and tagging method to include signed restoration steps. Restoration steps were previously included as restoration instruction "notes." These notes were expected to be completed as a procedure; however, the clearance order was allowed to be closed without documenting that these restoration steps had been completed. The inspectors reviewed several clearance orders and verified the licensee's corrective action was being implemented. • The licensee implemented a "Procedure-in-Progress" program for procedures that are not completed within one shift. The inspectors toured the control room and discussed the process with operators and observed it was being implemented. • The licensee conducted a three day stand-down with all station personnel and covered case studies and learnings from the event. The inspectors reviewed the material covered during the stand-down and interviewed plant personnel, who were aware of the details of the stand-down. Revised the equipment operator rounds points to include logging emergency diesel generator starting air manifold pressures, located down-stream of the air tank isolation valves. The inspectors reviewed the revised 'C' area rounds points and verified operators were logging EDG air manifold pressures. • Operations shift managers were reviewing logs and at least two completed procedures at the end-of-each shift. The inspectors requested to review any condition reports associated with these reviews and were informed that since this had been implemented, there had been no condition reports generated as a result of these shift manager reviews. <p>The inspectors conducted observations and interviews and concluded that the immediate corrective actions taken by the licensee were appropriate, and station personnel were generally aware of the EDG event, its causes, and corrective actions implemented.</p> | |

The inspectors reviewed Operations Functional Area Audit Report, NOSA-CPS-17-08, dated October 3, 2017. The inspectors reviewed Configuration Control Self-Assessments conducted in 2017 and 2016, under ARs 4026575 and 2664637, respectively. The inspectors reviewed the 2017 Clinton Clearance and Tagging Self-Assessment conducted under AR 4047333. A review of the above items did not identify any gaps noted by nuclear oversight personnel or operations department staff that would have indicated similar issues that lead to the cause the Division 2 EDG inoperability

The inspectors reviewed the Operator Fundamentals Self-Assessment, dated January 29, 2018, under AR 4042011. The inspectors noted that in Recommendation #1 the licensee stated, "Senior Leadership Team [SLT] observations are not entered in the Exelon Observation System in a thorough and consistent manner/ format making it difficult to assess operator fundamental performance related to SLT observations." However, the licensee also concluded that, "the CPS SLT is monitoring and reinforcing operator fundamentals... and meaningful gaps to excellence were identified..." The inspectors also noted that the number of observations documented in the second and third quarters of 2017 dropped to 45 from 138 total in 2015.

The inspectors did not identify any surveillance tests or maintenance activities that would have been able to identify the condition of the Division 2 EDG at an earlier time. However, as previously discussed, the inspectors did note that multiple (5) equipment operators had toured the Division 2 EDG room on several occasions (12) and had the opportunity to identify the condition of the EDG being inoperable.

- (8) Determine whether recent internal and external operating experience involving configuration control, risk management and oversight of activities were appropriately evaluated and determine the adequacy of any corrective actions planned or completed.

| Observation | IP 93812 |
|--|----------|
| <p>There were two operating experience cases that were immediately relevant and available to the licensee. The first was an external operating event that occurred at Grand Gulf in September 2016. In this event alternate decay heat removal was being relied upon by the licensee as a second source of decay heat removal required by the TS. However, cooling to the alternate decay heat removal system had been tagged out-of-service for several weeks.</p> <p>The licensee was made aware of this event through an industry communication and NRC Information Notice 2018-03, "Operating Experience Regarding Failure To Meet Technical Specification Requirements For Changing Plant Conditions," dated February 26, 2018. This event was discussed with plant management at the Plan of the Day meeting on April 23, 2017. The licensee addressed the NRC Information Notice with AR 4108876, "OPEX: IN 2018-03 Failure To Meet TS For Change Conditions," dated February 27, 2018. The due date for the licensee's response was not until July 13, 2018.</p> <p>The second was an internal operating event that occurred at Clinton Station between May 24 and September 22, 2016.</p> <p>On September 22, 2016, when an area operator was on rounds, the position of CO2 isolation valve to the generator exciter, 1CO609, was questioned when the operator observed that the valve was unlocked. Further investigation determined that 1CO609 was closed with a required position of locked open. A review of controlling documents determined that there was no open documentation controlling this valve for its current position. A line up was</p> | |

completed and 1CO609 was restored to its required locked open position. An evaluation was performed to determine the cause of 1CO609 being left in a position different from its required position. The review concluded that the last time 1CO609 was manipulated was in accordance with C/O 131019 which was hung to support generator inspections during C1R16. Clearance Order 131019 was removed on May 24, 2016, with the position of 1CO609 left in the closed position (per C/O restoration position) and was required to be restored per CPS 3213.01P001, "Placing Turbine Generator Exciter CO2 System in Standby," Section 8.27, as identified in the clearance order special instructions under the restoration instruction.

The licensee determined that the operators failed to follow OP-AA-108-103, "Locked Equipment Program," Revision 2. Specifically, upon clearing of out-of-service tags associated with C/O 131019 valves 1CO609 and 1CO001 were left in the closed position which was abnormal from the required position. Valve 1CO609 was a locked valve left in an abnormal condition and the procedural requirements of OP-AA-108-103 when a locked valve was left in an abnormal position were not followed.

The licensee's corrective actions were to put the valve into its correct position and to require each operator to read a daily order, which was effective from September 30 through October 3, 2016, that discussed the requirements for tracking the status of plant equipment. The daily order stated that equipment status could be tracked in one of five approved methods. One of those methods, an example given by the licensee, was an open procedure and that the open procedure must be documented in the control room log. This was essentially what the SRO told the inspectors happened in the case of the Division 2 EDG air receiver isolation valves. The SRO stated he was required to log the out-of-service activity in the control room logs and he believed that CPS 3506.01P002 was the procedure in progress to control equipment status. The inspectors concluded the licensee's response to the internal operating experience was ineffective and may have actually reinforced the behavior of tracking equipment status using the control room logs which contributed to the EDG air receiver valves being left in the wrong position.

| | |
|---|----------|
| Observation—Licensee Identified Failure to Follow Procedure | IP 93812 |
|---|----------|

The licensee identified a Green finding for the failure to follow licensee procedure OP-AA-103, "Locked Equipment Program," Revision 2. Specifically, the licensee failed to track the status of a locked valve that was left in an abnormal position in accordance with the procedural requirements.

On September 22, 2016, when an area operator was on rounds, the position of CO2 isolation valve to the generator exciter, 1CO609, was questioned. The inspectors gave the licensee identification credit for finding this valve out of position, even though it had been out of position for several months, because the valve was about 10 feet in the air and the valve position was not identifiable from the ground. The operator noticed the valve was not locked, which was difficult to see from the ground, and questioned its position. Further investigation determined that 1CO609 was closed with a required position of locked open. A review of controlling documents determined that there was no open documentation controlling this valve for its current position. A line up was completed and 1CO609 was restored to its required locked open position. An evaluation was performed to determine the cause of 1CO609 being left in a position different from its required position. The review concluded that the last time 1CO609 was manipulated was in accordance with C/O 131019 which was hung to support generator inspections during C1R16. Clearance Order 131019 was removed on May 24, 2016, with the position of 1CO609 left in the closed position (per C/O restoration

position) and was required to be restored per CPS 3213.01P001, "Placing Turbine Generator Exciter CO2 System in Standby," Section 8.27, as identified in the clearance order special instructions under the restoration instruction.

The licensee determined that the operators failed to follow OP-AA-108-103, "Locked Equipment Program," Revision 2. Exelon procedure OP-AA-108-103, "Locked Equipment Program," Revision 2, Step 4.1.5, stated, "If plant conditions require a locked component to be positioned in a manner other than that indicated on the locked equipment checklist or approved procedure, then UNLOCK and REPOSITION equipment in accordance with OP-AA-108-101, 'Control of Equipment and System Status.'" Valves 1DG160 and 1DG161 were normally locked open valves. Procedure OP-AA-108-101, "Control of Equipment and System Status," Step 4.1.1.1, stated, "Utilize an ACPS [abnormal component positioning sheet] for aligning equipment outside of routine operations." Specifically, upon clearing of out-of-service tags associated with CO 131019 valves 1CO609 and 1CO001 were left in the closed position which was abnormal from the required position. Valve 1CO609 was a locked valve left in an abnormal condition and an ACPS was not used to track the position of the valve.

Screening: The inspectors determined the performance deficiency was more than minor because it could reasonably be viewed as a precursor to a significant event. Specifically, the failure to effectively correct the above performance deficiency regarding locked equipment left in an abnormal condition eventually resulted in the unavailability of the Division 2 EDG when it was relied upon for plant safety in a shutdown condition.

Significance: The finding affected the Mitigating Systems Cornerstone and was screened in accordance with IMC 0609, Appendix F, Table 1.2.1., which was answered "no." The inspectors determined that Step 1.4.2 was answered no and therefore the finding screened as Green.

Corrective Actions: The licensee's corrective action, at the time, was to put the valve into its correct position and put out a Daily Order, which was good September 30 through October 3, 2016, that discussed the requirements for tracking the status of plant equipment. The licensee documented this event in AR 2718753, "EOID: 1CO609, 1CO01T Tank Outlet Valve Found Open," September 22, 2018.

Enforcement: The inspectors did not identify a violation of regulatory requirements associated with this finding. The equipment associated with this finding was non-safety related.

EXIT MEETINGS AND DEBRIEFS

The inspectors confirmed that proprietary information was controlled to protect from public disclosure. No proprietary information was documented in this report.

- On June 29, 2018, the inspectors presented the initial Special Inspection results to Mr. T. Stoner, Clinton Power Station, Site Vice President and other members of the licensee staff during an interim exit meeting.
- On August 3, 2018, the inspectors presented the final Special Inspection results to Mr. T. Stoner, Clinton Power Station, Site Vice President and other members of the licensee staff during a final exit meeting.

THIRD PARTY REVIEWS

None.

DOCUMENTS REVIEWED

93812—Special Inspection

Paragraph (1)

- Control Room Logs May 5 through May 18, 2018
- AR 04150624; NRCID: C1R18 Risk Log Entries Inconsistent; 06/26/2018
- AR 04150906; Log Discrepancies Found During NRC SIT; 06/27/2018

Paragraph (2)

- C1R18 Shutdown Safety Management Program Safety Analysis; 04/09/2018

Paragraph (3)

- Root Cause Charter for the Event Associated with IR 4138790; Division 2 DG Air Receivers Found Isolated during Rounds; 05/17/2018

Paragraph (4)

- HU-AA-104-101; Procedure Use and Adherence; Revision 5

Paragraph (6)

- AR 04151037; Delete CPS 1409.01 Section 8.5—It Is Out of Date; 06/27/2018
- CO 00139455, Checklist 4; C1R18—4.16kV Bus 1B1 Outage (AP-1B1)
- CPS 1052.01; Conduct of System Lineups; Revision 9a
- CPS 1401.09; Control of System and Equipment Status; Revision 9d
- CPS 1401.09; Control of System and Equipment Status; Revision 9e
- CPS 3506.01P002; Division 2 Diesel Generator Operations; Revision 3a
- CPS 3506.01P002; Division 2 Diesel Generator Operations; Revision 3b
- ER-AA-310; Implementation of the Maintenance Rule; Revision 11
- OP-AA-10; Clearance and Tagging Process Description; Revision 4
- OP-AA-108-103; Locked Equipment Program; Revision 2
- OP-AA-108-105; Equipment Deficiency Identification and Documentation; Revision 11
- OP-AA-108-106; Equipment Return to Service; Revision 5
- OP-AA-108-115; Operability Determinations (CM-1); Revision 20
- OP-AA-109-101; Clearance and Tagging; Revision 12
- OP-AA-111-101; Operating Narrative Logs and Records; Revision 18
- OP-CL-108-101-1003; Operations Department Standards and Expectations; Revision 37
- OU-AA-103; Shutdown Safety Management Program; Revision 20

Paragraph (7)

- Unit 01 Standing Order 2018-06; Prerequisite Steps in Operating Procedures Directing Line-ups; 06/15/2018

- Unit 01 Standing Order 2018-03; Configuration Control Event IR# 04138790; 05/18/2018

Paragraph (8)

Nuclear Plant Plan of the Day Package, dated 04/13/201


From: Kozak, Laura
Sent: Thu, 13 Sep 2018 21:26:03 +0000
To: Pelke, Paul;Skokowski, Richard;Lambert, Kenneth;Stoedter, Karla;Sanchez
Santiago, Elba;Sargis, Daniel
Cc: Phillips, Charles;Hanna, John;Louden, Patrick;Lara, Julio;Mitman, Jeffrey
Subject: Clinton SERP package

Please see attached SERP package for a SERP on 9/20 for the Clinton EDG issue

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: Clinton Post SERP
Date: Thursday, September 20, 2018 5:02:43 PM

(b)(5)



I'll post the latest model, results spreadsheet and a corrected presentation on SharePoint before going home tonight. I'll be back in on Monday morning. If you're working tomorrow and want to talk, give me a call on my cell phone. 

(b)(6)

Jeff Mitman

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Subject: Clinton Risk Results.pdf
Date: Thursday, September 20, 2018 1:39:23 PM
Attachments: [Clinton Risk Results.pdf](#)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

I squeezed the spreadsheet risk results onto the attached 17X11 pdf. I may be of use to you.

Jeff

From: [Kozak, Laura](#)
To: [Pelke, Paul](#); [Lambert, Kenneth](#)
Subject: Clinton SERP
Date: Thursday, September 20, 2018 1:36:00 PM
Attachments: [Clinton Inop Both EDGs SD SERP 09-20-18 \(2\).pptx](#)

Jeff Mitman, DRA, intends to discuss some of the slides in this presentation at the SERP meeting today.

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Pre-Decisional

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Pre-Decisional

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Pre-Decisional

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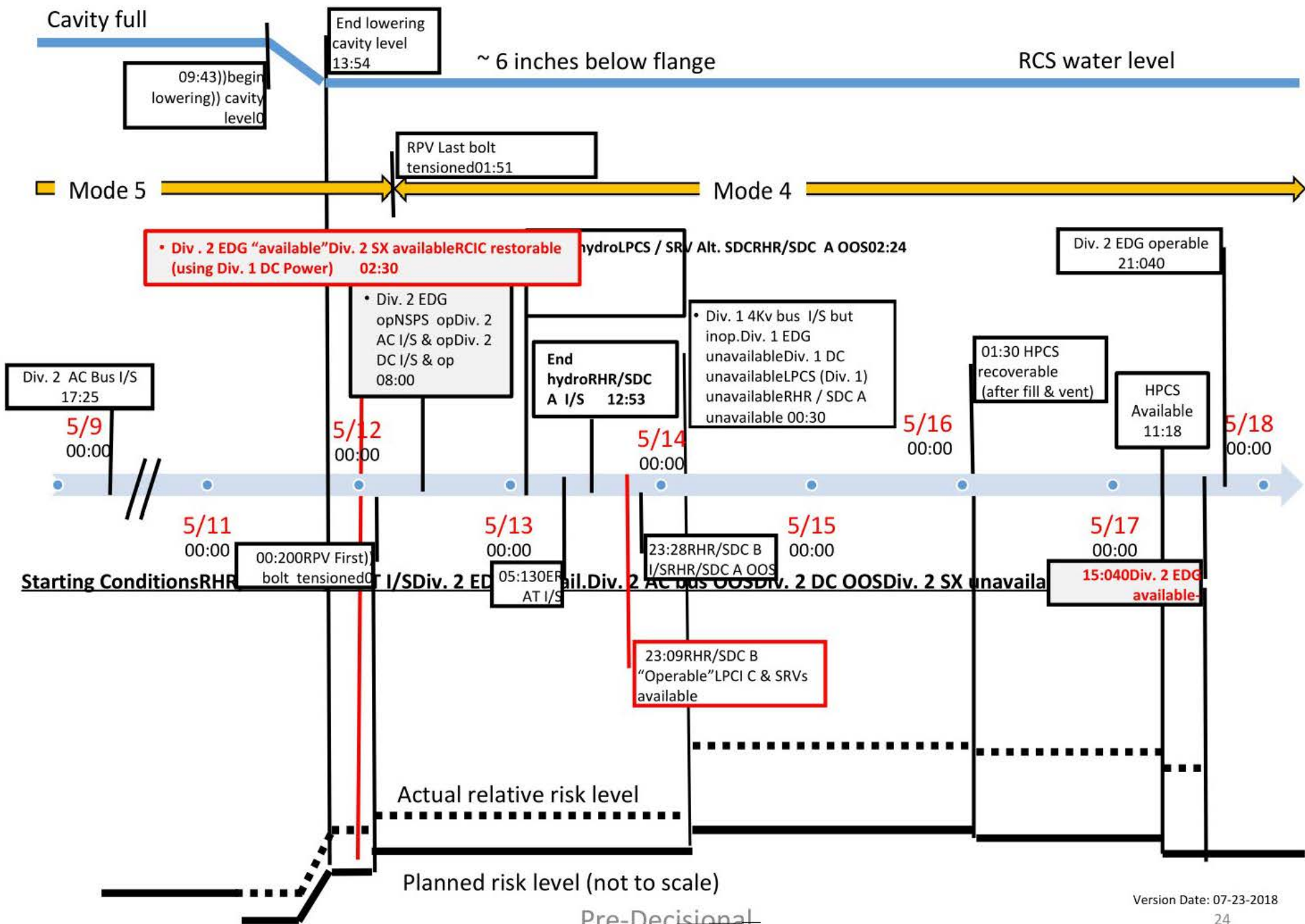
Pre-Decisional

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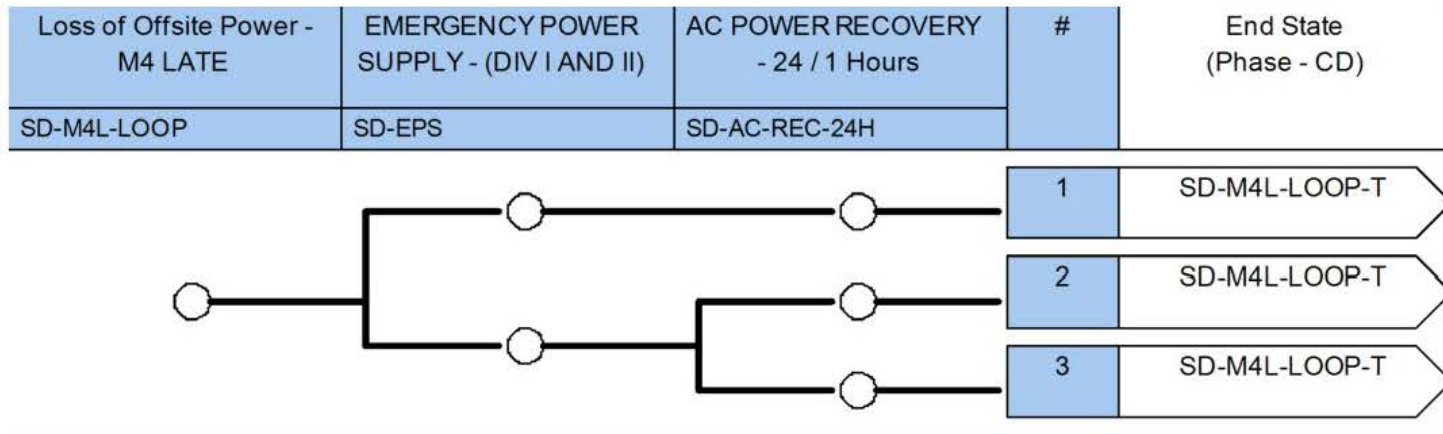
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Pre-Decisional

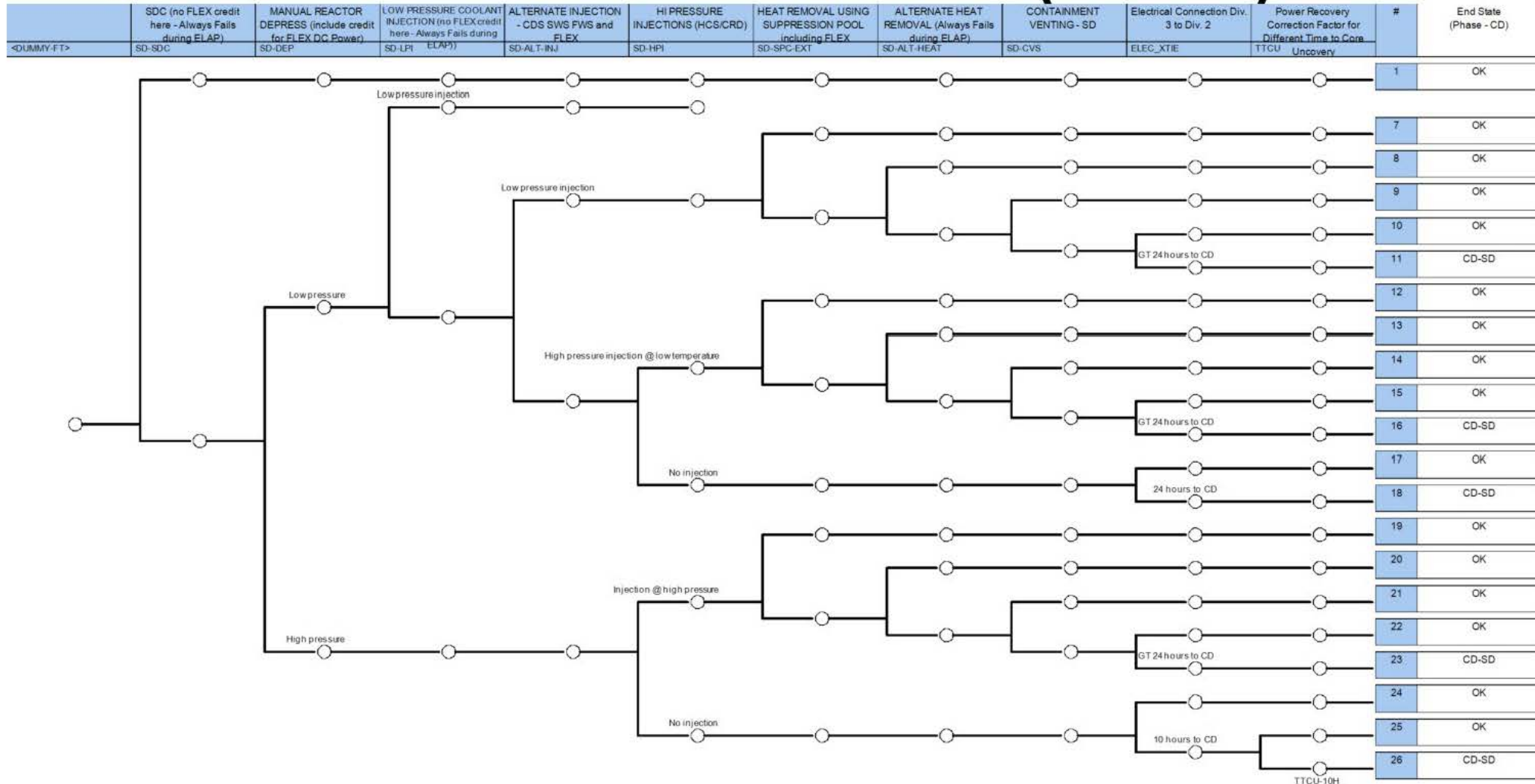
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Shutdown LOOP ET



Shutdown LOOP ET (cont.)



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Pre-Decisional

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Pre-Decisional

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(b)(5)

Pre-Decisional

29

NRC
nuclear regulatory Commission

Protecting People and the Environment

From: [Kozak, Laura](#)
To: [West, Steven](#); [Lara, Julio](#); [Louden, Patrick](#); [Stoedter, Karla](#); [Riemer, Kenneth](#); [Cameron, Jamnes](#); [Sanchez Santiago, Elba](#)
Subject: Excerpts from Clinton loss of AC procedure regarding declaring ELAP, exiting the procedure, and high assurance
Date: Thursday, September 20, 2018 10:58:00 AM
Attachments: [image001.png](#)
[image002.png](#)

FYI based on our discussion. Two separate relevant sections below. Let me know if you would like the entire procedure.

Laura

(b)(5)



(b)(5)

From: [Kozak, Laura](#)
To: [Louden, Patrick](#); [Stoedter, Karla](#); [Riemer, Kenneth](#); [Sanchez Santiago, Elba](#)
Cc: [Lara, Julio](#); [Hanna, John](#)
Subject: FW: Clinton both EDGs Unavailable during Shutdown SERP Presentation
Date: Thursday, September 20, 2018 6:23:00 AM
Attachments: [Clinton Inop Both EDGs SD SERP 09-20-18 \(2\).pptx](#)

From: Mitman, Jeffrey
Sent: Wednesday, September 19, 2018 9:27 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Felts, Russell <Russell.Felts@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: Clinton both EDGs Unavailable during Shutdown SERP Presentation

These are the slides we intend to use during Thursday's SERP. They may be modified slightly based on review comments.

Because on the limited time available, we only intend to cover Slides 3 through 7 during the meeting. These slides discuss:

- Conservatisms
- Non-conservatisms
- Risk results
- Sensitivity case results
- Dominant sequences

The rest are intended as supplemental/background information.

Jeff Mitman

(b)(5)



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Pre-Decisional

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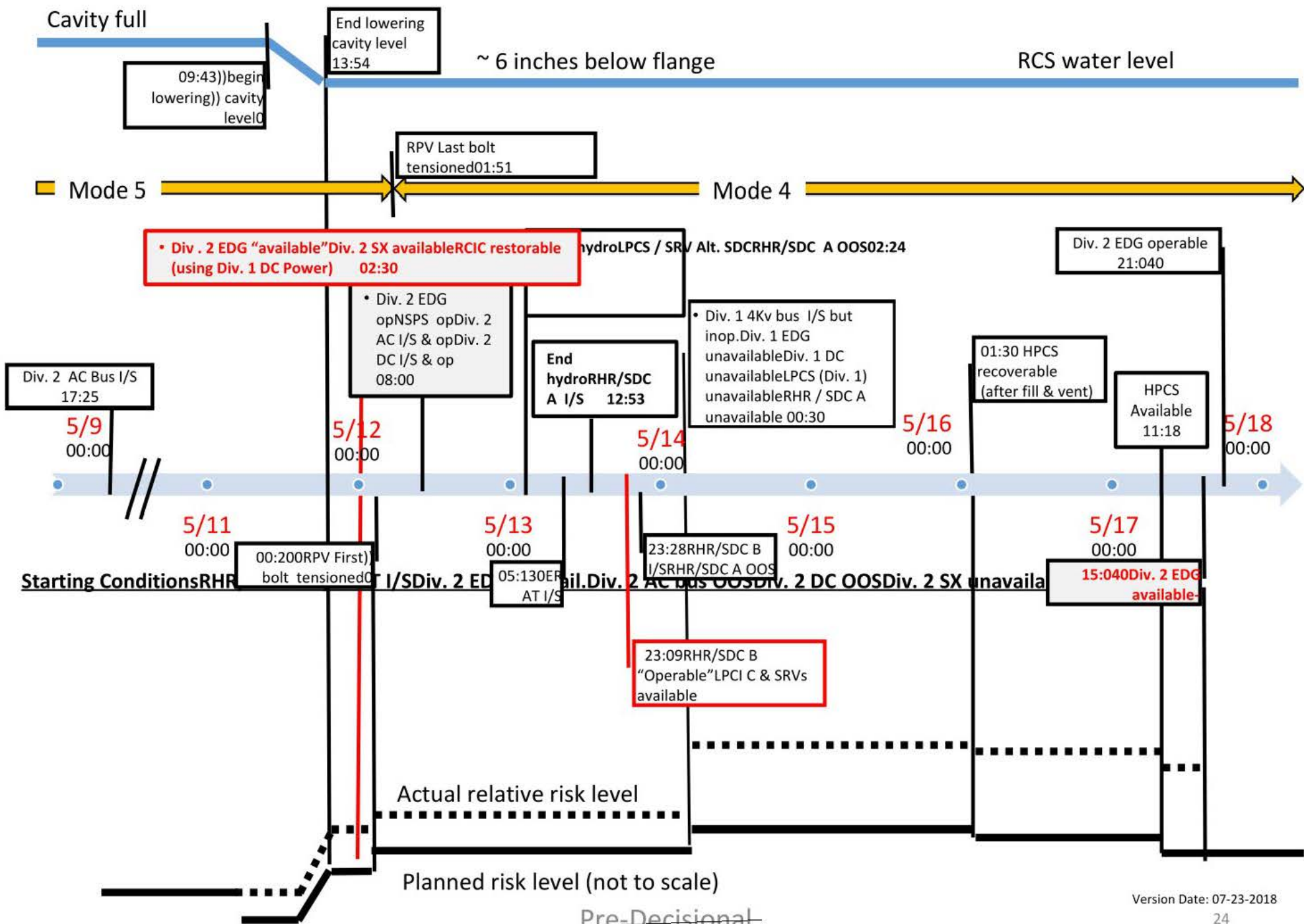
Pre-Decisional

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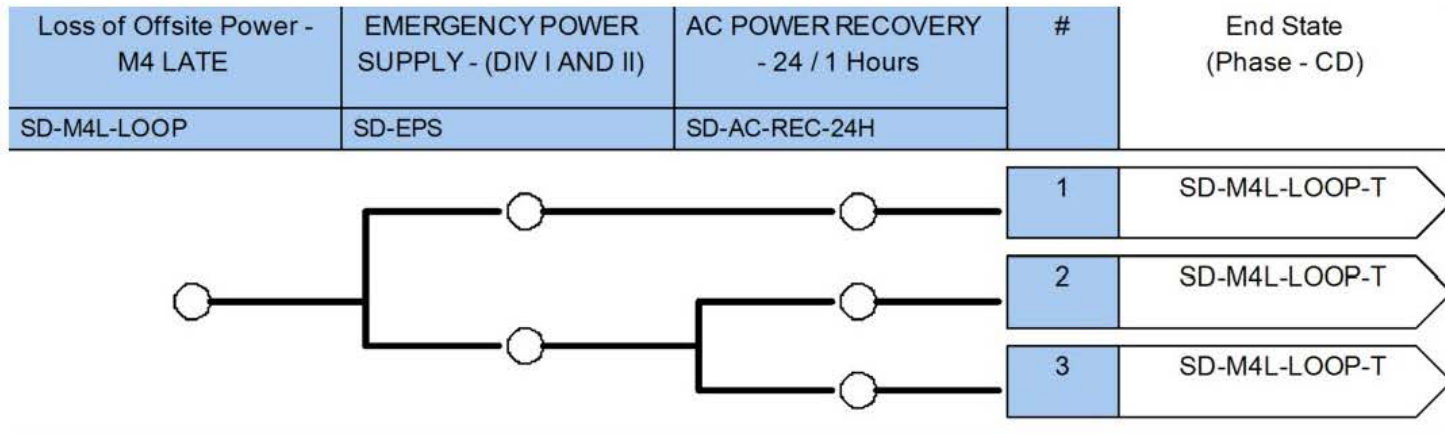
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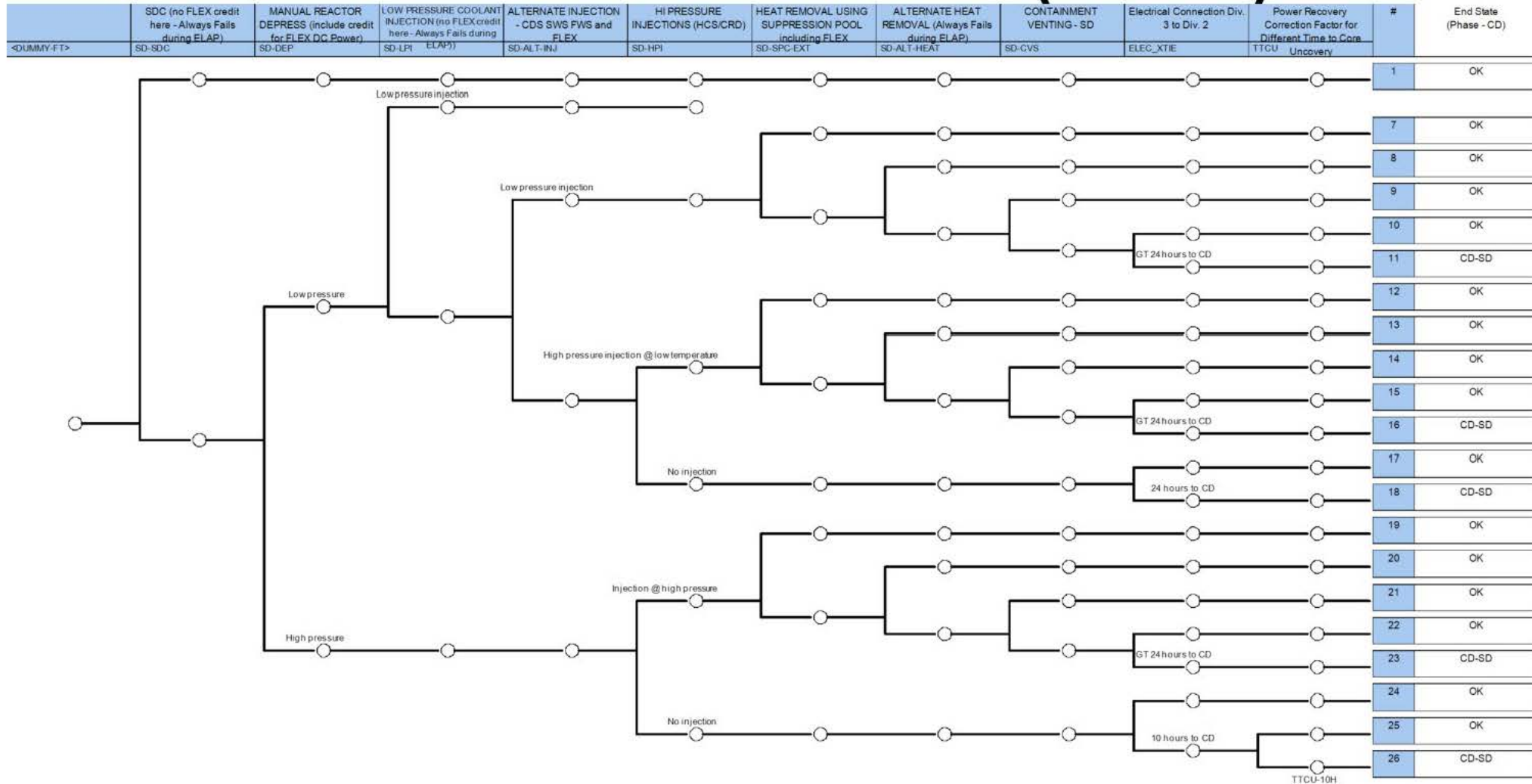
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Shutdown LOOP ET



Shutdown LOOP ET (cont.)



(b)(5)

Pre-Decisional

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(b)(5)

Pre-Decisional

28

(b)(5)

Pre-Decisional

29

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: previous example of low/experience training
Date: Thursday, September 20, 2018 3:47:00 PM
Attachments: [image001.png](#)

(b)(5)



From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: question
Date: Thursday, September 20, 2018 12:06:00 PM

While briefing the RA, (b)(5)

(b)(5)

(b)(5)

Laura

From: [Stoedter, Karla](#)
To: [Cameron, Jamnes](#); [Riemer, Kenneth](#)
Subject: RE: Clinton EDG information
Date: Thursday, September 20, 2018 1:37:00 PM

(b)(5)

(b)(5)

We can talk more when I am in the region.

From: Cameron, Jamnes
Sent: Thursday, September 20, 2018 11:28 AM
To: Stoedter, Karla <Karla.Stoedter@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>
Subject: RE: Clinton EDG information

(b)(5)

From: Stoedter, Karla
Sent: Thursday, September 20, 2018 10:28 AM
To: Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; West, Steven <Steven.West@nrc.gov>
Subject: Clinton EDG information
The IFRB/SERP worksheets and the SIT report (which contains the documented PD and apparent violation) are attached for your convenience. Let us know if you have further questions.
Karla

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: RE: Clinton Update
Date: Thursday, September 20, 2018 7:34:00 AM

When you get a chance can you call me to go over the sensitivity cases?

Thanks
Laura

From: Mitman, Jeffrey
Sent: Wednesday, September 19, 2018 9:33 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Clinton Update

(b)(5)

I've put the "final" model on SharePoint. I've updated the risk results Excel Spreadsheet as well as the punch list. I sent the presentation to you and my management under separate email. Comments are always welcome.

Jeff Mitman

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: Load Shed - time critical action
Date: Friday, September 21, 2018 12:41:59 PM
Attachments: [image001.png](#)

Jeff

This information is from an inspection a couple of years ago but I think it probably hasn't changed. (b)(5)

Laura

(b)(5)

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: My thoughts on Clinton's comments
Date: Friday, September 21, 2018 11:15:00 AM
Attachments: [CPS comments SRA perspectives.docx](#)

Jeff

I wrote up my views on Clinton's comments that were provided in the email last week. There has been discussion about the email in the region and I provided many of these comments verbally but wanted to write down my thoughts. I am going to send this to regional staff and management also.

This, along with your HFE task analysis, should help draft the preliminary determination letter.

Laura

SRA review of CPS comments on the Detailed Risk Evaluation

CPS Comment

The DG1B Recovery HEP is estimated to be well over an order of magnitude high given the plants need to restore the DG and the available time.

SRA Review

(b)(5)



(b)(5)

(b)(5)

CPS Comment

Not crediting two alternate RPV depressurization methods leads the dominant sequences to be approximately an order of magnitude high.

SRA Review

(b)(5)

(b)(5)

CPS Comment

Estimates of the SPAR-H inputs for calculating HEPs produces conservative HEPs that may be an order of magnitude high.

SRA Review

(b)(5)

(b)(5)

CPS Comment

Providing very limited credit for the use of RCIC and HPCS leads the dominant sequences to be high by approximately a factor two.

SRA Review

(b)(5)

(b)(5)

(b)(5)

CPS Comment

The LOOP initiating event frequency includes events that may not be appropriate for the conditions examined, resulting in a frequency that could over-estimated by as much as 29%.

SRA Review

(b)(5)

(b)(5)

From: [Kozak, Laura](#)
To: [Louden, Patrick](#); [Lara, Julio](#); [Stoedter, Karla](#); [Sanchez, Santiago, Elba](#); [Phillips, Charles](#)
Subject: My thoughts on Clinton's emailed comments on the in-process risk evaluation
Date: Friday, September 21, 2018 11:23:00 AM
Attachments: [CPS comments SRA perspectives.docx](#)

Last week Clinton emailed us their comments on our risk evaluation. At the end of their document, they summarize the comments. I drafted my thoughts on their summarized comments in the attached file.

This will help us begin to draft the preliminary determination letter.

Please let me know if this is helpful or you have any questions. Also feel free to share with others in the region who may be interested.

SRA review of CPS comments on the Detailed Risk Evaluation

CPS Comment

The DG1B Recovery HEP is estimated to be well over an order of magnitude high given the plants need to restore the DG and the available time.

SRA Review

(b)(5)



(b)(5)

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(b)(5)

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SRA Review

(b)(5)

(b)(5)

CPS Comment

The LOOP initiating event frequency includes events that may not be appropriate for the conditions examined, resulting in a frequency that could be over-estimated by as much as 29%.

SRA Review

(b)(5)

(b)(5)

From: [Kozak, Laura](#)
To: [Sanchez Santiago, Elba](#)
Subject: one other question
Date: Friday, September 21, 2018 10:56:50 AM

Hi Elba

I have another question – again not urgent.

(b)(5)

Thanks
Laura

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Subject: RE: Clinton Post SERP
Date: Friday, September 21, 2018 8:07:00 AM

(b)(5)

From: Mitman, Jeffrey
Sent: Thursday, September 20, 2018 5:03 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Clinton Post SERP

(b)(5)

I'll post the latest model, results spreadsheet and a corrected presentation on SharePoint before going home tonight. I'll be back in on Monday morning. If you're working tomorrow and want to talk, give me a call on my cell phone.

(b)(6)

Jeff Mitman

From: [Stoedter, Karla](#)
To: [Kozak, Laura](#); [Tesar, Daniel](#)
Cc: [Dickson, Billy](#)
Subject: RE: Draft "One Pager"
Date: Friday, September 21, 2018 7:15:54 AM

Dan,

Thanks for putting this together. Your initial draft looked good, but I had a few comments for consideration/addition:

1) The contact should be me instead of Billy

2) (b)(5)

3)

Thanks again,
Karla

From: Kozak, Laura
Sent: Thursday, September 20, 2018 12:49 PM
To: Stoedter, Karla <Karla.Stoedter@nrc.gov>
Subject: FW: Draft "One Pager"

From: Tesar, Daniel
Sent: Thursday, September 20, 2018 12:31 PM
To: Dickson, Billy <Billy.Dickson@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Draft "One Pager"

Team,

Please see attached draft of the one pager. There is more that I wanted to add, but I ran out of room.

I guess the whole point of a one pager is to not put everything ☺

Comments and feedback are greatly appreciated !!

Thanks,

Dan

From: [Kozak, Laura](#)
To: [Lara, Julio](#)
Subject: RE: My thoughts on Clinton's emailed comments on the in-process risk evaluation
Date: Friday, September 21, 2018 12:12:50 PM

doable but sounds like a different one pager.

(b)(5)

Talked with Karla and shared these thoughts too. Along with my counterpart in DIRS and of course, with Jeff.

From: Lara, Julio
Sent: Friday, September 21, 2018 12:46 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Stoedter, Karla <Karla.Stoedter@nrc.gov>
Subject: Fw: My thoughts on Clinton's emailed comments on the in-process risk evaluation

Ill review in detail monday.

We need to include strategic key messages in the 1-pager focusing on clinton views in this doc plus address internal thoughts such as expressed during serp. Is monday doable?

I think there is value in trying to get this document into senior managers hands as soon as possible to get ahead of the communications.

Thx
Have a great weekend.
JL

From: Kozak, Laura
Sent: Friday, September 21, 2018 11:23:47 AM
To: Loudon, Patrick; Lara, Julio; Stoedter, Karla; Sanchez Santiago, Elba; Phillips, Charles
Subject: My thoughts on Clinton's emailed comments on the in-process risk evaluation

Last week Clinton emailed us their comments on our risk evaluation. At the end of their document, they summarize the comments. I drafted my thoughts on their summarized comments in the attached file.

This will help us begin to draft the preliminary determination letter.

Please let me know if this is helpful or you have any questions. Also feel free to share with others in the region who may be interested.

From: [Kozak, Laura](#)
To: [Giessner, John](#)
Subject: FW: My thoughts on Clinton's emailed comments on the in-process risk evaluation
Date: Sunday, September 23, 2018 10:03:37 AM
Attachments: [CPS comments SRA perspectives.docx](#)

Just FYI

From: Kozak, Laura
Sent: Friday, September 21, 2018 12:24 PM
To: Loudon, Patrick <Patrick.Loudon@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Stoedter, Karla <Karla.Stoedter@nrc.gov>; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>
Subject: My thoughts on Clinton's emailed comments on the in-process risk evaluation

Last week Clinton emailed us their comments on our risk evaluation. At the end of their document, they summarize the comments. I drafted my thoughts on their summarized comments in the attached file.

This will help us begin to draft the preliminary determination letter.

Please let me know if this is helpful or you have any questions. Also feel free to share with others in the region who may be interested.

SRA review of CPS comments on the Detailed Risk Evaluation

CPS Comment

The DG1B Recovery HEP is estimated to be well over an order of magnitude high given the plants need to restore the DG and the available time.

SRA Review

(b)(5)

(b)(5)

(b)(5)

CPS Comment

Not crediting two alternate RPV depressurization methods leads the dominant sequences to be approximately an order of magnitude high.

SRA Review

(b)(5)

(b)(5)

CPS Comment

Estimates of the SPAR-H inputs for calculating HEPs produces conservative HEPs that may be an order of magnitude high.

SRA Review

(b)(5)

(b)(5)

CPS Comment

Providing very limited credit for the use of RCIC and HPCS leads the dominant sequences to be high by approximately a factor two.

SRA Review

(b)(5)

(b)(5)

CPS Comment

The LOOP initiating event frequency includes events that may not be appropriate for the conditions examined, resulting in a frequency that could be over-estimated by as much as 29%.

SRA Review

(b)(5)

(b)(5)

Note to requester: All attachments to this email have been redacted in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Riemer, Kenneth](#)
Subject: FW: 1 hr crash course on SPAR-H (HRA/HEP)
Date: Monday, September 24, 2018 12:03:00 PM
Attachments: [SPAR-H Shutdown Worksheets Generic.xlsx](#)
[Task 1.8 SPAR-H Step-by-Step Guidance \(Final\).pdf](#)
[Credit for recovery examples.docx](#)

From: Kozak, Laura
Sent: Sunday, September 23, 2018 10:11 AM
To: Lara, Julio <Julio.Lara@nrc.gov>
Cc: Hanna, John <John.Hanna@nrc.gov>; Loudon, Patrick <Patrick.Louden@nrc.gov>; Stoedter, Karla <Karla.Stoedter@nrc.gov>
Subject: RE: 1 hr crash course on SPAR-H (HRA/HEP)

Sounds good will do.

Just FYI – I attached the actual worksheet we use to calculate the HEPs for shutdown and a guidance document that is the “Step by Step Guidance”

I also attached a document that gives several examples of the application of recovery that have some similarities to the current issue – was not sure if you were on original distribution

There is also a specific NUREG on SPAR -H

From: Lara, Julio
Sent: Sunday, September 23, 2018 9:31 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Cc: Hanna, John <John.Hanna@nrc.gov>; Loudon, Patrick <Patrick.Louden@nrc.gov>
Subject: 1 hr crash course on SPAR-H (HRA/HEP)

Laura,

I like to increase my knowledge a bit more as it relates to the Clinton preliminary White.

Pat will be travelling out this week. Perhaps invite Karla if shes available.

Thx
JL

From: [Kozak, Laura](#)
To: [Sanchez Santiago, Elba](#)
Subject: RE: Another request - not urgent
Date: Monday, September 24, 2018 3:44:00 PM
Attachments: [image001.png](#)

Thanks again!

From: Sanchez Santiago, Elba
Sent: Monday, September 24, 2018 3:02 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Another request - not urgent

Laura,

Attached is a portion of a 1B diesel procedure that includes a list of the loads on the 1AP61E MCC. I also reviewed the drawing for this MCC and noticed that not included on the list are:

1. MOV overload bypass relay (for the MOVs powered off this MCC)
2. Chem lab standby lighting
3. Diesel Gen 1B aux relays (for remote start/stop and auto start)

Let me know if you have any questions or need additional information.

Thanks,
Elba

From: Kozak, Laura
Sent: Thursday, September 20, 2018 4:09 PM
To: Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>
Subject: Another request - not urgent

Elba

(b)(5)

Thanks
Laura

(b)(5)

Note to requester: The attachment to this email has been withheld in its entirety under FOIA Ex. B5 (deliberative process privilege).

From: [Kozak, Laura](#)
To: [Tesar, Daniel](#)
Cc: [Stoedter, Karla](#)
Subject: RE: Draft "One Pager"
Date: Monday, September 24, 2018 1:44:00 PM
Attachments: [Risk Comms Clinton DG Air.pptx](#)

Dan

I made some significant changes but I don't know how to format this to make it look better. Can you work with it more? See attached file.

I'd also like to delete the event tree and add the following section.

Key Messages

(b)(5)



From: Tesar, Daniel
Sent: Thursday, September 20, 2018 12:31 PM
To: Dickson, Billy <Billy.Dickson@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Draft "One Pager"

Team,

Please see attached draft of the one pager. There is more that I wanted to add, but I ran out of room.

I guess the whole point of a one pager is to not put everything 😊

Comments and feedback are greatly appreciated !!

Thanks,

Dan

From: [Kozak, Laura](#)
To: [Sanchez Santiago, Elba](#)
Subject: RE: one other question
Date: Monday, September 24, 2018 3:41:39 PM

Yes, exactly what I was looking for.

Thanks!

From: Sanchez Santiago, Elba
Sent: Monday, September 24, 2018 2:46 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: one other question

Laura,

(b)(5)



Let me know if this is what you were looking for.

-Elba

From: Kozak, Laura
Sent: Friday, September 21, 2018 10:57 AM
To: Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>
Subject: one other question

Hi Elba

I have another question – again not urgent.

(b)(5)



Thanks
Laura