

From: [Miller, Chris](#)
To: [Kozak, Laura](#)
Subject: Re: Clinton
Date: Tuesday, February 12, 2019 7:00:12 PM

Actually yes. Thanks for asking. I'm at a hotel in Region 4 right now. Will be going there tomorrow at about 7 to catch the eoc meetings there starting at 8. Call anytime you are available this evening, tomorrow morning or whatever if I don't answer leave a message and I will try to get back at a time that works. . Cell is [REDACTED] (b)(6)
Thanks again
chris

On: 12 February 2019 16:55,
"Kozak, Laura" <Laura.Kozak@nrc.gov> wrote:

Chris

I understand you had a briefing yesterday. Just wanted to offer that I'd be happy to have a short conversation with you to provide the regional SRA perspective.

I realize you are busy and just offering, not necessary if you are comfortable with the issue.

Laura

From: [Casey, Lauren](#)
To: [Miller, Chris](#); [King, Michael](#); [Groom, Jeremy](#)
Cc: [Bowman, Gregory](#); [Garmoe, Alex](#); [Aird, David](#)
Subject: FW: Clinton Division 2 DG Regulatory Conference Slides
Date: Tuesday, November 20, 2018 1:04:18 PM
Attachments: [Clinton Div 2 DG Regulatory Conference Slide Presentation - 11302018.pdf](#)

FYI

From: Mitman, Jeffrey
Sent: Tuesday, November 20, 2018 9:59 AM
To: Franovich, Mike <Mike.Franovich@nrc.gov>; Felts, Russell <Russell.Felts@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: FW: Clinton Division 2 DG Regulatory Conference Slides

Attached are Exelon's slides that they intend to use at next week's Reg. Conference on the Clinton EDG issue.

I've started to review the slides but I do not yet have any detailed insights based on them.

Jeff Mitman

From: Kozak, Laura
Sent: Monday, November 19, 2018 5:33 PM
To: Lara, Julio <Julio.Lara@nrc.gov>; Loudon, Patrick <Patrick.Louden@nrc.gov>; O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: FW: Clinton Division 2 DG Regulatory Conference Slides

From: Shelton, Dale A:(GenCo-Nuc) [<mailto:Dale.Shelton@exeloncorp.com>]
Sent: Monday, November 19, 2018 4:11 PM
To: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>; Sargis, Daniel <Daniel.Sargis@nrc.gov>
Cc: Gellrich, George:(GenCo-Nuc) <george.gellrich@exeloncorp.com>; Stoner, Theodore R:(GenCo-Nuc) <Theodore.Stoner@exeloncorp.com>; Kapellas, Bradley T:(GenCo-Nuc) <bradley.kapellas@exeloncorp.com>; Weissinger, Hoy John:(GenCo-Nuc) <John.Weissinger@exeloncorp.com>; Gullott, David M.:(GenCo-Nuc) <David.Gullott@exeloncorp.com>; Simpson, Patrick R.:(GenCo-Nuc) <patrick.simpson@exeloncorp.com>
Subject: [External_Sender] Clinton Division 2 DG Regulatory Conference Slides

Ken,

Attached is the Exelon slide presentation for the Division 2 Diesel Generator Regulatory Conference scheduled for November 30, 2018. The original hardcopy will be sent via FedEx tomorrow. Please

call me if you have any questions regarding this submittal.

Respectfully,
Dale Shelton
Regulatory Assurance Manager
Clinton Power Station



8401 Power Road
Clinton, Illinois 61727
(217) 937-2800 Office
 Mobile

(b)(6)

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From: [Aird, David](#)
To: [Nakoski, John](#); [Kozak, Laura](#); [Garmoe, Alex](#)
Cc: [Zoulis, Antonios](#)
Subject: Clinton choice letter OUO-SUNSI
Start: Thursday, October 11, 2018 9:45:00 AM
End: Thursday, October 11, 2018 10:15:00 AM
Location: Teleconference

Call in info:

800-857-5083

Participant passcode: (b)(6)

Thanks!!

From: [NRREnforcement Resource](#)
To: [Miller, Chris](#); [Groom, Jeremy](#); [Franovich, Mike](#); [Felts, Russell](#); [King, Mike](#)
Cc: [NRR DIRS CAL Resource](#); [DRACAL Resource](#); [Garmoe, Alex](#); [Aird, David](#); [Bowman, Gregory](#); [Casey, Lauren](#); [Fong, CJ](#); [Mitman, Jeffrey](#); [Zoulis, Antonios](#); [Leech, Matthew](#); [Kichline, Michelle](#); [Humberstone, Matthew](#); [Hughes, John](#); [Schwab, Alexander](#); [Spore, Candace](#); [Helton, Don](#); [Ng, Ching](#); [Montecalvo, Michael](#); [Vasavada, Shilp](#)
Subject: Clinton Reg Conference (EA-18-104) ~~*OFFICIAL USE ONLY - PRE-DECISIONAL ENFORCEMENT INFORMATION/~~ SECURITY INFORMATION*
Start: Friday, November 30, 2018 2:00:00 PM
End: Friday, November 30, 2018 5:00:00 PM
Location: O14B41
Attachments: [CPS Div 2 DG Reg Conf Presentation \(11-19-18\)\(01\).pdf](#)

Attachment is non-responsive due to narrowing the request to exclude licensee originated documents. Attachment is the Clinton Regulatory Conference Div. 2 presentation, 11-30-2018.

~~*OFFICIAL USE ONLY - PRE-DECISIONAL ENFORCEMENT INFORMATION/~~ SECURITY INFORMATION*

Internal to the NRC – Conference information

Telephone: 877-952-8632 (15 lines only – if possible come to the OE conference room and we will call in together from there)

Passcode: (b)(6)

Please specify for "Internal NRC Caucus Only" (5 lines only - if possible come to the OE conference room and we will call in together from there)

877-952-8632

Passcode: (b)(6)

Public meeting notice:

<https://adamswebsearch2.nrc.gov/webSearch2/view?AccessionNumber=ML18317A402>

Public Info

Bridgeline:

877-952-8632 1

Passcode:

(b)(6)

Updated Licensee slides attached.

From: Kozak, Laura
Sent: 19 Dec 2018 16:09:07 +0000
To: Dickson, Billy
Subject: Clinton
Attachments: Clinton Regulatory Conference information request.docx

Billy
Here is the document we were discussing this morning.
Laura

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: [Louden, Patrick](#); [Lara, Julio](#); [O'Brien, Kenneth](#); [Shuaibi, Mohammed](#); [Biemer, Kenneth](#); [Stoedter, Karla](#); [Cameron, James](#); [Phillips, Charles](#); [Sanchez Santiago, Elba](#); [Mitman, Jeffrey](#); [Fong, CJ](#); [Franovich, Mike](#); [Miller, Chris](#); [Groom, Jeremy](#); [Bowman, Gregory](#); [Aird, David](#); [Garmoe, Alex](#)
Subject: Clinton regulatory conference follow-up
Date: Tuesday, December 04, 2018 3:59:16 PM
Attachments: [Clinton Regulatory Conference information request.docx](#)

Attachment to this email is included previously, with another document where it is also attached.

Today, we discussed the information in the attached document with Clinton staff. These are our questions from the regulatory conference.

Clinton did not supply any new information prior to the conference other than their slide presentation. During the regulatory conference, Exelon discussed some new information. At the end of the regulatory conference NRC told Exelon that we would follow up with them to discuss what information we needed to be submitted on the docket to complete our final significance determination.

The attached document identifies the 5 areas of new information discussed with specific requests for documents, training, procedures, etc.

In addition, the NRC asked several questions during the conference. These questions are also in the attached document and were also discussed with Exelon today to make sure that any answers or other supporting information to answer the question was also provided on the docket.

It is my understanding that Exelon will provide this information by December 14.

Please let me know if you have any questions.

From: Miller, Chris
Sent: 13 Mar 2019 13:42:24 +0000
To: Lara, Julio
Subject: RE: Clinton Final Significance Determination Letter input

Should be able to review it today or tomorrow.

From: Lara, Julio
Sent: Friday, March 08, 2019 2:47 PM
To: Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Subject: RE: Clinton Final Significance Determination Letter input

All,

I'd like to see if you all could support a 1 week review period? if we get it back with comments/edits by next Thursday, it would help move this forward.

Thanks

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

From: Miller, Chris
Sent: 13 Mar 2019 13:41:50 +0000
To: Kozak, Laura
Subject: RE: Clinton Final Significance Determination Letter input

Thanks. Looking at it this week. RIC session now, then I will be able to focus on it.

From: Kozak, Laura
Sent: Thursday, March 07, 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: [Garmoe, Alex](#)
To: [Aird, David](#); [Miller, Chris](#)
Cc: [Dickson, Billy](#); [Bowman, Gregory](#)
Subject: RE: Expanded Clinton Hours EA-18-104
Date: Monday, April 08, 2019 12:28:51 PM
Attachments: [Clinton Appeal 12-21-2017.pdf](#)
[NRC Denial 2-8-2018.pdf](#)

The first attachment is non-responsive due to narrowing the request to exclude licensee originated documents. Document excluded is U-604391, "Appeal of Final Significance Determination of a White Finding: EA-17-098", 12-21-2017.

Chris,

The last Clinton appeal was submitted on December 21, 2017, with the basis that the NRC's decision "lacked justification" since "Reference 3 appears to be qualitative in nature, subjective, and based on an undefined alternative process. As a result, the NRC's final significance determination deviates from established NRC regulations and guidance current used for safety-related equipment qualification."

NRC denied the appeal in a letter dated February 8, 2018, asserting that the points raised in Exelon's appeal had been considered and that the appeal lacked merit per section 3 of IMC 0609 Attachment 2 since PRA modeling assumptions were documented and justified. We did spend a couple paragraphs responding to points raised in the appeal as well.

Both letters are attached.

Thanks,
Alex

From: Aird, David
Sent: Monday, April 08, 2019 11:22 AM
To: Miller, Chris <Chris.Miller@nrc.gov>
Cc: Dickson, Billy <Billy.Dickson@nrc.gov>; Bowman, Gregory <Gregory.Bowman@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: Expanded Clinton Hours EA-18-104

Chris,

FYI –

The 90-day SDP metric was not met (221 days) and the overall 255-day metric was not met (319 days). Below is a table showing all of the billable hours related to this finding (a few more may trickle in for the final report).

Admittedly, I don't know how hours may be charged if there is an appeal.

To confirm – based on an email thread and conversations with the risk analysts, the post Regulatory Conference submittal by the licensee was over 2000 pages. This came in on December 14. The post Regulatory Conference SERP occurred on February 14, a full two months later.

Report	Activity	Hours	Totals
Reactive Rpts: Clinton – 2018050 (SIT – TBD color)	FB-OR-INFREQUENTLY PERFORMED INSP PREPARATION (OAP)	83.5	591.75
	FB-OR-INSPECTION TRAVEL (AT)	27.5	
	FB-OR-IP-93812-SPECIAL INSPECTION	138	
	FB-OR-INSPECTION SIGNIFICANCE DETERMINATION PROCESS (SDP)	235.75	

	FB-OR-INFREQUENTLY PERFORMED INSP DOCUMENTATION (OAD)	107	
Reactive Rpts: Clinton – 2018051 (Prelim White)	FB-OR-INFREQUENTLY PERFORMED INSP DOCUMENTATION (OAD)	97	279.75
	FB-OR-INSPECTION SIGNIFICANCE DETERMINATION PROCESS (SDP)	182.75	
Final Determination – 2018092 (Final White)	FB-OR-SUPPLEMENTAL/EVENT RESPONSE INSP DOC (SED)	61.75	630.25
	FB-OR-INSPECTION SIGNIFICANCE DETERMINATION PROCESS (SDP)	448	
	FB-OR-INSPECTION COMMUNICATIONS (COM)	120.5	
Grand Total			1501.75

Total SDP Hours = 866.5

David Aird

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



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

February 8, 2018

EA-17-098

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

This document is also publicly available at
<https://www.nrc.gov/docs/ML1803/ML18039A728.pdf>.

SUBJECT: NRC DENIAL OF EXELON GENERATION COMPANY, LLC, APPEAL OF
CLINTON POWER STATION—FINAL SIGNIFICANCE DETERMINATION
OF A WHITE FINDING; NRC INSPECTION REPORT 05000461/2018090

Dear Mr. Hanson:

On November 27, 2017, the U.S. Nuclear Regulatory Commission (NRC) provided Exelon Generation Company, LLC, (EGC), the final significance determination for a finding of low-to-moderate significance (White) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17331B161). This finding involved the failure to evaluate the change in the actual drop out voltages for replacement relays associated with the Division 1 Emergency Diesel Generator (EDG) room ventilation fan, which was a component subject to the requirements of Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix B. The change in drop out voltages prevented the fan from operating during an undervoltage condition, resulting in the Division 1 EDG being unable to perform its intended safety function and becoming inoperable for a time longer than its Technical Specification allowed outage time.

In that same letter, the NRC stated that Exelon had 30 calendar days to appeal the NRC's final significance determination. The letter also stated that such an appeal would be considered to have merit only if it met the criteria given in Inspection Manual Chapter (IMC) 0609, Attachment 2, "Process for Appealing NRC Characterization of Inspection Findings (SDP Appeal Process)" (ADAMS Accession No. ML101400502).

By letter dated December 21, 2017, Exelon reiterated that a performance deficiency had occurred and did not dispute the violation or the assigned cross-cutting aspect (ADAMS Accession No. ML17355A562). However, Exelon appealed the NRC's characterization of the final significance determination of the White finding. Exelon asserted that the basis documented in the final significance determination letter appeared to be qualitative in nature, subjective, and based on an undefined alternative process. As a result, the NRC's final significance determination deviated from established NRC regulations and guidance currently used for safety-related equipment qualification. Therefore, Exelon stated that its appeal met the "lacked justification" merit standard provided in NRC IMC 0609, Attachment 2.

This letter provides you the NRC's response to your December 21, 2017, appeal. The NRC concluded that Exelon's appeal did not have sufficient merit for review by the appeal process specified in IMC 0609 Attachment 2. Our evaluation of the appeal submitted by Exelon is provided in the enclosure to this letter.

Accordingly, the NRC concluded that the final significance determination documented in NRC Inspection Report 05000461/2017010, is unchanged and, based on your previous response to the Notice of Violation, no further response is required. If you have any questions on our conclusions on the merit of your appeal, please contact Mr. Patrick Loudon, Director, Division of Reactor Projects, at 630-829-9600, or Ms. Karla Stoedter, Chief, Reactor Projects Branch 1, at 630-829-9731.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room and in ADAMS, accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

/RA/

K. Steven West
Regional Administrator

Docket No. 50-461
License No. NPF-62

Enclosure:
NRC Response to Final Significance
Determination Appeal

Letter to Bryan Hanson from K. Steven West dated February 8, 2018

SUBJECT: NRC DENIAL OF EXELON GENERATION COMPANY, LLC, APPEAL OF
CLINTON POWER STATION—FINAL SIGNIFICANCE DETERMINATION
OF A WHITE FINDING; NRC INSPECTION REPORT 05000461/2018090

DISTRIBUTION:

Jeremy Bowen
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ADAMS Accession Number: ML18039A728

OFFICE	RIII	RIII	RIII	RIII
NAME	JRobbins:bw	LKozak	RSkokowski	MJeffers
DATE	1/12/2018	1/12/2018	1/12/2018	1/12/2018
OFFICE	RIII	RIII	RIII	RIII
NAME	KStoedter	KO'Brien	PLouden	SWest
DATE	1/16/2018	1/16/2018	1/18/2018	2/08/2018

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**NRC RESPONSE TO FINAL SIGNIFICANCE DETERMINATION APPEAL
(EXELON LETTER U-604391 DATED DECEMBER 21, 2017)**

On December 21, 2017, Exelon submitted an appeal (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17355A562) of the NRC staff's final significance determination (FSD) associated with NRC Inspection Report 05000461/2017010, "Clinton Power Station - Final Significance Determination of a White Finding with Assessment Followup and Notice of Violation," dated November 27, 2017 (ADAMS Accession No. ML173318161).

The NRC determined that for the finding documented in NRC Inspection Report 05000461/ 2017010, the prerequisites specified in Inspection Manual Chapter (IMC) 0609, Attachment 2, "Process for Appealing NRC Characterization of Inspection Findings (SDP Appeal Process)", dated June 8, 2011, Section 0609.02-02, were met. Accordingly, the NRC reviewed the licensee's contentions to determine if they met one or more of the appealable categories specified in IMC 0609.02-03. The following provides the results of the NRC's evaluation of the licensee's appeal.

Licensee Appeal:

Exelon Generation Company (EGC) asserts that the basis documented by the NRC in the final significance determination to determine the acceptability of the licensee's response to the NRC's preliminary significance determination appears to be qualitative in nature, subjective, and based on an undefined alternative process. As a result, the NRC's final significance determination deviates from established NRC regulations and guidance currently used for safety-related equipment qualification. Therefore, this appeal meets the "lacked justification" merit standard provided in NRC Inspection Manual Chapter 0609, Attachment 2.

NRC Response:

The NRC's final significance determination is based on a quantitative evaluation estimating a change in core damage frequency in accordance with IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power" and IMC 0308, Attachment 3, "Significance Determination Process Technical Basis." An important probabilistic modeling assumption used in our independent significance determination is that room cooling is required for diesel generator success. In reaching a final significance determination, this assumption is based on the current Clinton Probabilistic Risk Assessment (PRA) model and our consideration of the information provided in the EGC evaluation. The degraded condition assessed under the SDP, a room ventilation fan failure, would expose critical diesel generator electrical components to extreme room temperatures. EGC pursued component testing to demonstrate survivability of the components. The NRC inspection staff reviewed EGC's test results and concluded that the test data did not provide a substantive basis to reliably establish equipment survivability limits. Accordingly, the NRC reaffirmed an assumption that room cooling is required for diesel generator operation and estimated a change in risk for a degraded condition involving the diesel generator room ventilation fan failure. Therefore, the NRC contends that notwithstanding EGC's position, the NRC's assumptions are not qualitative, subjective or based on an undefined alternative process.

The NRC's criteria for determining if an appeal has merit for review by the appeal process under the "lacked justification" standard also states that the staff's choice of PRA modeling assumptions used in the SDP will not be considered appealable, provided the staff

Enclosure

documented its justification in those cases where the licensee presented a different point of view. The PRA modeling assumption that room cooling is required for diesel generator success was documented in our inspection report with our preliminary significance determination and remained unchanged in the final significance determination. The NRC's consideration of EGC's evaluation, which was provided prior to the final significance determination, resulted in credit in the risk evaluation for operator action to recover room cooling if the ventilation fan failed and for additional time to restore offsite power because the diesel generator is not expected to fail immediately upon room cooling failure. The NRC considered but did not agree with EGC's conclusion that room cooling was not needed for diesel generator operation and that no change in risk occurs due to a room ventilation fan failure. The NRC's justification for the SDP assumptions and for the disagreement with EGC's conclusion was documented in the final significance determination letter. Therefore, the NRC determined that the appeal did not meet the merit guidelines since PRA modeling assumptions were appropriately and clearly documented with justification in the preliminary and final significance determination letters.

The EGC contends that the component testing was conducted in conformance with their licensing basis with respect to component qualification standards and therefore, the methodology and single component testing is technically sufficient to demonstrate equipment survivability. Specifically, the licensee contends that the testing conducted conforms to IEEE-323, "IEEE Standard for Qualifying Class IE Equipment for Nuclear Power Generating Stations," which provides for component type testing to qualify equipment. The NRC agrees that IEEE-323 is an acceptable method to qualify components subject to environmental qualification requirements. As the requirements of 10 Code of Federal Regulations (CFR) 50.49 do not apply to these components and the licensee had not previously stated the intent to demonstrate a capability via application of the standards associated with 10 CFR 50.49, the NRC did not document our conclusions on the adequacy of testing in comparison to this standard. We note EGC's contention that the testing conformed to this standard or any other standard had not been communicated to the inspection staff through the inspection and significance determination process, up to and including EGC's submittal on September 18, 2017.

The NRC staff reviewed EGC's test results and IEEE-323 and concluded that invocation of type testing as described within IEEE-323 would require conformance with all elements described within IEEE-323, or an appropriate justification for a deviation. The evaluation provided by EGC does not discuss or otherwise indicate that the information provided aligned with type testing requirements (e.g., testing performed on components selected did not align with portions of Section 5.1 "Type Testing," and Section 6.3 "Type Test Procedures") nor was any deviation discussed. The NRC conclusion on the acceptability of the testing was not based on full qualification of the components pursuant to IEEE-323 requirements. Because the equipment in the room was not originally qualified to the temperatures that would exist without room cooling, and the evaluation and testing provided did not meet IEEE-323 requirements, there is no pre-existing standard for judging the adequacy of EGC's testing.

Notwithstanding, the NRC did not make a final determination on whether the testing met IEEE-323 standards, as meeting such a standard is not required within the SDP. In the final determination letter, the NRC stated that EGC's testing did not represent a statistically significant sample or represent a substantive basis to reliably establish equipment survivability limits. Since the EGC response to the preliminary significance determination letter did not provide any standard used in the performance of the testing, the NRC staff considered general industry and engineering standards in reviewing the evaluation to determine if the assumptions used in the SDP evaluation should be modified. However, the staff could not

correlate the provided test to any standard given the limited information provided by the single test. Therefore, as stated above, a single test was deemed insufficient because the components in question were not already designed to significantly higher temperatures, thereby demonstrating reliable component performance under extreme operating temperatures.

Any evaluation to demonstrate equipment will function reliably outside its design specifications is subject to uncertainty. The NRC acknowledged this uncertainty during the consideration of the EGC evaluation in support of our final significance determination. It is possible the equipment could successfully and reliably operate at much higher temperatures but a sufficient technical basis was not provided to draw that conclusion. To consider and account for the uncertainty, the NRC performed a sensitivity evaluation, using a different modeling approach which considered the degraded condition to be an increase in diesel generator failure rate rather than a diesel generator failure caused by a room cooling failure. A modest increase in the failure rate also would result in a finding of White significance. Accordingly, consideration of the uncertainty provided confidence in the PRA assumptions and in our conclusion on the significance of the inspection finding.

Attachment is non-responsive due to narrowing the request to exclude licensee originated documents. Document excluded is U-604451, 10-19-2018.

From: [Garmoe, Alex](#)
To: [Bowman, Gregory](#)
Subject: FW: Response to NRC Inspection Report and Preliminary White Finding
Date: Monday, October 22, 2018 1:55:00 PM
Attachments: [U-604451 Response to NRC Inspection Report and Preliminary White Finding.pdf](#)

From: Kozak, Laura
Sent: Monday, October 22, 2018 8:45 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: FW: Response to NRC Inspection Report and Preliminary White Finding

FYI

From: Stoedter, Karla
Sent: Monday, October 22, 2018 5:14 AM
To: Loudon, Patrick <Patrick.Loudon@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Kozak, Laura <Laura.Kozak@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>; Ray, Teresa <Teresa.Ray@nrc.gov>
Subject: FW: Response to NRC Inspection Report and Preliminary White Finding

Attached is Clinton's response letter to the preliminary white finding. As Pat discussed earlier, we are looking at November 30 as the potential reg conference date.

Thanks,
Karla

From: Sanders, Garrett R:(GenCo-Nuc) [<mailto:Garrett.Sanders@exeloncorp.com>]
Sent: Friday, October 19, 2018 3:22 PM
To: Stoedter, Karla <Karla.Stoedter@nrc.gov>
Cc: Shelton, Dale A:(GenCo-Nuc) <Dale.Shelton@exeloncorp.com>
Subject: [External_Sender] Response to NRC Inspection Report and Preliminary White Finding

Attached please find the Clinton Response to the NRC Inspection Report and Preliminary White Finding letter. Hard copy of the attached will follow.

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

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

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From: [Garmoe, Alex](#)
To: [Bowman, Gregory](#)
Cc: [Helton, Donald](#); [Aird, David](#)
Subject: FW: RS-18-146 Exelon Evaluation of Preliminary White Finding
Date: Monday, December 17, 2018 8:39:00 AM
Attachments: [RS-18-146 \(Attachments 1 and 2\).pdf](#)

Attachment is non-responsive due to narrowing the request to exclude licensee originated documents. Attachment is: RS-18-146, "Exelon Evaluation of Preliminary White Finding", 12-14-18, and Attachment 1 and Attachment 2 of RS-18-146.

Greg,

Recall the discussion at the public meeting last week on ROP enhancement when the industry indicated concerns with the NRC "cutting off the flow of information" at some point in the process. With that in mind, read the below e-mail chain in which Exelon is about to provide Region III with thousands of pages of information after the Reg Conference. This, of course, is on the heels of the Clinton white finding last year in which Exelon again submitted thousands of pages of info very late in the process. We should be open to information at all stages but we also need to stand firm on using best available information to make a decision in a timely manner and move on. Note in the below that it's questionable how much new information is even included in the thousands of pages, but we still need to go through it to find out. At some point in time the flow of information does need to be cut off, especially if the new normal is to bury us with a huge amount of questionably new information late in the game to keep dragging the process out.

I mention this mainly because if we don't take the time to review all the info and end up agreeing with them, industry will probably use this case as another example of cutting off the flow of info, as unreasonable as such an assertion might be.

Thanks,
Alex

From: Kozak, Laura
Sent: Sunday, December 16, 2018 12:55 PM
To: Garmoe, Alex <Alex.Garmoe@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Zoulis, Antonios <Antonios.Zoulis@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Hanna, John <John.Hanna@nrc.gov>
Subject: Fw: RS-18-146 Exelon Evaluation of Preliminary White Finding

FYI. See Exelon post regulatory conference letter and white paper. Note the additional volume of information that is being sent in.

I think we are a little out of process at this point. The licensee's letter has characterized the information as "answers to our questions". But this is not a fully accurate characterization. Our process indicates that licensees should submit information they want us to consider a week before the regulatory conference. In this case, the license only provided their slide presentation - no additional factual, objective information. The presentation consisted of mostly of licensee positions that were not new and had been previously considered during the preliminary evaluation and some items that looked and seemed like potentially new information. This put us in the position of trying to specify what was new information. Which

we ultimately did in the post-regulatory conference call that is referenced in the letter.

I have suggested to regional management that we need to respond in writing acknowledging the letter and the information and putting it in the right context - mostly new information that should have been submitted prior to the regulatory conference.

Laura

From: Sanchez Santiago, Elba
Sent: Friday, December 14, 2018 2:36 PM
To: Riemer, Kenneth; Kozak, Laura; Mitman, Jeffrey
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: [Fong, Cj](#)
To: [Mitman, Jeffrey](#); [Circle, Jeff](#); [Montecalvo, Michael](#)
Subject: Clinton DRE
Date: Tuesday, July 10, 2018 4:08:09 PM

Jeff C,

I know that you typically assign staff to SDPs. For the upcoming Clinton DRE, I want Mike Montecalvo to assist Jeff Mitman. I think his ops / human performance background will be valuable and I'd like him to gain BWR experience.

Thanks,

CJ Fong, P.E.

Chief, PRA Operations and Human Factors Branch (APHB)
Division of Risk Assessment
Office of Nuclear Reactor Regulation
(301) 415-8474

From: [Mitman, Jeffrey](#)
To: [Montecalvo, Michael](#); [Kozak, Laura](#)
Subject: RE: Clinton
Date: Thursday, July 12, 2018 6:19:21 PM

I've added some documents to the SharePoint site. More Friday.

Jeff Mitman

From: Montecalvo, Michael
Sent: Thursday, July 12, 2018 3:43 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Clinton

Laura and Jeff,

I created a folder on the SDP Repository SharePoint for ease of file transfer. Link below:

<http://fusion.nrc.gov/nrr/team/dra/aphb/SDP%20Repository/Forms/AllItems.aspx?RootFolder=%2Fnr%2Fteam%2Fd%2Faphb%2FSDP%20Repository%2FClin%2FClin%20%2D%20SD%20EDG%202018>

Mike

From: [Kozak, Laura](#)
To: [Montecalvo, Michael](#); [Mitman, Jeffrey](#)
Subject: RE: Clinton
Date: Friday, July 13, 2018 8:39:19 AM

I just added Jason's sequence of events and timeline spreadsheet from the inspection

From: Montecalvo, Michael
Sent: Thursday, July 12, 2018 2:43 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Clinton

Laura and Jeff,

I created a folder on the SDP Repository SharePoint for ease of file transfer. Link below:

<http://fusion.nrc.gov/nrr/team/dra/aphb/SDP%20Repository/Forms/AllItems.aspx?RootFolder=%2Fenrr%2Fteam%2Fdra%2Faphb%2FSDP%20Repository%2FClinton%2FClinton%20%2D%20SD%20EDG%202018>

Mike

From: [Stoedter, Karla](#)
To: [Kozak, Laura](#); [Mitman, Jeffrey](#); [Montecalvo, Michael](#); [Fong, CJ](#)
Cc: [Zoulis, Antonios](#)
Subject: RE: Clinton SDP update
Date: Monday, July 16, 2018 7:01:19 AM

This finding would not move Clinton in the Action Matrix if it is finalized as White. The licensee already has one existing white finding. We also need to discuss any proposed schedule as part of the IFRB since we know we are in need of HQ resources.

Karla

From: Kozak, Laura
Sent: Friday, July 13, 2018 7:35 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>
Cc: Zoulis, Antonios <Antonios.Zoulis@nrc.gov>; Stoedter, Karla <Karla.Stoedter@nrc.gov>
Subject: RE: Clinton SDP update

I added Karla Stoedter to this email – the BC for Clinton.

A couple of clarifications –

The 120 day “PD clock” is up 9/14. However, since the team exited with a finding significance TBD, that clock is not limiting. We have 45 days to issue an inspection report after an exit with TBD, which then starts the 90 day SDP clock. Concurrent with that we have an enforcement “120 day clock” from the date of the exit to issue the final. So Jeff’s timeline is approximately correct that an IR will be issued about the middle of August and will start the 90 day clock but in all likelihood the enforcement clock will be limiting.

I agree with September 1 as the date to have the SERP package ready. We need to get buy in from all parties on this.

September 15 would be the preliminary SERP.

The back end of this timeline is very tight. In recent cases, the licensee has chosen to submit an extensive amount of new information on the docket instead of a regulatory conference. To review, disposition, and re-SERP that amount of information can be very challenging in such a short period of time.

I don’t think this finding would move Clinton in the AM, because a White Finding recently came off – Karla, is this correct?

Appreciate Jeff and Mike’s help on this issue.

Laura

From: Mitman, Jeffrey
Sent: Thursday, July 12, 2018 5:09 PM

To: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>; Zoulis, Antonios <Antonios.Zoulis@nrc.gov>
Subject: FW: Clinton SDP update

Mike,

Laura called today re the Clinton SDP. I told her that you would be participating in the SDP. Post that discussion she talked with Exelon, the latest from that discussion is in her email below.

Mike and CJ, for your awareness.

Timing/clocks – here is my best understanding of the regional expectations:

- June 29 – Region III exited the SIT with TBD on the finding(s) significance– this started their 45 day clock for completing the PD portion (note that if they re-exit for any reason that will probably restart the clock)
- July 16 (week of) – IFRB completed
- July 23 (week of) – Planning SRP completed (need because DRA will complete DRE)
- August 15 – PD clock ends and 90 day SDP clock starts
- Sept. 1 – DRE/SERP package completed and ready for review by SERP
- Sept. 15 – Final SERP completed
- Oct. 1 – Choice letter issued
- Nov. 1 – Complete reg. conference (if requested by licensee)
- Nov. 15 – SDP clock ends and determination needs to be finalized and final letter issued

The above is based on an optimal schedule with no delays by any of the participants in developing their required documentation and reviews. It also assumes that the finding is not Green. If the finding goes Green then the process would terminate relatively quickly. It is my understanding that Clinton already has a White finding, that another is in the works and that if this one goes GTG, it would move them in the action matrix. Needless to say, Exelon is putting significant resources into the issue.

This is a very tight schedule for HQ to develop the required LP/SD SPAR model, complete the risk evaluation and write the DRE.

Jeff Mitman

From: Kozak, Laura
Sent: Thursday, July 12, 2018 4:29 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Stoedter, Karla <Karla.Stoedter@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>; Sargis, Daniel <Daniel.Sargis@nrc.gov>
Subject: Clinton SDP update

Just FYI

I spoke with Joe Edom today (Clinton PRA) and make some requests for information that we need. Specifically I asked when their T/H calculation will be complete so that we can review it and I asked for training information related to FLEX, declaration of ELAP, and the Division 3 cross-tie. Joe said that the calculation is nearing completion and he will check on the date it will be available. Jeff – the calculation will have information about the drain rate from the reactor had a loop occurred in the small window where the drain valves were open. Joe will also gather some information about what training material exists and the frequency and then we will specify what we actually want to see.

In the interest of good communication, I told Joe that we were tentatively planning the IFRB for next week and I went over the purpose of the IFRB. Joe asked me about “clocks” and I explained that the 90 day clock to establish a PD – the new metric - was running already and that we were also on a clock for exiting with “TBD”.

Joe said he would get back to me as soon as he could.

Laura

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Montecalvo, Michael](#)
Subject: new document on sharepoint - list of training for div 3 crosstie and FLEX
Date: Monday, July 16, 2018 2:51:24 PM

I added the document that Joe sent listing the available training.

I highlighted the items that I think we need copies of. Let me know if you concur.

Laura

Attachment is non-responsive due to narrowing the request to exclude licensee originated documents. Attachment is: CPS 4006.01, 16 pgs, 04-24-2013.

From: [Mitman, Jeffrey](#)
To: [Montecalvo, Michael](#)
Subject: Emailing: 4006.01_R5c Loss of SDC.pdf
Date: Wednesday, July 18, 2018 6:17:25 PM
Attachments: [4006.01_R5c Loss of SDC.pdf](#)

Mike, here is the Loss of SDC ON for Clinton. Section 4.1.1 on Page 3 of 16 list the 8 steps required to be formed to isolate the RHR B drain path to RW. My notes indicated that they are all AC powered valves. The list does not include the large containment isolation valves from Reactor Recirculation to RHR (these are often designated as the F008 and F009 valves in many BWRs). I'll put this and other procedures into SharePoint Thursdays.

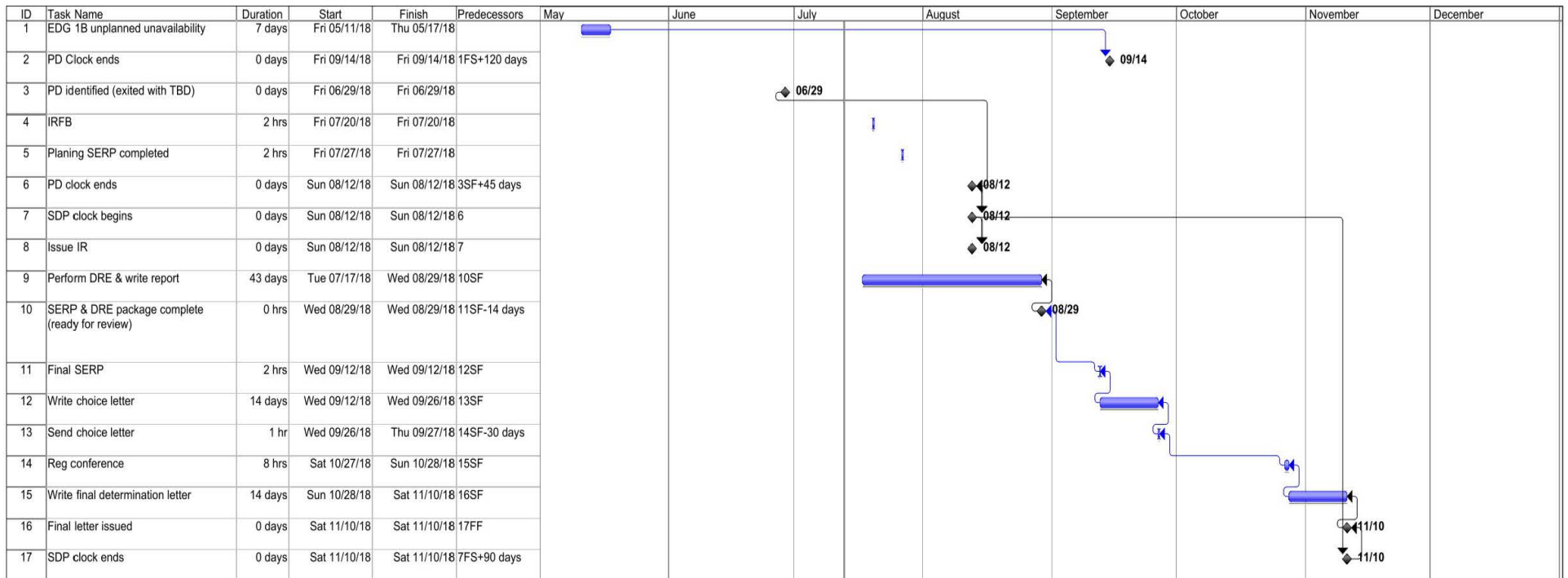
Jeff Mitman

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Cc: [Montecalvo, Michael](#); [Fong, CJ](#)
Subject: Emailing: Clinton 05-2018 SDP Schedule.pdf
Date: Wednesday, July 18, 2018 6:26:16 PM
Attachments: [Clinton 05-2018 SDP Schedule.pdf](#)

I've tried to capture the sequence of events needed to take the Clinton finding to a successful SERP/RC/letter conclusion and the associated timing and milestones required in the attached Gantt chart. Let me know if I've made errors.

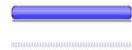
Thanks.

Jeff Mitman



Project: Clinton 05-2018 SDP Schedul
Date: Fri 07/13/18

Task
Split



Progress
Milestone



Summary
Project Summary



External Tasks
External Milestone



Deadline



From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#); [Montecalvo, Michael](#)
Cc: [Fong, CJ](#)
Subject: Clinton SharePoint Site
Date: Thursday, July 19, 2018 10:48:43 AM

I've added a couple of folders to the Clinton SharePoint site: Procedures, DRE, and Clinton LPSP SPAR Model. I've added a dozen procedures and moved the 3 procedures from the parent folder to the procedure folder. The DRE and model folders are currently empty but that's where I intend to keep the associated files as they are generated.

I've also added the latest version of the IFRB document.

Jeff Mitman

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Montecalvo, Michael](#)
Subject: RHR PIDs
Date: Thursday, July 19, 2018 2:31:32 PM

I uploaded RHR P&IDs that I had from a 2016 CDBI inspection.

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Montecalvo, Michael](#)
Subject: RHR PIDs
Date: Thursday, July 19, 2018 2:31:32 PM

I uploaded RHR P&IDs that I had from a 2016 CDBI inspection.

From: [Mitman, Jeffrey](#)
To: [Fong, CJ](#)
Cc: [Montecalvo, Michael](#); [Franovich, Mike](#); [Felts, Russell](#); [Kozak, Laura](#); [Circle, Jeff](#); [Helton, Donald](#); [Casey, Lauren](#)
Subject: DECISION REQUIRED: Clinton IFRB Results and Next Actions
Date: Thursday, July 19, 2018 3:03:11 PM
Attachments: [Clinton SDP Plan 07-19-18.pdf](#)

CJ,

We completed the Clinton EDG unavailability IFRB today. The IFRB agreed that there is a performance deficiency and directed APHB to continue work on the detail risk evaluation (SDP).

I've committed to complete the DRE by August 29th. This will allow sufficient time to complete the required reviews and other process requirements needed to meet the SDP clock due date of ~11/10/18. This is a very tight timeline. It assumes that the DRE shows a greater than 1E-6 CDF. It is expected that the inspection will be re-exited. If this re-exit occurs, then the SDP clock will reset. However, any additional time made available by the clock reset will be used to perform the other required tasks, i.e., not the DRE.

Region III plans to conduct a Planning SERP with HQ next Thursday (August 26th). A planning SERP is required because HQ has the lead on the DRE instead of Region III.

An updated copy of my schedule is attached.

Do you want me to schedule a briefing with DRA management in preparation for the Planning SERP?

Jeff Mitman

From: [Mitman, Jeffrey](#)
To: [Montecalvo, Michael](#)
Subject: FW: DECISION REQUIRED: Clinton IFRB Results and Next Actions
Date: Friday, July 20, 2018 10:31:22 AM

Mike, please schedule a briefing with Mike F., Russ F., you and myself prior to the Planning SERP. 30 minutes should be enough.

Also, please draft a short presentation. Include slides on:

- Description of the issue
- PD definition
- 7 day time line of event (I will drop in a picture of the timeline)
- Licensee methods to respond that will be modeled
 - Recover Div. 2 EDG
 - FLEX
 - Crosstie Div. 3 EDG to Div. 2 electrical
 - Diesel driven fire pumps
- Licensee's preliminary risk results of ~1E-8
- Schedule
- Other information you think is relevant

Thanks.

Jeff Mitman

From: Fong, CJ
Sent: Friday, July 20, 2018 8:13 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: DECISION REQUIRED: Clinton IFRB Results and Next Actions

Thanks, Jeff. Yes, please set up a briefing for DRA management. I need to be there. Try to get Mike and Russ but if you can't get both then at least get one of them.

CJ

From: Mitman, Jeffrey
Sent: Thursday, July 19, 2018 3:03 PM
To: Fong, CJ <CJ.Fong@nrc.gov>
Cc: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Felts, Russell <Russell.Felts@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Circle, Jeff <Jeff.Circle@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: DECISION REQUIRED: Clinton IFRB Results and Next Actions

CJ,

We completed the Clinton EDG unavailability IFRB today. The IFRB agreed that there is a performance deficiency and directed APHB to continue work on the detail risk evaluation (SDP).

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An updated copy of my schedule is attached.

Do you want me to schedule a briefing with DRA management in preparation for the Planning SERP?

Jeff Mitman

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Montecalvo, Michael](#)
Subject: Review of Clinton training info
Date: Friday, July 20, 2018 5:47:48 PM

Just a few observations after spending some time this afternoon reviewing the material –

There is a simulator scenario on SBO/ELAP. In the scenario, the external event causes the HPCS pump to fail, but the scenario is silent on the status of the HPCS DG, so I assume it was not impacted. In the scenario, operators declared “ELAP” and implemented FLEX after the report from the load dispatcher that OSP would not be available for 24 hours. There appeared to be no consideration of the HPCS DG and the cross-tie, even though it was not listed as unavailable. I want to clarify this with the licensee. On the surface, it appears to conflict with the discussion that we had at the site –the availability of the HPCS DG would provide “high assurance” of restoration of power to division 2 and so operators would not declare ELAP (but would in parallel begin to prepare the FLEX equipment).

It seems to me that the procedures and training favor declaration of ELAP and implementation of FLEX over the cross-tie as the initial strategy.

The training material for the cross-tie was very limited. One page indicated a 5 minute discussion – brief and high level, would be conducted.

I am going to call Joe next week to set up a discussion of this.

Laura

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Cc: [Montecalvo, Michael](#)
Subject: RE: SIT timeline
Date: Monday, July 23, 2018 4:48:04 PM

Laura, I'm fairly sure that Exelon report that the Div. 1 4160 bus was energized with the fuel pool cooling pump inservice. However, the Div. 1 4kv/480v transformers and all of the 480v buses were deenergized for transformer replacement. I remember Exelon saying that if the unit lost power the FPCC pump would stop and that they would not be able to close the FPCC valves from the MCR. However, they were not concerned because the FP would not drain.

I've change my characterization of the Div. 1 bus on my timeline to inservice but inoperable.

During a loop this distinction is not relevant because without the Div. 1 EDG the bus will not reenergize.

We can check with Exelon to see whether Jason or I am correct.

Jeff Mitman

From: Kozak, Laura
Sent: Monday, July 23, 2018 12:26 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: SIT timeline

Jeff

I reviewed Jason's write-up on the sequence of events and your timeline. I noted one difference. Jason's write-up states that on May 14, the Division 1 4160 VAC bus was out of service for scheduled maintenance. Your timeline indicates that RHR was unavailable and the DG for that division. I thought I understand that the Division 1 electrical work maintained the 4kV bus energized but that the EDG and 480 V buses were impacted. We should probably clarify this this the licensee during our discussions.

Laura

From: [Mitman, Jeffrey](#)
To: [Montecalvo, Michael](#)
Subject: Clinton SDP Planning SERP Pre-Brief Presentation
Date: Tuesday, July 24, 2018 3:56:23 PM
Attachments: [Clinton SD 072018\(2\).potx](#)

Mike, I've flushed out your start. Please take a look at the enclosed version. What is the current protocol for pre-briefing of planning SERPs, do we invite DIRS and OE?

Laura, we have scheduled a briefing with DRA management on the planning SERP. Enclosed is the draft of what we put together. If you have a chance, comments are always appreciated.

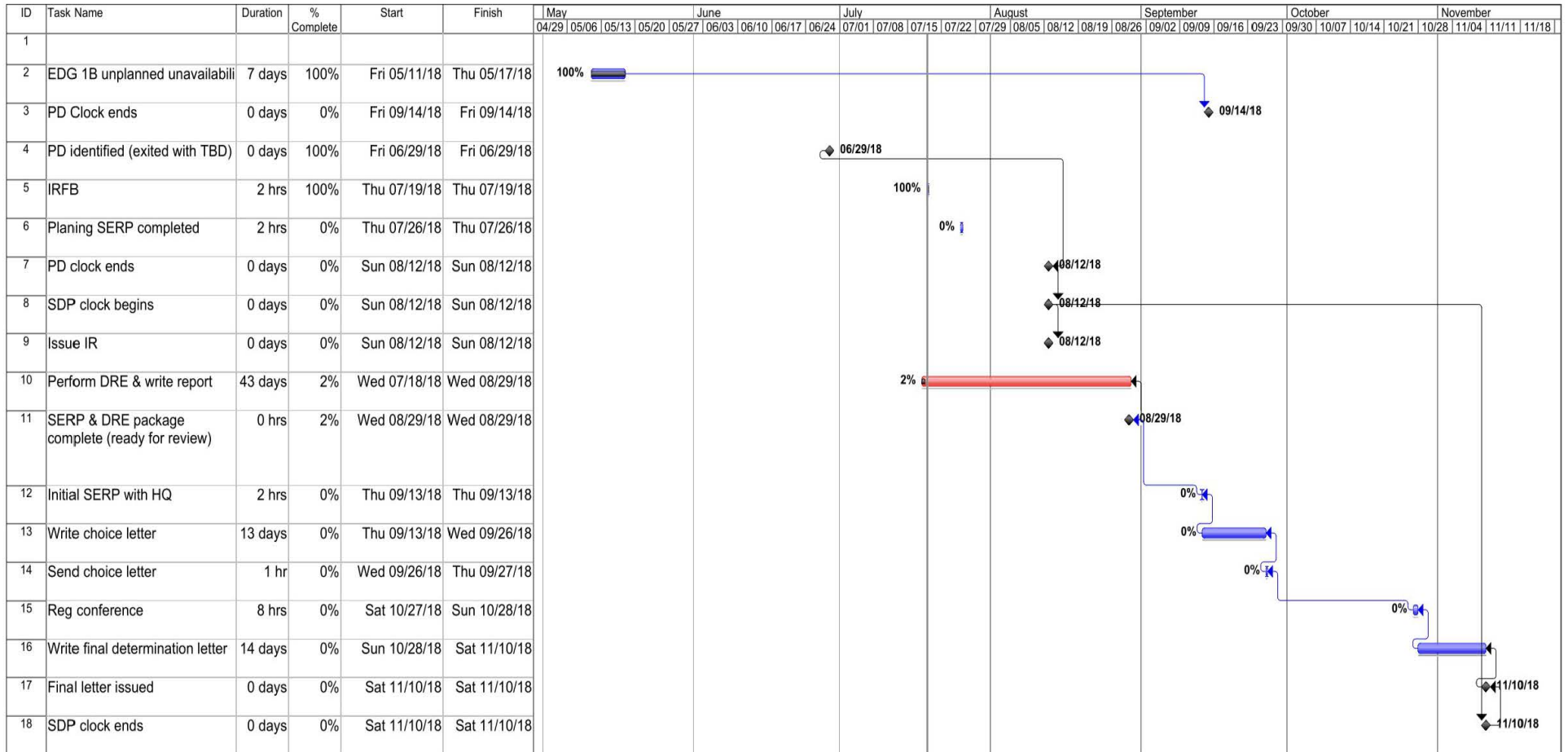
Jeff Mitman

From: Montecalvo, Michael
Sent: Tuesday, July 24, 2018 12:41 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: presentation

Jeff,

I am working on the presentation for tomorrow's prebrief. Attached is what I have so far (not much) and I will be working on it tonight after all my meetings for the day get complete. I am off on Thursday and Friday, so won't be at the planning SERP. I haven't had much time at all to look at this since picking up BC duties.

Mike



From: [Mitman, Jeffrey](#)
To: [Casey, Lauren](#)
Cc: [Montecalvo, Michael](#); [Helton, Donald](#); [Marshfield, Mark](#)
Subject: Clinton EDG Pre-Brief for Planning SERP
Date: Tuesday, July 24, 2018 4:56:09 PM
Attachments: [Clinton Planning SERP pre-brief.msg](#)

Lauren, as you are aware we have a planning SERP planned for Thursday. In preparation for it, I'll be conducting a pre-briefing with DRA management Wednesday at 2:30. I don't know who should be invited and I'm reluctant to send a blanket invitation to all the usual suspects. A copy of the calendar reminder for the pre-briefing is attached, please send to the appropriate people.

I recognize that tardiness of this notification but it slipped through the cracks. My apologies.

Thanks for the help.

Jeff Mitman

From: Montecalvo, Michael
Sent: 20 Jul 2018 14:55:13 +0000
To: Montecalvo, Michael;Franovich, Mike;Felts, Russell;Fong, CJ;Mitman, Jeffrey
Subject: Clinton Planning SERP pre-brief

Presentation to follow.

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Montecalvo, Michael](#)
Subject: new documents on share point - Clinton
Date: Monday, July 30, 2018 2:17:10 PM

I uploaded the root cause evaluation and the LER that was submitted.

Attachment is non-responsive due to narrowing the request to exclude licensee originated documents.

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Montecalvo, Michael](#)
Subject: FW: Responses to Questions 1-5, 7 and 8
Date: Thursday, August 09, 2018 2:22:50 PM
Attachments: [SRA Plan Response to NRC Questions \(8-9-18\).pdf](#)

I will post these on sharepoint

From: Edom, Joseph T:(Contractor - GenCo-Nuc) [mailto:Joe.Edom@exeloncorp.com]
Sent: Thursday, August 09, 2018 1:16 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: [External_Sender] Responses to Questions 1-5, 7 and 8

Laura,

Attached are the responses to the questions you asked. I am going through them to gather the procedures and other material referenced in the responses and will be sending those today as well.

Joe Edom | Senior Corporate Risk Management Engineer
JENSEN HUGHES
Advancing the Science of Safety

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Attachment is non-responsive due to narrowing the request to exclude licensee originated documents.
Attachment is: EC 624344 R/000, 59 pages.

From: [Kozak, Laura](#)
To: [Montecalvo, Michael](#); [Mitman, Jeffrey](#)
Subject: FW: GOTHIC Analysis Used in Support of the Clinton Division 2 DG UA Risk Assessment
Date: Thursday, August 09, 2018 2:56:43 PM
Attachments: [EC624344.pdf](#)

From: Edom, Joseph T:(Contractor - GenCo-Nuc) [mailto:Joe.Edom@exeloncorp.com]
Sent: Thursday, August 09, 2018 1:50 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Cc: Joe Edom - Jensen Hughes (JEdom@jensenhughes.com) <JEdom@jensenhughes.com>
Subject: [External_Sender] GOTHIC Analysis Used in Support of the Clinton Division 2 DG UA Risk Assessment

Laura,

Attached is EC 624344, which performed the GOTHIC analysis used to support the HEP developments in the Clinton Division 2 DG unavailability risk assessment.

Joe Edom | Senior Corporate Risk Management Engineer

JENSEN HUGHES

Advancing the Science of Safety

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From: [Mitman, Jeffrey](#)
To: [Montecalvo, Michael](#); [Kichline, Michelle](#)
Cc: [Fong, CJ](#); [Helton, Donald](#)
Subject: FW: Update on Clinton SDP
Date: Thursday, August 09, 2018 5:06:33 PM

Good summary of where we are.

Jeff Mitman

From: Kozak, Laura
Sent: Thursday, August 09, 2018 2:34 PM
To: Stoedter, Karla <Karla.Stoedter@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>; Loudon, Patrick <Patrick.Louden@nrc.gov>
Cc: Lara, Julio <Julio.Lara@nrc.gov>; Hanna, John <John.Hanna@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Update on Clinton SDP

FYI –

We continue to make progress on the Clinton SDP but no preliminary results as of yet. Today we received the licensee's signed off risk evaluation and supporting thermo-hydraulic analysis – 400+ pages of material. The licensee's conclusion is that the delta CDF is approximately 1E-8/yr., or Green. We have not reviewed their evaluation yet.

The licensee also provided answers to 6 of the 7 questions that we asked approximately 2 weeks ago. The outstanding question is related to FLEX equipment reliability – that information and answer is still under licensee development and should be provided soon.

Please let me know if you have any questions.

Laura

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Cc: [Montecalvo, Michael](#)
Subject: Clinton Model Status
Date: Friday, August 10, 2018 8:47:00 AM

Laura, I've downloaded the model that Bob Buell created from the Sapphire website. I've created change sets that set the HPCS pump TM, Div. 1 EDG TM terms to True (all other TM terms to False) and the Div. 2 EDG FS term to True. I have not incorporated any of the FLEX systems yet. The model is quantifying in the Yellow range for a 3.6 day exposure time. Because I've not credited FLEX, I believe this quantification is significantly conservative. The model is uploaded to SharePoint if you want to look at it.

Jeff Mitman

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#); [Montecalvo, Michael](#)
Cc: [Fong, C.J.](#); [Humberstone, Matthew](#)
Subject: RE: Clinton
Date: Thursday, August 16, 2018 9:17:39 AM

The following is going to sound like preaching and you all are certainly the choir.

Data on FLEX is no different than data on any other type of equipment. Data is data. There is an entire infrastructure established to collect data and to derive failure probabilities. That infrastructure deals with the data issues that Exelon is attempting to deal with routinely. The industry is clearly and intentionally avoiding that infrastructure. I presume that they are doing so to obfuscate our understanding of the reliability and availability of FLEX.

Jeff Mitman

From: Kozak, Laura
Sent: Wednesday, August 15, 2018 5:03 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Montecalvo, Michael <Michael.Montecalvo@nrc.gov>
Subject: Clinton

Jeff

I just put the procedure you requested yesterday on the share point site.

Joe is going to set up a call for either next Monday or Tuesday to discuss the answers to our questions from last week.

Joe is finalizing the Flex reliability data. In our brief discussion today he told me that the data is not really collected in a form to easily support PRA reliability calculations. I question the ongoing owner's group effort if the data is difficult to collect. More to come...

Laura

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#)
Cc: [Montecalvo, Michael](#)
Subject: Clinton Shutdown SDP - Flex reliability data - answer to Question 6
Date: Friday, August 17, 2018 11:17:20 AM

Jeff, Mike

I just received the answer from the licensee about the FLEX equipment reliability data. I put it on the share point site.

Laura

From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Montecalvo, Michael](#)
Subject: Clinton Flex reliability data
Date: Friday, August 17, 2018 12:19:33 PM

FYI – I also upload the licensee ARs (condition reports) associated with the failures of the FLEX equipment reported in the reliability data.

From: [Mitman, Jeffrey](#)
To: [Kozak, Laura](#)
Cc: [Montecalvo, Michael](#)
Subject: RE: Clinton
Date: Wednesday, August 29, 2018 6:45:42 PM

Just talked to Mike Montecalvo and he has given me the okay to plan a trip to IL to talk with Exelon. No need for Region III financial help on it.

Let me know if I should start making travel arrangements.

Jeff Mitman

From: Kozak, Laura
Sent: Wednesday, August 29, 2018 3:21 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: Clinton

I agree with holding the meeting at the site but I wanted to give you the option because of travel considerations. I'll work towards this plan.

From: Mitman, Jeffrey
Sent: Wednesday, August 29, 2018 3:08 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton

I can support a meeting on Sept. 10th in IL.

I always prefer to meet at the site where we have better access to information and people. Holding the meeting away from the site allows a licensee to control who we talk to. Having said that, I'll support wherever you want to meet.

A Sept. 21 SERP is doable. I have the complication with PSAM in Los Angeles, but I can manage the PSAM one way or another.

I've talked to Mike Montecalvo and explained to him our current status (i.e., GTG) and that we are headed to a SERP and that we are planning a "site" visit. No issues. I'll get a message to DRA management shortly with the current status shortly.

Jeff Mitman

From: Kozak, Laura
Sent: Wednesday, August 29, 2018 2:58 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Clinton

Jeff

I just spoke with Joe Edom. He is going to try to arrange a call for next Thursday afternoon to discuss the crosstie procedure. I mentioned that you had several questions including the dependence on DC power availability to perform the crosstie procedure.

I also asked Joe to think about dates for an in-person discussion. I mentioned the week of September 10. Will that work for you? We could have the meeting at Clinton or we could have it at the Jensen-Hughes office in Oakbrook Terrace (suburb of Chicago, much closer to the airport). What do you think? Do we need to go to the site for any particular purpose.

I did not yet tell the licensee that we are currently estimating GTG but I will do that before any in-person meeting.

As you saw from Karla's email, the region would like to plan for a SERP on September 21, which means the package would need to be in the week before. Very tight schedule, I know.

Laura

From: [Fong, CJ](#)
To: [Montecalvo, Michael](#)
Cc: [Zoulis, Antonios](#)
Subject: RE: Clinton DRE/SDP Status
Date: Thursday, October 04, 2018 10:27:14 AM

Thanks, Mike. I appreciate your input and you're doing the right thing by providing it. I don't think that the HEP discussion is over by any means. Mike Franovich and Jeremy Groom (acting DDD, DIRS) have also provided some perspectives that, collectively, we need to take into consideration. I've also asked Jeff to evaluate recovery of the EDG after one hour. While I recognize this is complicated due to the other actions that ops will be taking simultaneously (i.e., FLEX alignment and Div III cross-tie) I don't believe we can credibly just ignore the likelihood that the diesel can be recovered after one hour.

Best regards,
CJ

From: Montecalvo, Michael
Sent: Wednesday, October 03, 2018 7:18 PM
To: Fong, CJ <CJ.Fong@nrc.gov>
Cc: Zoulis, Antonios <Antonios.Zoulis@nrc.gov>
Subject: FW: Clinton DRE/SDP Status

CJ,
I wanted to give my two cents on this for what it's worth. I have already spoken with Jeff about my insights. As a former field and senior reactor operator I think an 80% success rate on recovering the diesel under these conditions is ridiculous.

In my opinion, the diagnosis of the issue would be simple. I agree stress is high, but moving from "nominal" to "low" experience or training in the diagnosis section changes the HEP by an order of magnitude.

With low experience/training = $2.02E-1$
With nominal experience/training = $2.2E-2$

Since the significance determination seems dependent on this, we may want some additional consideration of this HEP before the regulatory conference.
Mike

From: Mitman, Jeffrey
Sent: Wednesday, September 26, 2018 4:33 PM
To: Circle, Jeff <Jeff.Circle@nrc.gov>; Demers, Jerrod <Jerrod.Demers@nrc.gov>; Dozier, Jerry <Jerry.Dozier@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Hartle, Brandon <Brandon.Hartle@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>; Huckabay, Victoria <Victoria.Huckabay@nrc.gov>; Hughey, John <John.Hughey@nrc.gov>; Humberstone, Matthew <Matthew.Humberstone@nrc.gov>; Ki, DaBin <DaBin.Ki@nrc.gov>; Kichline, Michelle

<Michelle.Kichline@nrc.gov>; Leech, Matthew <Matthew.Leech@nrc.gov>; Levine, Michael
<Michael.Levine@nrc.gov>; Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Ng, Ching
<Ching.Ng@nrc.gov>; Spore, Candace <Candace.Spore@nrc.gov>; Zoulis, Antonios
<Antonios.Zoulis@nrc.gov>

Subject: Clinton DRE/SDP Status

Attached is a one-pager developed by Region III that describes, at a high level, the risk results and where we are in the process. This is a document type that Region III has been using for more than a year to communicate internally. Based on the branch meeting discussion, I thought you might be interested.

It is for internal consumption only.

Jeff Mitman

From: [Mitman, Jeffrey](#)
To: [Montecalvo, Michael](#); [Kichline, Michelle](#); [Leech, Matthew](#); [Demers, Jerrod](#); [Hartle, Brandon](#)
Cc: [Fong, CJ](#)
Subject: RE: Re-evaluation of HFE for EDG non recovery - Clinton
Date: Friday, October 26, 2018 9:09:22 AM
Attachments: [5061.07 MCR Alarm Panel 5061.pdf](#)
[3506.01P002_R3a Div. 2 EDG Operations.pdf](#)

Attachments are non-responsive due to narrowing the request to exclude licensee originated documents. Attachments are: CPS 5061.07, 4 pages, 10-25-2000 and CPS 3506.01 P002, 35 pages, 07-23-2012.

Michelle has asked for some additional information. I'm supplying it to everyone.

1. The only EDG specific alarm in the MCR that I'm aware of is the "Tripped Diesel Gen 1B" annunciator. The alarm response card is attached. Obviously, there will be multiple additional MCR indications that the LOOP has occurred. Keep in mind that EDG1 was tagged out for maintenance and would not attempt to start. EDG3 would start and load the Div. 3 bus, however, the MCR knew that the only associated RCS injection pump (HPCS) was tagged out for maintenance. Even if the HPCS pump were available, plant procedures describe situations without EDG1 and EDG2 but with EDG3 as a SBO. Because EDG2 was the protected EDG during the period of interest, the MCR would at least initially focus on it.
2. The Loss of AC Power procedure (CPS 4200.01) in Step 1.5 defines an ELAP as "A total and sustained (>1 hour) loss of both offsite and onsite AC power sources **as a result of a postulated Beyond Design Basis External Event (BDBEE)** which is expected to exceed the 4 hour SBO coping period (emphasis added)." While the language about BDBEE is clear and unambiguous, it was also clear from discussion with the Clinton personnel that if the loss of power occurred from some other initiator, they would still consider utilization of the FLEX equipment. We (NRC) immediately saw this narrow definition but after discussions with Clinton personnel opted to ignore the definition and to credit FLEX where appropriate. Michelle asked specifically: When are the crews trained to go to ELAP? My interpretation of all of the information supplied: If they expect that the SBO to last more than 1 hour. Specifically, if they have a "high assurance of power restoration," they will not declare the ELAP. This has been a topic of intense discussion both with the licensee and internally. However, this question is outside the definition of the HFE that you have been asked to evaluate.

The HFE write-up refers to CPS 3506.01P002 "Division 2 Diesel Generator Operations." I should have supplied this in my original email. I will reiterate what the HFE says about this procedure:

Section 8 (of CPS 3506.01) supplies operator guidance on how to place EDG2 in standby using CPS 3506.01P002, "Division 2 Diesel Generator Operations." This 35 page procedure supplies no guidance on troubleshooting diesel failures to start. However, it does supply checklists on how to place the diesel in standby and how to start and stop the diesel. The standby setup discussion has sub-sections on the lubricating oil, the starting air, and jacket water diesel fuel oil systems. This lineup process entails some 100 steps. In those steps there is specific direction to open and lock open the starting air receiver outlet valves 1DG160 and 161. This is the specific, proceduralized direction to open the valves that are the cause of the diesel's failure.

Let me know if you have additional questions.

Thanks for the help.

Jeff Mitman

From: Mitman, Jeffrey

Sent: Monday, October 22, 2018 11:54 AM

To: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Kichline, Michelle <Michelle.Kichline@nrc.gov>; Leech, Matthew <Matthew.Leech@nrc.gov>; Demers, Jerrod <Jerrod.Demers@nrc.gov>; Hartle, Brandon <Brandon.Hartle@nrc.gov>

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

Subject: Re-evaluation of HFE for EDG non recovery - Clinton

Mike Franovich has requested that I poll the branch for their insights and input into a significant HFE on the Clinton SDP. The SDP address a 3.5 day period during their most recent refueling outage during which neither the Div. 1 nor 2 EDG was available. The SERP has determined that the finding is preliminarily White. A choice letter has been written and the licensee has requested a Reg. Conf.

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The purpose of the re-evaluation is to use it as additional sensitivity analysis and input into the final decision making.

Attached is the HFE analysis itself minus the quantification. I have not supplied the quantification as I don't want it to influence your analysis. Also attached are the annunciator response card for the associated annunciators. Finally, attached are the relevant procedures.

Hopefully, the HFE analysis document will supply all of the information needed to understand the scenario and what the operators would have faced. In reality, you will probably have questions.

Please review the HFE document. Also the procedures to the degree you feel necessary. I'll try to find a time slot after the SRA counterparts meeting this week to meet as a group to answer any questions and to go through the quantification.

There is one additional piece of information that I want everyone to have. The non-recovery probability for an EDG based on data is 0.88 for the one hour available.

Thanks for the help.

Jeff Mitman

From: [Leech, Matthew](#)
To: [Mitman, Jeffrey](#); [Montecalvo, Michael](#); [Kichline, Michelle](#); [Demers, Jerrod](#); [Hartle, Brandon](#)
Subject: Re: Re-evaluation of HFE for EDG non recovery - Clinton
Date: Friday, October 26, 2018 9:43:41 AM

Yep, I'll have it reviewed by then

From: Mitman, Jeffrey
Sent: Friday, October 26, 2018 9:42 AM
To: Leech, Matthew; Montecalvo, Michael; Kichline, Michelle; Demers, Jerrod; Hartle, Brandon
Subject: RE: Re-evaluation of HFE for EDG non recovery - Clinton

I was hoping to meet in the middle of next week. But maybe it would be better to meet individually.

Can you have reviewed the material by mid week?

Jeff Mitman

From: Leech, Matthew
Sent: Friday, October 26, 2018 9:31 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Kichline, Michelle <Michelle.Kichline@nrc.gov>; Demers, Jerrod <Jerrod.Demers@nrc.gov>; Hartle, Brandon <Brandon.Hartle@nrc.gov>
Subject: Re: Re-evaluation of HFE for EDG non recovery - Clinton

Jeff,
When do you need this by?

From: Mitman, Jeffrey
Sent: Friday, October 26, 2018 9:09 AM
To: Montecalvo, Michael; Kichline, Michelle; Leech, Matthew; Demers, Jerrod; Hartle, Brandon
Cc: Fong, CJ
Subject: RE: Re-evaluation of HFE for EDG non recovery - Clinton

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injection pump (HPCS) was tagged out for maintenance. Even if the HPCS pump were available, plant procedures describe situations without EDG1 and EDG2 but with EDG3 as a SBO. Because EDG2 was the protected EDG during the period of interest, the MCR would at least initially focus on it.

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Let me know if you have additional questions.

Thanks for the help.

Jeff Mitman

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Sent: Monday, October 22, 2018 11:54 AM

To: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Kichline, Michelle <Michelle.Kichline@nrc.gov>; Leech, Matthew <Matthew.Leech@nrc.gov>; Demers, Jerrod <Jerrod.Demers@nrc.gov>; Hartle, Brandon <Brandon.Hartle@nrc.gov>

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Thanks for the help.

Jeff Mitman

From: [Montecalvo, Michael](#)
To: [Mitman, Jeffrey](#)
Subject: RE: Re-evaluation of HFE for EDG non recovery - Clinton
Date: Wednesday, October 31, 2018 9:02:00 AM

Jeff,
Do you have the drawing for the EDG starting air?
Mike

From: Mitman, Jeffrey
Sent: Friday, October 26, 2018 9:09 AM
To: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Kichline, Michelle <Michelle.Kichline@nrc.gov>; Leech, Matthew <Matthew.Leech@nrc.gov>; Demers, Jerrod <Jerrod.Demers@nrc.gov>; Hartle, Brandon <Brandon.Hartle@nrc.gov>
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Thanks for the help.

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Jeff Mitman

From: [Mitman, Jeffrey](#)
To: [Montecalvo, Michael](#)
Subject: RE: Re-evaluation of HFE for EDG non recovery - Clinton
Date: Thursday, November 01, 2018 5:50:18 PM

Mike, I understand your perspective. Thanks.

Jeff Mitman

From: Montecalvo, Michael
Sent: Thursday, November 01, 2018 1:43 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>
Subject: RE: Re-evaluation of HFE for EDG non recovery - Clinton

Jeff,

Attached is my analysis. The psf's that I changed from nominal have comments in the spreadsheet. IMHO, the fact that this is during the outage (OCC manned, maintenance personnel available, extra operations folks available, etc.) combined with the fact that the actual problem should be fairly obvious once the fault presents itself make this a relatively reliable action. I think the additional personnel is key in this point considering that although 5 equipment operators missed it in their normal rounds, a 6th finally did identify it with no fault on the diesel. Once the SBO happens, all additional EOs would be dispatched to investigate why the diesel didn't start. I would also call the electrical shop and mechanical shop to send personnel ASAP.

I also think that operations and OCC management that will be "helping" the control room during the event will understand that the ELAP declaration within 1 hr is based on limiting conditions that don't apply in their current configuration. Based on what I said above, I still do believe that the shift manager would have "high assurance" that recovery of the EDG will happen within the 4 hour coping time as the loss of power procedure instructs.

So, that's what I think. Let me know if you need anything else. Thanks for including me!
Mike

From: Mitman, Jeffrey
Sent: Monday, October 22, 2018 11:54 AM
To: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Kichline, Michelle <Michelle.Kichline@nrc.gov>; Leech, Matthew <Matthew.Leech@nrc.gov>; Demers, Jerrod <Jerrod.Demers@nrc.gov>; Hartle, Brandon <Brandon.Hartle@nrc.gov>
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The purpose of the re-evaluation is to use it as additional sensitivity analysis and input into the final decision making.

Attached is the HFE analysis itself minus the quantification. I have not supplied the quantification as I don't want it to influence your analysis. Also attached are the annunciator response card for the associated annunciators. Finally, attached are the relevant procedures.

Hopefully, the HFE analysis document will supply all of the information needed to understand the scenario and what the operators would have faced. In reality, you will probably have questions.

Please review the HFE document. Also the procedures to the degree you feel necessary. I'll try to find a time slot after the SRA counterparts meeting this week to meet as a group to answer any questions and to go through the quantification.

There is one additional piece of information that I want everyone to have. The non-recovery probability for an EDG based on data is 0.88 for the one hour available.

Thanks for the help.

Jeff Mitman

From: [Franovich, Mike](#)
To: [Montecalvo, Michael](#)
Subject: RE: Exelon will not appeal the Final Clinton White
Date: Thursday, April 18, 2019 11:34:54 AM

Hopefully my modified recommendation 250 will ultimately resolve this disproportional response mode from NRC.

From: Montecalvo, Michael
Sent: Thursday, April 18, 2019 11:08 AM
To: Franovich, Mike <Mike.Franovich@nrc.gov>
Subject: RE: Exelon will not appeal the Final Clinton White

Thanks for the update Mike.

Just an observation, why so much follow-up for this white issue? Have the meetings Julio is describing been requested by the licensee? Time is money and every executive that has to prepare for an NRC visit is costly to the licensee. I see this as lending credence to their argument that, in the end, a white really isn't just a 40 hour inspection and these meetings (unless requested) are fully within NRC control. It seems like we have ramped up response to a white because there are so few, but that increased focus is not really justified by the risk significance. Just my two cents.

From: Franovich, Mike
Sent: Thursday, April 18, 2019 10:43 AM
To: Zoulis, Antonios <Antonios.Zoulis@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Montecalvo, Michael <Michael.Montecalvo@nrc.gov>
Subject: FW: Exelon will not appeal the Final Clinton White

FYI

From: Lara, Julio
Sent: Wednesday, April 17, 2019 6:23 PM
To: Giessner, Jack <John.Giessner@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; McDermott, Brian <Brian.McDermott@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Cc: Sanfilippo, Nathan <Nathan.Sanfilippo@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Roberts, Darrell <Darrell.Roberts@nrc.gov>
Subject: Re: Exelon will not appeal the Final Clinton White

Thanks for the update.

I have been waiting for the 30-day appeal window to close before I engage Exelon on this further. I plan a site visit to discuss the same observations regarding the surveys with the SVP. I also plan to engage him on the risk insights that hopefully they learned as an outcome of this issue. I also plan to travel down to Exelon corporate and talk to Reg Assurance (Gullot) to discuss their response as it

relates to surveys and the recently submitted LER (scram) which was lacking.

Separately, i have discussed with Ken Riemer DRP BC, the 95001 planning to ensure our focus is appropriate not only in scope but also in terms of inspection resources.

Thx

Julio

From: Giessner, Jack

Sent: Wednesday, April 17, 2019 5:11:19 PM

To: Lara, Julio; Kozak, Laura; McDermott, Brian; Franovich, Mike; Orlikowski, Robert; Riemer, Kenneth; Cameron, Jamnes; Wilson, George

Cc: Sanfilippo, Nathan; Shuaibi, Mohammed; Roberts, Darrell

Subject: Exelon will not appeal the Final Clinton White

All,

I talked to George Geldrich, Sr Vp Exelon this afternoon. He informed me they evaluated their appeal options and will **not appeal the Final White**.

He went on to say they still did not agree with HRAs assigned (no new information there). I took the opportunity to tell him a key item they mentioned at the Regulatory conference was the survey of other operators from other sites and ELAP transition. I said the survey did not to address the scenarios we were looking for (1 hr, no find the problem); and some survey data (although not asked) said they would have went earlier—at the one hour point if the problem was not found. Hence we concluded if the issue was not found, the operator would very likely transition to ELAP. He was silent and offered no comment on that. He did then note that the training PSF was too pessimistic on discovery in the 1 hr, and that it would have been found with a higher frequency in that one hour. We had a good discussion on complexity and he mentioned scram had more needed actions; although a scram may have had more actions, I said, an SBO is complex/high stress and without strong procedures, this led us to our results. He noted our differences and made comments about the HRAs for outside the control room. And he would talk to DRA about the future of HRAs.

He also noted we will get the letter tomorrow on requesting the 95001 in May. I asked why May vs June (which we heard in Exelon drop-in). He said this was to build margin in case there were questions during the 95001. I told him (with no assurances) that end of June was reasonable, but May I would ask DRP to get with site VP.

Jack

From: [Montecalvo, Michael](#)
To: [Mitman, Jeffrey](#); [Kozak, Laura](#)
Cc: [Fong, CJ](#); [Humberstone, Matthew](#)
Subject: RE: Clinton
Date: Friday, August 17, 2018 12:39:31 PM
Attachments: [Joint BWROG PWROG Meeting August 16 Chicago AFD+SW+MH.pptx](#)

Jeff and Laura,

This topic is fresh on my mind since the PWR/BWROG requested a presentation on our expectations for FLEX data. I presented this week at their meeting in Chicago. I attached the presentation to this email so you can see the messages that we are sending to industry. Basically we are telling them that we need the same resolution as what we get on all other pieces of equipment. I completely understand the frustration, especially since it has not stopped licensees from crediting FLEX, even in applications compliant with RG 1.200. This hasn't gone unnoticed in the licensing branches and they are asking for additional information when necessary, and I'm glad you pressed the licensee in this instance Laura.

At the risk of sounding like I'm defending industry, there are some unique reasons that they don't want to use established infrastructure to process the reliability data for FLEX. I personally don't believe there is nefarious intent on their part. What I heard from Roy Linthicum at the meeting this week was encouraging with the way they will gather the data for FLEX equipment operations. The data is not hard to collect, but they were having challenges with the way EPRI was collecting and categorizing the data in the database and using it for reliability calculations.

I was considering asking some industry members to present at the last SRA counterpart on various topics, but never really followed through with the thought. Maybe this would be a good topic to try and get someone (maybe Roy?) to come in to talk with the SRAs? This may present some logistical challenges, but I can talk to Antonios about it.

Mike

From: Mitman, Jeffrey
Sent: Thursday, August 16, 2018 9:18 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Montecalvo, Michael <Michael.Montecalvo@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>; Humberstone, Matthew <Matthew.Humberstone@nrc.gov>
Subject: RE: Clinton

The following is going to sound like preaching and you all are certainly the choir.

Data on FLEX is no different than data on any other type of equipment. Data is data. There is an entire infrastructure established to collect data and to derive failure probabilities. That infrastructure deals with the data issues that Exelon is attempting to deal with routinely. The industry is clearly and intentionally avoiding that infrastructure. I presume that they are doing so to obfuscate our understanding of the reliability and availability of FLEX.

Jeff Mitman

From: Kozak, Laura

Sent: Wednesday, August 15, 2018 5:03 PM

To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Montecalvo, Michael
<Michael.Montecalvo@nrc.gov>

Subject: Clinton

Jeff

I just put the procedure you requested yesterday on the share point site.

Joe is going to set up a call for either next Monday or Tuesday to discuss the answers to our questions from last week.

Joe is finalizing the Flex reliability data. In our brief discussion today he told me that the data is not really collected in a form to easily support PRA reliability calculations. I question the ongoing owner's group effort if the data is difficult to collect. More to come...

Laura



Joint BWROG/PWROG Technical Committee Meetings

- NRC Panel: August 16, 2018
Mike Franovich, Director Division of Risk Assessment
Sunil Weerakkody, Sr. Technical Advisor, Division of Risk Assessment
Mike Montecalvo, Acting Branch Chief, Division of Risk Assessment
Adrienne Brown, Reliability and Risk Analyst

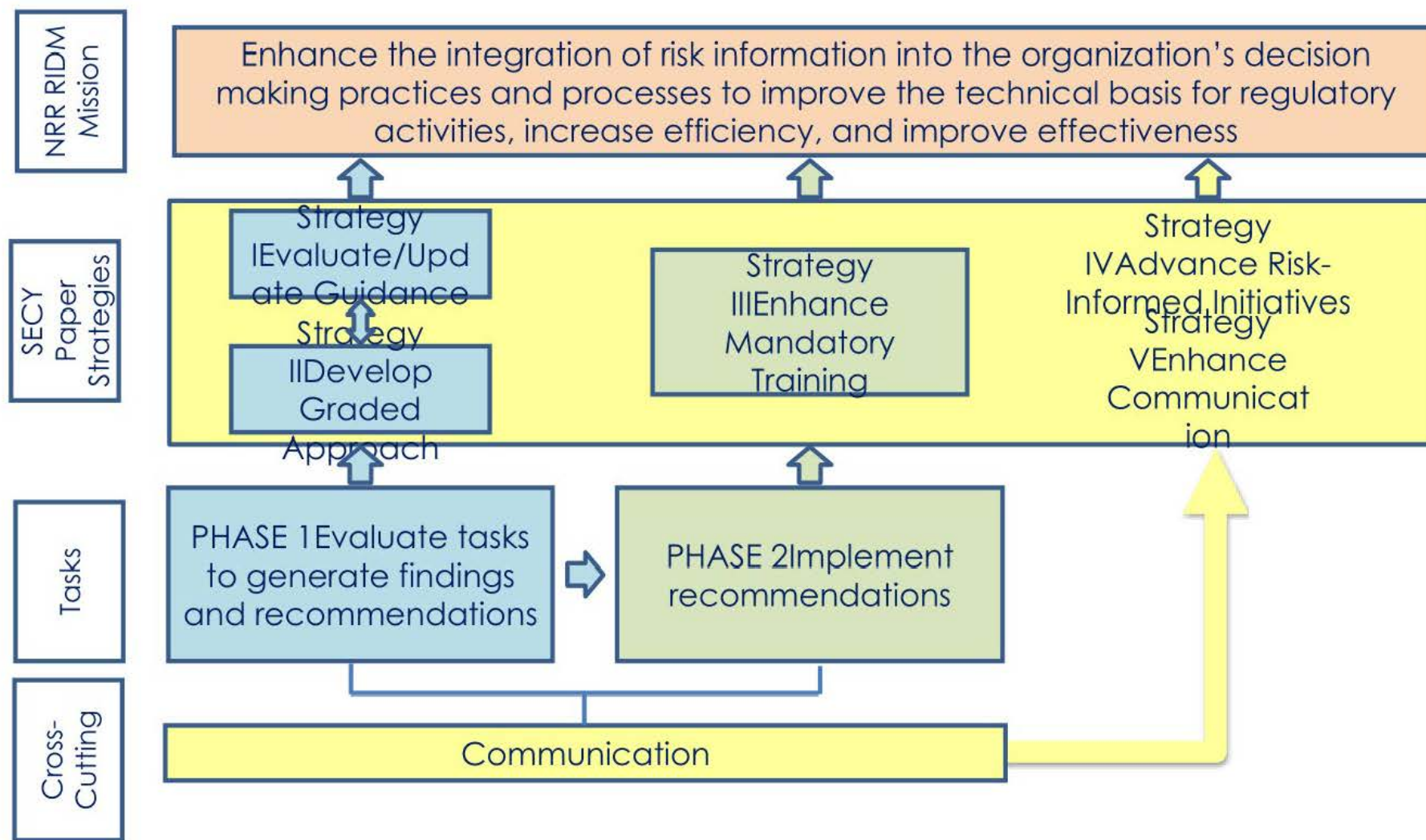




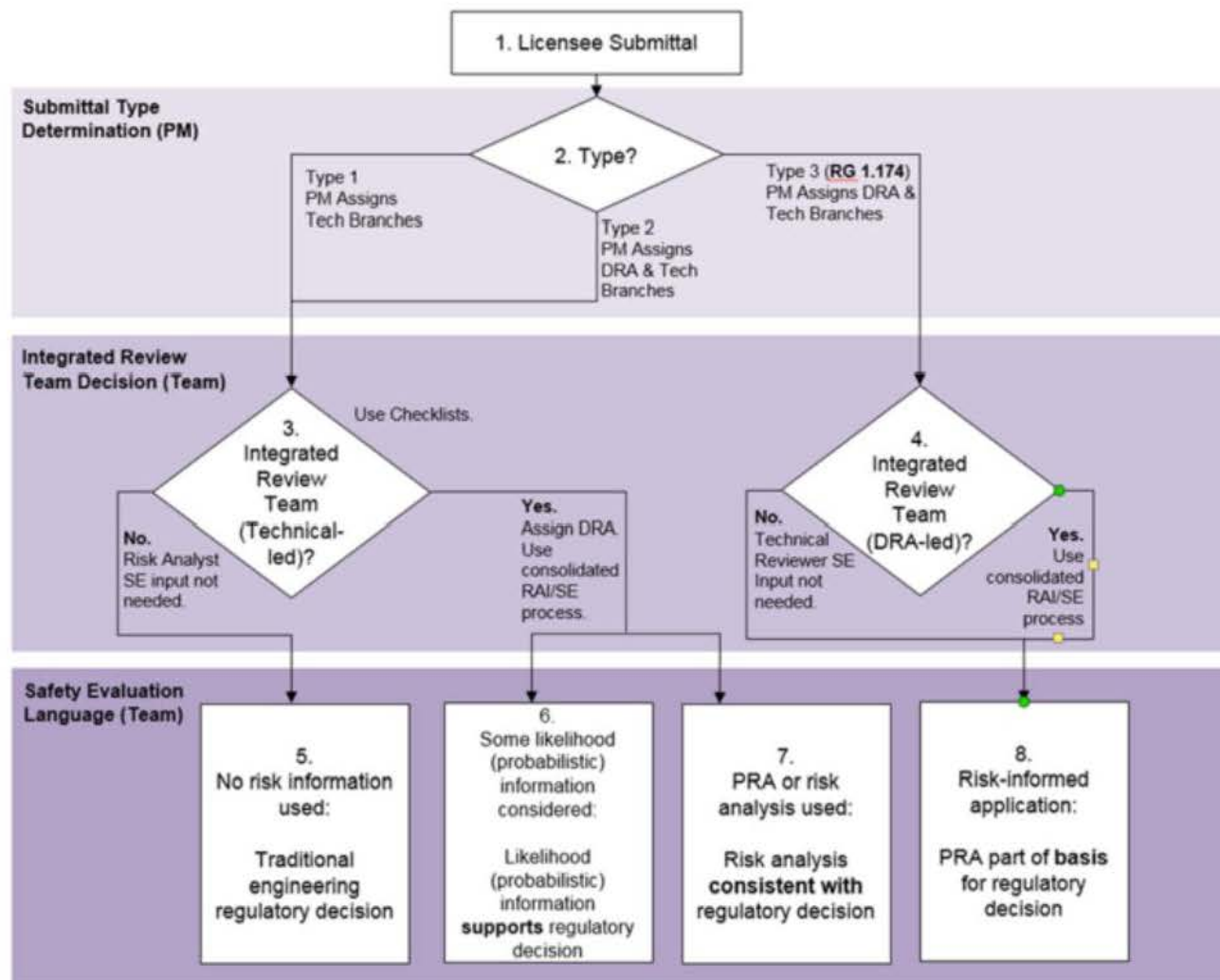
Risk-Informed Decision Making (RIDM): Action Plan

Mike Franovich, Director
Division of Risk Assessment

An Action Plan is Being Implemented to Improve Risk-Informed Decisionmaking



The Action Plan Supports Increased Use of Integrated Reviews and Safety and Risk Insights



Strategies to Optimize Regulatory Activities

- Broaden efforts to promote RIDM practices
Increase FLEX regulatory credit correlate
future plant modifications with FLEX to reduce
other hazards risk (e.g., internal fires &
floods) showcase FLEX capabilities when NRC
conducts onsite audits - increase reviewers,
inspectors, and managers awareness Focus
communications and coordination Conduct
joint NRC-Industry workshops on lessons
learned from 50.69 and TSTF-505 reviews
Improve coordination and accuracy of
forecasted LAR submittals Sequence risk
related LARs: Consider submitting TSTF-505 prior
to 50.69 or lower tier LARs / TSTF-505 program

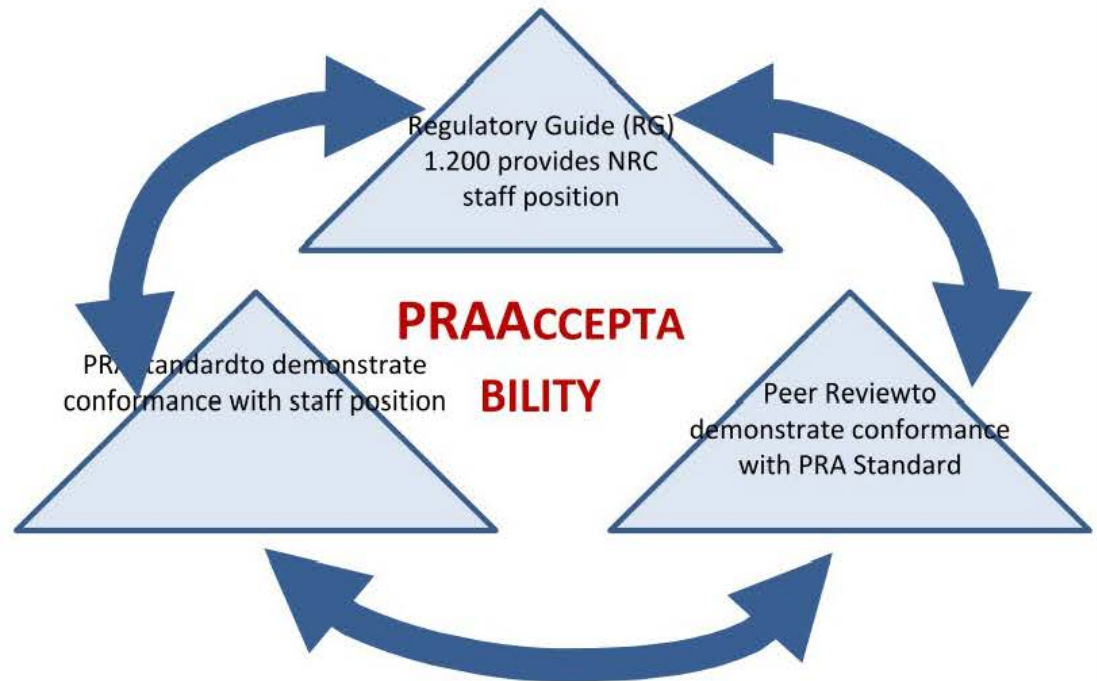


New Methods

Sunil WeerakkodySr. Technical
Advisor Division of Risk Assessment

PRA Acceptability – 3 Elements

- All 3 elements have to work together to demonstrate PRA acceptability



New Methods Are a Current Focus Area for NRC and Industry

- Ongoing focus on industry peer-review and the F&O closure process ASME/ANS PRA Standard updates RG 1.200 update NEI 17-07
A risk-informed oversight process will complement licensing activities and possibly new methods



Crediting Mitigating Strategies in Regulatory Applications

Mike Montecalvo Acting, Branch
Chief Division of Risk Assessment

Crediting Diverse and Flexible Coping Strategies (FLEX)

- FLEX developed to meet the Commission's Orders after the Fukushima accident
FLEX can also be utilized for:
Outages
Defense-in-Depth
The NRC wants to encourage safety enhancements
Addressing ongoing challenges

Challenges to Crediting FLEX

- **No Operational Experience (OpE)**
data Needed to develop, and support,
equipment reliability used in risk
assessments Prior OpE collection effort by
EPRI abandoned Owner's Groups have taken
lead Have committed to sharing draft and
final results HRA methods for unique FLEX
actions Current HRA methods not adequate
for all FLEX actions Ongoing work in NRR and
RES to address this challenge RES held an
expert elicitation in April 2018 EPRI Workshop
in February 2018

FLEX OpE data expectations

- Commission's PRA policy statement states: "PRA evaluations in support of regulatory decisions should be as realistic as practicable and appropriate supporting data should be publicly available for review." The data needs to be of comparable resolution to what the NRC publishes on its public website. Failures, Number of attempts (or hours), and number of components. The data does not need to identify individual plants, consistent with our current approach. The data should be of sufficient resolution to verify that any

Path Forward on FLEX OpE data

- Owner's Group EffortDraft report Fall 2018Publish report (1st quarter 2019)NRC is looking forward to reviewing the reportPossible Public MeetingDiscuss the NRC's review of the reportDiscuss how RES will integrate this information into the current processNRC staff is looking forward to engaging the owner's groups on the FLEX OpE data.

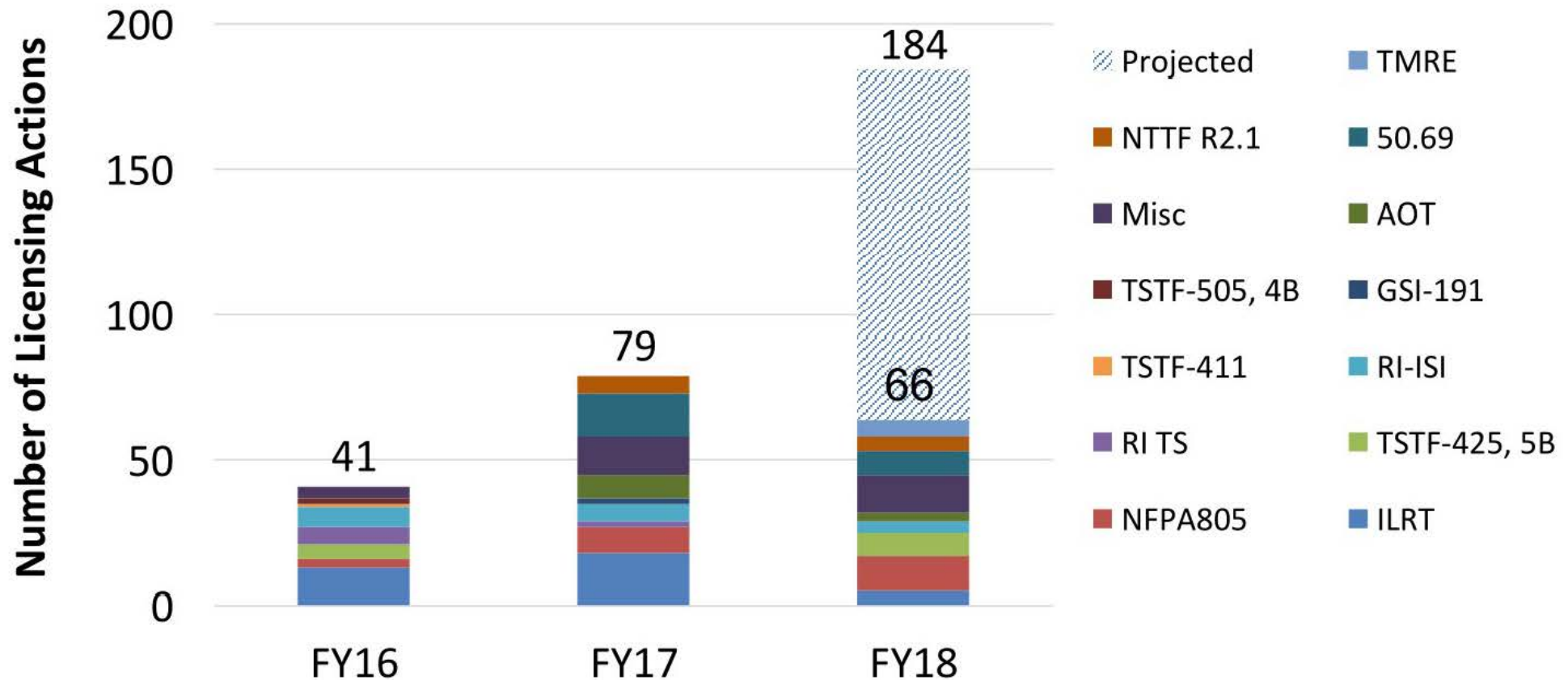


Lessons Learned: Recent Risk-Informed LAR Reviews

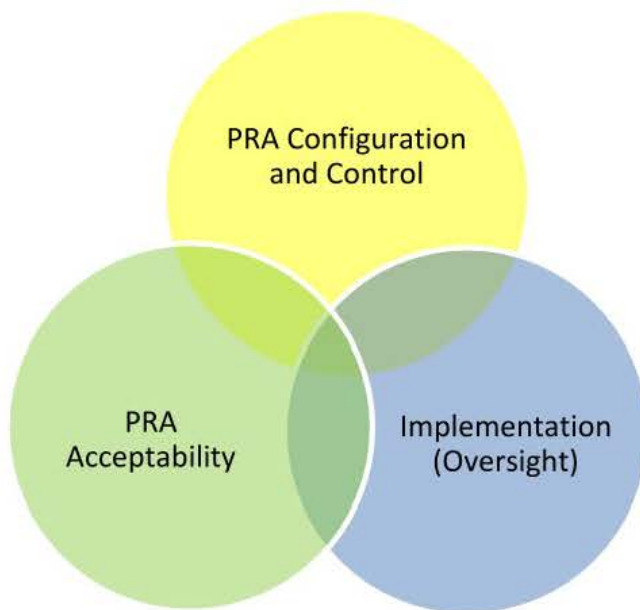
Adrienne Brown Reliability and Risk
Analyst Division of Risk Assessment

Influx of Risk-Informed Applications Requires Increased Coordination and Planning Between NRC and Industry

Risk-Informed Licensing Actions Received from FY16-FY18



High Quality Submittals to Streamline Efficient Staff Reviews



- PRA QualityUp-to-date full-scope PRA peer reviewsCrediting Appendix X, consistent with staff letter of acceptanceIncorporations of precedent from previous SEsDisposition of open F&O applicable to risk-application

50.69: Risk Informed Categorization of Structures, Systems, and Components

- LAR review scope: NRC staff reviews the quality of the PRA models used in the categorization process NRC approves categorization process NRC does not review categorization results, procedures, or alternative treatment during LAR review. These are subject to inspection
16 applications for 50.69 received 6 in early stages of review; 3 withdrawn One SE has been issued, several reviews approaching completion

Insights from Initial 50.69 Reviews

- Deviations from endorsed guidanceCategorization of passive SSCsPublic meetings preferred to discuss generic industry topics/deviations prior to LAR submittalPublic meetings to resolve generic topics related to seismic or fire (sites without seismic analysis or fire PRA)Some LARs require more review hours due to scope of PRA (e.g., seismic, high winds) NRC review resources are challenged due to the large volume of applicationsLicense Condition for approval specifying modeled PRA hazards and non-PRA methods

Tornado Missile Risk Evaluator (TMRE)

- Three pilot plant LARs using TMRE draft guide (NEI 17-02 draft Rev. 1) Plant audits and RAls generated to pilots Pilot plant RAI responses also updating NEI 17-02 Staff positioned to complete safety evaluations (SEs) following receipt of licensee responses Post-pilot amendments could model pilot SEs in advance of NEI 17-02 endorsement Staff prepared to receive approximately 12 amendments in FY19 13 of 13 EGM 15-002 extension requests dispositioned between January and June

TSTF-505: Risk-Informed Technical Specification Completion Times

- BackgroundTSTF-505 suspended (November 2016) Vogtle's License Amendment for RICT issued (August 2017)Vogtle was the "pilot" for changes needed to unsuspend TSTF-505NRC staff modified TSTF-505 and the model application/SENo RICT for loss of functionEnables licensing efforts to advance forwardLicense Condition for use of new methodsSeptember/October target for revised TSTF model application and safety evaluation report

Acronyms

- ANS: American Nuclear Society
ASME: The American Society of Mechanical Engineers
CDF: Core Damage Frequency
CFR: Code of Federal Regulations
DRA: Division of Risk Assessment
EGM: Enforcement Guidance Memorandum
FLEX: Diverse and Flexible Coping Strategies
F&O: Fact/Finding and Observation
FY: Fiscal Year
HRA: Human Reliability Analysis
LAR: License Amendment Request
LERF: Large Early Release Frequency
NEI: Nuclear Energy Institute
NFPA: National Fire Protection Association
NOED: Notice of Enforcement Discretion
NTTF: Near Term Task Force
PM: Project Manager
PRA: Probabilistic Risk Assessment
RG: Regulatory Guide
RI: Risk-Informed
RICT: Risk-Informed Completion Time
RIDM: Risk-Informed Decision-Making
RISC: Risk-Informed Steering Committee
RITS: Risk-Informed Technical Specifications
ROP: Reactor Oversight Process
SDP: Significance Determination Process
SE: Safety Evaluation
SFCP: Surveillance Frequency Control Program
SR: Surveillance Requirement
SSC: Structure, System, or Component
TMRE: Tornado Missile Risk Evaluator
TS: Technical Specification
TSTF: Technical Specification Task Force

From: [Kozak, Laura](#)
To: [Garmoe, Alex](#); [Aird, David](#); [Mitman, Jeffrey](#)
Subject: RE: Clinton preliminary White finding
Date: Friday, October 26, 2018 8:37:09 AM

Great. I like the idea of changing the metric. I hope we have no problem meeting the 255 days ☺

If at any time you would like to talk about what it actually takes to meet the 90 days, I'd be happy to have that conversation.

From: Garmoe, Alex
Sent: Friday, October 26, 2018 7:34 AM
To: Aird, David <David.Aird@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: Clinton preliminary White finding

Thanks Laura. By my calculation, 255 days would be January 27, 2019, so we appear to be well on track to meeting that. As you probably recall from some of our conversations, we're pushing to change our metrics and reporting to focus on 255 days and not as much on 120 days or 90 days. This may be as good an example as any in support of that, because it provides flexibility for handling each case while not sacrificing our overall timeliness goal of arriving at a final answer. Some of the reporting/metric changes can be done more simply, like revising IMC 0307 Appendix A, but others require working with Congress and will be more challenging.

From: Aird, David
Sent: Friday, October 26, 2018 6:12 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: RE: Clinton preliminary White finding

Laura,

Thanks for providing this. It is very useful not only for this finding, but also for giving me some perspective on the process.

Dave

From: Kozak, Laura
Sent: Thursday, October 25, 2018 4:53 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: Clinton preliminary White finding

FYI. In anticipating the need to explain the timing of the finding, RIII has developed the attached timeline of events.

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.
07/26/2018	Planning SERP held to discuss actions and coordination needs
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.
10/15/2018	Issued "Choice" letter to the licensee
11/21/2018	90 Day ROP clock expires
11/30/2018	Scheduled Regulatory Conference with licensee in Region III

Zoulis, Antonios

From: Zoulis, Antonios
Sent: Wednesday, September 26, 2018 11:43 AM
To: Freeman, Scott
Cc: Mitman, Jeffrey
Subject: RE: Shutdown PRA

Yes.

From: Freeman, Scott
Sent: Wednesday, September 26, 2018 11:42 AM
To: Zoulis, Antonios <Antonios.Zoulis@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: Shutdown PRA

Thanks Antonios,

I saw this passage myself. Did we calculate and subtract our a base case for the Clinton issue?

Scott

From: Zoulis, Antonios
Sent: Wednesday, September 26, 2018 11:35 AM
To: Freeman, Scott <Scott.Freeman@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Shutdown PRA

Scott,

In the RASP Manual Volume 4 I found the following:

Testing and maintenance during forced and planned outages. *If the scenario is during a forced outage, the test and maintenance (T/M) unavailabilities may be nominal (as modeled in the at-power model). However, if the scenario is during a planned outage, plant procedures or administrative controls may preclude scheduled test and maintenance on key equipment trains (such as emergency diesel generators); on the other hand, random failures may occur and lead to unscheduled maintenance.*

In some SD scenarios, multiple trains of the same system may be out of service due to scheduled maintenance. This may not be allowed during power operation. These aspects of shutdown conditions should be considered on a case by case basis and, if necessary, should be used to justify modifying the T/M unavailabilities for the case.

For a plant condition analysis, identify the following:

- POS (or multiple POSs) involved;
(Identify only the minimum number of POSs and initiating events necessary for the issue, since most likely, new ETs need to be constructed.)
- Time spent in each in each POS;
- **Failed components/unavailable components** (if any);
- Operator actions that may need to be adjusted;
- Time since the plant was last shutdown;

- *Whether the condition is during a forced outage or a planned outage; and*
- *If PWR and mid-loop operations are involved, the number of times the mid-loop state is entered.*

Also, I want to clarify what I said on the phone. For some condition analyses, we may subtract out the base case. However, there are some scenarios where the base case is so small, it does not impact the results and we would not include it. In addition, for an event assessment, we do not subtract out a base case.

Please let me know if this helps and if you have any other questions.

Antonios

Zoulis, Antonios

From: Zoulis, Antonios
Sent: Wednesday, November 28, 2018 1:21 PM
To: Casey, Lauren
Subject: Re: Clinton

Ching Ng is also listening in...

On: 28 November 2018 10:50,
"Casey, Lauren" <Lauren.Casey@nrc.gov> wrote:

That's fine. We reserved the OE conference room so if there aren't too many people attending they can come there.

Region III wants to know who will be participating so if you can let me know then I can pass that info to them.

Thanks!

From: Zoulis, Antonios
Sent: Wednesday, November 28, 2018 7:41 AM
To: Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: Re: Clinton

CJ, Jeff Mitman, and Mike Franovich are attending in person. We will setup a conference room and have any folks attend via one conference line.

Does that sound ok?

On: 28 November 2018 05:28,
"Casey, Lauren" <Lauren.Casey@nrc.gov> wrote:

Hi Antonios,

Region III will not be having a VTC for the Clinton Reg conference and they have set up a limited number of bridge lines for the NRC. Who plans to attend from DRA?

Thanks,

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

Zoulis, Antonios

From: Zoulis, Antonios
Sent: Friday, October 12, 2018 8:34 AM
To: Casey, Lauren
Cc: Mitman, Jeffrey; Fong, CJ
Subject: RE: CONCURRENCE: Clinton Inspection Report (EA-18-104)

Lauren,

CJ is in training today. He is ok with Mike looking at the letter. Can you make sure he gets a copy or should I just forward this to him?

Antonios

From: Casey, Lauren
Sent: Friday, October 12, 2018 5:23 AM
To: Fong, CJ <CJ.Fong@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Zoulis, Antonios <Antonios.Zoulis@nrc.gov>
Subject: CONCURRENCE: Clinton Inspection Report (EA-18-104)

Good morning,

Attached is the Clinton inspection report for your review and concurrence.

Region III listed Mike Franovich in the concurrence block, but at the panel I believe CJ stated he wanted to be on concurrence. CJ/Antonios, if you want me to have Region III replace Mike with you, please let me know.

Region III is requesting a quick turnaround. Please do your best to provide me with you or Mike's comments/concurrence as soon as possible.

Thank you,

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

From: Lambert, Kenneth
Sent: Thursday, October 11, 2018 5:33 PM
To: Peralta, Juan <Juan.Peralta@nrc.gov>; Marshfield, Mark <Mark.Marshfield@nrc.gov>
Cc: Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: FW: Clinton Inspection Report

Attached is the Clinton preliminary white letter for HQ review and concurrence. We are looking for a quick turnaround to enable us to meet the NRR metric.

Ken

Ken Lambert

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

From: Wilk, Brenda
Sent: Thursday, October 11, 2018 3:32 PM
To: Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Clinton Inspection Report

Hi Ken,

Please see attached Clinton's White Finding. If there are any changes that need to be made on the document please highlight them or whomever from HQ reviewing the document highlight the changes so I can incorporate into the report.

Thank you,

Brenda

Zoulis, Antonios

From: Zoulis, Antonios
Sent: Friday, October 12, 2018 6:18 PM
To: Casey, Lauren
Subject: Fwd: CONCURRENCE: Clinton Inspection Report (EA-18-104)

From: "Franovich, Mike" <Mike.Franovich@nrc.gov>
Subject: RE: CONCURRENCE: Clinton Inspection Report (EA-18-104)
Date: 12 October 2018 18:07
To: "Zoulis, Antonios" <Antonios.Zoulis@nrc.gov>
Cc: "Weaver, Tonna" <Tonna.Weaver@nrc.gov>

I concur.

From: Zoulis, Antonios
Sent: Friday, October 12, 2018 9:06 AM
To: Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Weaver, Tonna <Tonna.Weaver@nrc.gov>
Subject: FW: CONCURRENCE: Clinton Inspection Report (EA-18-104)

Mike,

Please see attached Clinton letter related to the shutdown issue. Your review and concurrence is appreciated.

Antonios

From: Casey, Lauren
Sent: Friday, October 12, 2018 5:23 AM
To: Fong, CJ <CJ.Fong@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Zoulis, Antonios <Antonios.Zoulis@nrc.gov>
Subject: CONCURRENCE: Clinton Inspection Report (EA-18-104)

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Thank you,

Lauren R. Casey
NRR Enforcement Coordinator

From: Lambert, Kenneth
Sent: Thursday, October 11, 2018 5:33 PM
To: Peralta, Juan <Juan.Peralta@nrc.gov>; Marshfield, Mark <Mark.Marshfield@nrc.gov>
Cc: Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: FW: Clinton Inspection Report

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Ken

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

From: Wilk, Brenda
Sent: Thursday, October 11, 2018 3:32 PM
To: Lambert, Kenneth <Kenneth.Lambert@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Clinton Inspection Report

Hi Ken,

Please see attached Clinton's White Finding. If there are any changes that need to be made on the document please highlight them or whomever from HQ reviewing the document highlight the changes so I can incorporate into the report.

Thank you,

Brenda

From: [Helton, Donald](#)
To: [Bowman, Gregory](#)
Cc: [Garmoe, Alex](#); [Casey, Lauren](#)
Subject: Clinton EDG IFRB/SERP
Date: Thursday, July 19, 2018 1:23:00 PM

Greg,

Just for general awareness, there was an IFRB this morning in R3 on the Clinton EDG issues that led to the June SIT. I believe the Planning SERP (it is a shutdown issue and the DRE will be performed by NRR/DRA) is tentatively planned for July 26th, but I haven't seen an actual scheduler. No action for us yet, this was just a courtesy heads up from the SRA...

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: [Montecalvo, Michael](#)
Subject: RE: App M FBF
Date: Friday, July 20, 2018 8:50:00 AM

Gotcha. It'll be beneficial for Jeff to have a knowledgeable cohort, even if you are more accustomed to the rods coming in from the top, and only after the initiating event... Besides, Clinton's a Mark III, so it's an outlier design even from BWR folks' perspective...

From: Montecalvo, Michael
Sent: Friday, July 20, 2018 8:27 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: App M FBF

I'm basically just assisting Jeff in the DRE, wherever I can help to get more exposure to SD and BWR issues. This is for my professional development more than anything else.

From: Helton, Donald
Sent: Friday, July 20, 2018 8:10 AM
To: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>
Subject: RE: App M FBF

Thanks. I'll consider that sufficient outreach on the FBF at this point.

What's your role going to be with the Clinton issue? I do plan on calling in to the planning SERP next week...

From: Montecalvo, Michael
Sent: Friday, July 20, 2018 8:08 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: App M FBF

Don,
I left a message for her saying that the new revision was out and that we attempted to answer her FBF and to give me a call if she wanted to discuss it further.

I had to log off of the ROP meeting for a bit to do the IFRB for Clinton, so I missed that part but I think that is good news!
Mike

From: Helton, Donald
Sent: Thursday, July 19, 2018 2:51 PM
To: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>
Subject: App M FBF

Did you ever reach out to Heather Gepford on the App. M FBF, or should I keep that as an open item? If you did, any read on her level of satisfaction?

Separately, I was pretty surprised by the lack of any questioning on App. M at this morning's ROP Monthly... More fodder for tamping down on the level of angst amongst particular Commission offices I guess/hope...

- - - - -

Don Helton
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From: [Helton, Donald](#)
To: [Mitman, Jeffrey](#); [Casey, Lauren](#)
Cc: [Montecalvo, Michael](#); [Marshfield, Mark](#)
Subject: RE: Clinton EDG Pre-Brief for Planning SERP
Date: Wednesday, July 25, 2018 7:45:05 AM

Jeff,

DIRS management now has the scheduler for the DRA pre-brief (I think Lauren forwarded it). Chances are they won't attend. Greg and I talked about this last week and concluded that it probably isn't necessary for us, and we've already prepped them on the basics of the situations.... But it is a good sensitivity to have, as we do try to combine the DRA/DIRS prep for SERPs as a general rule.

Thanks,
Don

From: Mitman, Jeffrey
Sent: Tuesday, July 24, 2018 4:56 PM
To: Casey, Lauren <Lauren.Casey@nrc.gov>
Cc: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>; Marshfield, Mark <Mark.Marshfield@nrc.gov>
Subject: Clinton EDG Pre-Brief for Planning SERP

Lauren, as you are aware we have a planning SERP planned for Thursday. In preparation for it, I'll be conducting a pre-briefing with DRA management Wednesday at 2:30. I don't know who should be invited and I'm reluctant to send a blanket invitation to all the usual suspects. A copy of the calendar reminder for the pre-briefing is attached, please send to the appropriate people.

I recognize that tardiness of this notification but it slipped through the cracks. My apologies.

Thanks for the help.

Jeff Mitman

From: [Bowman, Gregory](#)
To: [King, Michael](#)
Cc: [Casey, Lauren](#); [Helton, Donald](#); [Miller, Mark](#)
Subject: RE: Clinton Planning SERP pre-brief
Date: Wednesday, July 25, 2018 8:00:45 AM

I don't know, probably because we're the owners of the whole process, although I had a similar question when I first saw the invitation. I'd be happy to cover it for you, but I have a merger meeting the conflicts. The merger meetings gets canceled fairly routinely and if that turns out to be the case, I'll plan on attending. If not, we'd probably be safe sending Lauren or Don to represent DIRS if you don't think DD-level participation is needed.

Greg

From: King, Michael
Sent: Wednesday, July 25, 2018 7:55 AM
To: Bowman, Gregory <Gregory.Bowman@nrc.gov>; Miller, Mark <Mark.Miller@nrc.gov>
Cc: Casey, Lauren <Lauren.Casey@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: Clinton Planning SERP pre-brief

Thanks Greg. Why are DIRS Directors even invited to planning SERP?

From: Bowman, Gregory
Sent: Wednesday, July 25, 2018 7:37 AM
To: Miller, Mark <Mark.Miller@nrc.gov>; King, Michael <Michael.King2@nrc.gov>
Cc: Casey, Lauren <Lauren.Casey@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: Clinton Planning SERP pre-brief

We just got a scheduler for a pre-brief for tomorrow's Clinton planning SERP. I think you both might be double booked for the pre-brief and I think skipping that would perfectly fine. For the purposes of tomorrow's planning SERP, Don passed along some advice/words of wisdom (attached). Bottom line – DIRS's role should really just be to reinforce the importance of timely completion of the SDP.

Greg

-----Original Appointment-----

From: Montecalvo, Michael
Sent: Wednesday, July 25, 2018 5:22 AM
To: Montecalvo, Michael; Franovich, Mike; Felts, Russell; Fong, CJ; Mitman, Jeffrey
Cc: Marshfield, Mark; Casey, Lauren; King, Michael; Miller, Mark; NRR_DIRC_CAL Resource; Bowman, Gregory
Subject: FW: Clinton Planning SERP pre-brief
When: Wednesday, July 25, 2018 2:30 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: OWFN/ 10 H01

-----Original Appointment-----

From: Montecalvo, Michael

Sent: Friday, July 20, 2018 10:55 AM

To: Montecalvo, Michael; Franovich, Mike; Felts, Russell; Fong, CJ; Mitman, Jeffrey

Cc: Marshfield, Mark; Casey, Lauren

Subject: Clinton Planning SERP pre-brief

When: Wednesday, July 25, 2018 2:30 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: OWFN/ 10 H01

Presentation to follow.

From: [Helton, Donald](#)
To: [Bowman, Gregory](#)
Subject: RE: Clinton Planning SERP
Date: Thursday, July 26, 2018 11:25:04 AM

But he did dial in late, so if you were thinking of sending the notes to him and Mike, it wouldn't be odd to do so...

From: Helton, Donald
Sent: Thursday, July 26, 2018 11:23 AM
To: Bowman, Gregory <Gregory.Bowman@nrc.gov>
Subject: RE: Clinton Planning SERP

Mark was there (via phone)... I think you just glossed over that when you read the email...

From: Bowman, Gregory
Sent: Thursday, July 26, 2018 11:20 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: Re: Clinton Planning SERP

No DIRS managers in attendance?

On: 26 July 2018 10:52,
"Helton, Donald" <Donald.Helton@nrc.gov> wrote:

Greg / Alex:

My notes from the Clinton Planning SERP are provided below if interested. Once Alex and I are both back in the office after August 6th, I'll work with Alex and Laura to better understand and capture the conflicting metrics/clocks situation that is expected to manifest. I'll also monitor progress toward an August 29th re-group...

Don

Clinton Planning SERP –

Numerous parties from Region 3...

Russ Felts representing DRA (Jeff M. and Ching also in attendance)

Mark Miller representing DIRS (Lauren and Don also in attendance)

No concerns/questions about the status of the inspection/PD/etc.

Overview of path forward:

- Region 3 (as always) retains responsibility for SDP but HQ (DRA) has lead for DRE
- Leverage GGNS shutdown SDP infrastructure, but utilize plant-specific situation for Clinton

- August 29th – complete DRE
- September 13th – SERP
- If Green outcome, stop and document
- Will re-exit in next couple of weeks; this results in a re-set of some of the clocks
 - Jeff/Russ would appreciate that being reflected in the schedule given its tight and he has other responsibilities
 - R-3 management wants to stick to the original schedule if at all possible, but recognizes the importance of not doing a rushed evaluation
 - The known issue of there being multiple clocks/metrics in play (that aren't necessarily in sync) comes up here
- Jeff and Laura will be in routine communication and are aware of the importance of efficiency

From: [Helton, Donald](#)
To: [Bowman, Gregory](#)
Subject: Helton - WAH - 7.26.18
Date: Thursday, July 26, 2018 11:39:44 AM

4 hours – A11018 – Clinton Planning SERP, review/comment on DRA FLEX in RIDM “Rules of Engagement”, minor items on 0609A/B/H, etc.

I’m on for the remainder of the day, as previously planned.
(b)(6)

From: [Helton, Donald](#)
To: [Gibbs, Russell](#)
Cc: [Garmoe, Alex](#)
Subject: RE: Updates to the SDP Tracker
Date: Friday, August 10, 2018 9:58:00 AM

Russ,

Alex retained responsibility for the SDP Tracker, given its close tie to IFRM, which he also retained responsibility for. My understanding is that regional maintenance of the tracker continues to be a challenge, despite repeated attempts to engender ownership, and my infrequent accessing of it supports this notion. I believe that Alex is continuing to take opportunities to reinforce the need for support here, and to ponder how this might interface with the broader discussion on IMC 0307A metrics. Most recently we've been mulling this over in the context of an ongoing Clinton SDP.

Don

From: Gibbs, Russell
Sent: Friday, August 10, 2018 9:48 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: FW: Updates to the SDP Tracker

Is this working or are we still having to update the tracker?

From: Gibbs, Russell
Sent: Friday, September 15, 2017 2:26 PM
To: Hipschman, Thomas <Thomas.Hipschman@nrc.gov>; Hay, Michael <Michael.Hay@nrc.gov>; DeFrancisco, Anne <Anne.DeFrancisco@nrc.gov>; Stone, AnnMarie <AnnMarie.Stone@nrc.gov>; Rodriguez, Reinaldo <Reinaldo.Rodriguez@nrc.gov>
Cc: Ferdas, Marc <Marc.Ferdas@nrc.gov>; Bickett, Brice <Brice.Bickett@nrc.gov>; Skokowski, Richard <Richard.Skokowski@nrc.gov>; Kramer, John <John.Kramer@nrc.gov>; Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Sparks, Scott <Scott.Sparks@nrc.gov>
Subject: Updates to the SDP Tracker

Hi All,

During the TSBC meeting this week, you all agreed to update the 2016 data in the spreadsheet – both GTG's and those finalized as Green – thank you. Refer to the historical tab for both calendar and fiscal 206 updates. Suggest you check for accuracy as well since recent attempts on data verification have not included the 2016 data.

<http://fusion.nrc.gov/nrr/team/dirs/ipab/sdp/default.aspx>

Recall from our discussions that the 120-day metric starts with issue identification date and ends with the final exit – even for region based inspections. This may change after the pilot, if needed.

Please complete by the end of September, if possible.

Russell Gibbs

Senior Reactor Operations Engineer

U.S. Nuclear Regulatory Commission

Office Phone: (301) 415-8578

Email: russell.gibbs@nrc.gov

From: [Helton, Donald](#)
To: [Bowman, Gregory](#)
Subject: Helton - WAH - 8.17.18
Date: Friday, August 17, 2018 3:54:52 PM

1 hour – KF0059 – working on remarks for 8.21 presentation at NASA on space launch policy (this is a thread of the NASA involvement that NRC management determined is not fee-billable, because it supports OSTP rather than NASA – thus, the different TAC)

1 hour – ZG0106 – Computer security awareness training

1 hour – KF0068 – L3PRA logic model report reviews

4.25 hours – A11018 – responding to questions from Frank about DDCM presentation content, emails regarding Clinton and Fermi SDPs; call from R-3 SRA; bi-weekly BC call and follow-ups, etc.

0.75 hours - (b)(6)

From: [Helton, Donald](#)
To: [Kozak, Laura](#)
Subject: RE: Flex reliability data
Date: Friday, August 17, 2018 11:56:11 AM

Well... they get an A for honesty... but jeepers that perfectly illustrates one of the points being made in the DDCM slides, and resonates with some of what Frank has been seeing in R-1... Thanks for sharing...

From: Kozak, Laura
Sent: Friday, August 17, 2018 11:35 AM
To: Arner, Frank <Frank.Arner@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Hanna, John <John.Hanna@nrc.gov>
Subject: Flex reliability data

All

Thought you might be interested in FLEX reliability data that we requested from Clinton since we are modeling FLEX in an SDP. See attached.

Also note that Clinton put FLEX equipment in the maintenance rule (Good!). Yet it was difficult for the licensee to produce this information – it took a number of weeks. So not sure how the MR is actually working for FLEX.

Laura

From: [Groom, Jeremy](#)
To: [Helton, Donald](#)
Cc: [Bowman, Gregory](#); [Miller, Chris](#); [King, Michael](#)
Subject: RE: Clinton Pre-Brief Follow-up
Date: Thursday, September 13, 2018 3:18:31 PM

Thanks Don, very thorough response. I'm fairly certain that a reg conference will be requested (too much delta between HRA for recovery), and when that happens, it will result in a tight response window (<2 weeks) between a reg conference and final significance letter. That's pretty much how these things go, the different steps in the process almost automatically take you to 90 but I definitely agree that it's in our best interests to not over-noodle content/wording to help shave time.

From: Helton, Donald
Sent: Thursday, September 13, 2018 2:59 PM
To: Groom, Jeremy <Jeremy.Groom@nrc.gov>; Bowman, Gregory <Gregory.Bowman@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>
Subject: RE: Clinton Pre-Brief Follow-up

Jeremy,

The Region has been good about informally keeping us engaged, but hasn't been populating the SDP Tracker. So here are unofficial dates, to be confirmed/informed when we see the SERP package...

- Event/Condition Report Date: 5/17/2018
- SIT Exit: 6/29/2018
- Re-exit: 8/3/2018
- SIT Inspection Report Date: 8/23/2018 (start of 90-day SDP clock)
 - Tentative SERP Date: 9/20/2018
 - Notional Choice Letter Date: 10/2/2018 (start of 40 day clock for Reg Conference)
 - Notional Reg Conference Date: 11/9/2018
 - Notional Final Determination Letter Date: **11/23/2018** (day after Thanksgiving)
- (Unofficial) SDP 90-day clock: 11/21/2018

In regard to how effectively we can shave days off the parts of this process that have flexibility (which relates to how much attention the content/wording in the letters will get), it is worth noting that Clinton is in Column 2 and appealed (unsuccessfully) a White finding earlier this year.

Hope that helps,
Don

From: Groom, Jeremy
Sent: Thursday, September 13, 2018 2:35 PM
To: Helton, Donald <Donald.Helton@nrc.gov>; Bowman, Gregory <Gregory.Bowman@nrc.gov>;

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

Cc: Aird, David <David.Aird@nrc.gov>; Miller, Chris <Chris.Miller@nrc.gov>

Subject: RE: Clinton Pre-Brief Follow-up

Got it, thanks for the follow-up Don. Just so I am clear, what is the start/discovery date for this issue?

Jeremy

From: Helton, Donald

Sent: Thursday, September 13, 2018 1:09 PM

To: Bowman, Gregory <Gregory.Bowman@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>;

Groom, Jeremy <Jeremy.Groom@nrc.gov>

Cc: Aird, David <David.Aird@nrc.gov>

Subject: Clinton Pre-Brief Follow-up

Greg/Alex/Jeremy:

Regarding the Clinton SERP pre-brief this AM, and as you know, the conclusion was to go ahead with the SERP on 9/20. I'm following up with 2 additional related points of interest, just to ensure we're all on the same page:

1. The R3 staff involved (e.g., Laura Kozak) are briefing the R3 management this afternoon on this issue, at which point the Region will have its own position about having the SERP on 9/20 versus 9/27. (Recall that while the DRE is HQ-led, the SERP package still belongs to the Region.)
2. Assuming the Region does agree to have the SERP on 9/20, the SERP package would be due COB today. That means that the sensitivity analysis would be TBD in the package, with the expectation that it would be completed for discussion at the SERP (and for the subsequent preliminary determination letter).

Item #2 above, SDP timeliness, and how much digestion of the most recently-provided licensee information is warranted are likely to be key factors in the Region's decision on Item #1 above.

Again, just FYIs to ensure we're operating on the same understanding.

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: [Gibbs, Russell](#)
Cc: [Garmoe, Alex](#); [Aird, David](#)
Subject: RE: Bi-weekly SDP Highlights
Date: Friday, September 14, 2018 3:27:00 PM

Russ – your bi-weekly dose of SDP goings-on...

- SDPs:
 - Clinton EDG SDP – SERP on 9/20; preliminary White
 - Fermi RHR SW SDP ongoing; SERP in September-ish (if needed)
 - Peach Bottom (2 issues) still at regional level – we'll hear more on Monday
- 0609:
 - Appendix H is out for internal comment
 - Appendix I/M – both went public (draft) today ahead of the 9/20 ROP Monthly
 - Appendix O – last internal outreach today about sun-setting, ahead of saying this at the 9/20 ROP Monthly
 - TI-193/venting – memo in concurrence to clarify some points in using existing 0609 guidance

I think you know the rest, thanks to having been around the last 2 weeks...

From: Helton, Donald
Sent: Friday, August 31, 2018 4:42 PM
To: Gibbs, Russell <Russell.Gibbs@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>; Aird, David <David.Aird@nrc.gov>
Subject: RE: Bi-weekly SDP Highlights

Russ – It's been 2 weeks, so here goes...

David – I just send Russ a quick hit list every 2 weeks to keep him aware of SDP activities, given his stints in Japan and his focus on ROP transformation when back at NRC...I'm just cc'ing you for awareness...

- SDPs:
 - Clinton EDG SDP ongoing; SERP in September
 - Fermi RHR SW SDP ongoing; SERP in September
 - Peach Bottom (2 issues) still at regional level
- 0609:
 - Appendix I – Dave Muller is out unexpectedly (I don't know the backstory) and Brian Tindell has taken over; goal is to incorporate internal comments and get it out for external availability in the next week or two
 - Appendix M – we got more comments than expected (most notably from Region 3), so we tweaked the schedule a bit and it should go out for external availability in a week or two
- DDCM presentation on FLEX (given by Frank) apparently went okay; still some folks who

think that FLEX findings are inherently Green, but no takeaways/re-directs

- Discussion of 0609 FBF status (think red DIRS metric) with Chris/Mike went fine...no takeaways/re-directs
- CTA brief on AP1000 ROP/SDP SECY paper went fine...no takeaways/re-directs, and now hopefully the paper will get signed out...

From: [Helton, Donald](#)
To: [Kozak, Laura](#)
Subject: RE: Voice Message From: NUCLEAR REGULAT, 6308299604
Date: Thursday, September 20, 2018 4:59:00 PM

I just got back to my desk and need to head out soon. If it is okay with you, we can talk about the Clinton SERP tomorrow when we talk about the Fermi SDP...?

From: NUCLEAR REGULAT [mailto:tel=6308299604@officelinx.nrc.gov]
Sent: Thursday, September 20, 2018 4:49 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: Voice Message From: NUCLEAR REGULAT, 6308299604

From: [Helton, Donald](#)
To: [Groom, Jeremy](#)
Cc: [Casey, Lauren](#); [Garmoe, Alex](#); [Aird, David](#); [Bowman, Gregory](#); [Miller, Chris](#); [Merzke, Daniel](#)
Subject: Clinton SERP Outcome
Date: Friday, September 21, 2018 8:25:54 AM

Hi Jeremy,

I just wanted to relay the remainder of the Clinton SERP after you had to depart. Nothing unexpected occur; I'm just closing the loop.

As you know while you were there, Jeff Mitman presented on the results of the detailed risk evaluation (DRE) analysis (White), including 10 sensitivity analyses that showed the influence of key assumptions (Green – Yellow). There was discussion about various aspects of the analysis, much of which focused on the aspects that would influence the degree of recovery credit (e.g., stress, procedure paths, time available). The SERP members voted to approve both the violation, and the development of a Choice letter to the licensee documenting a Preliminary White finding.

Not much unique occurred after your departure. Mike Franovich asked additional questions about the assumptions on time available, and stated some concern that this is an area where the licensee would likely focus efforts on attempting to undermine the detailed risk evaluation assumptions. Region 3 (and Jeff) countered that they felt they had heard, and considered, all of the various arguments that the licensee would make. Separately, there was some discussion about how Region 3 managers would communicate with the licensee around the time of the Choice letter issuance, and Laura Kozak's outreach to communicate some late-breaking changes (earlier this week, and that didn't overly affect the delta risk) in the DRE to the licensee PRA staff. Laura and Jeff will be working on the Choice letter in the coming week, and OE and DRA (but not DIRS) will be on concurrence.

Let me know if you have any questions,
Don

From: [Helton, Donald](#)
To: [Bowman, Gregory](#)
Subject: Helton - WAH - 9.21.18
Date: Friday, September 21, 2018 3:17:33 PM

4.25 hours - A11018 – Clinton SERP follow-ups; ROP Monthly follow-ups; Fermi SDP; leading indicators slides; Appendix I schedule; etc.

1.25 hours - ZG0000 – appraisal input; DRA onboarding items

0.75 hours - KF0063 – calling in to ANS 58.24 WG call

1.75 hours - (b)(6)

From: [Helton, Donald](#)
To: [Fong, CJ](#)
Subject: RE: choice letter
Date: Tuesday, September 25, 2018 8:44:00 AM

Roger that.

From: Fong, CJ
Sent: Tuesday, September 25, 2018 8:40 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: choice letter

Sounds good. For the record, I think Mike supports the SERP outcome but wants the wording in the choice letter to reflect his perspective...I can elaborate when we talk face-to-face.

From: Helton, Donald
Sent: Tuesday, September 25, 2018 8:35 AM
To: Fong, CJ <CJ.Fong@nrc.gov>
Subject: Re: choice letter

Suggest we plan on discussing this at tomorrow afternoons meeting, as Mike's degree of support for the SERP outcome seems to be a question mark/concern for R3.

On: 25 September 2018 08:06,
"Fong, CJ" <CJ.Fong@nrc.gov> wrote:

I see. Come by and chat when you get a minute. Mike wants "a preview" of what the letter will look like. I want to talk to you (Jeff) about how to best accomplish that.

Thanks,
CJ

From: Mitman, Jeffrey
Sent: Monday, September 24, 2018 4:28 PM
To: Fong, CJ <CJ.Fong@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: choice letter

In this case, which is not the norm, I've been requested to assist Laura in drafting the technical portion of the choice letter. To my knowledge, this is the first time APHB's help has been so requested.

Jeff Mitman

From: Fong, CJ
Sent: Monday, September 24, 2018 4:00 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: choice letter

Understood. I didn't realize that. I suppose this is something that I need to get smarter about. Jeff, is this something where the region does the heavy lifting or are very involved in the actual drafting of the choice letter?

Thanks,
CJ

From: Helton, Donald
Sent: Monday, September 24, 2018 12:40 PM
To: Fong, CJ <CJ.Fong@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: choice letter

CJ,

My understanding from the SERP is that DRA and OE would be on concurrence for the Choice letter, and DIRS would not. So I will definitely keep Mike's request in mind, but I don't anticipate DIRS being as in-the-loop as you all will be...

Don

From: Fong, CJ
Sent: Monday, September 24, 2018 12:09 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: choice letter

Don / Jeff:

Mike F told me this morning that he would like to see a draft copy of the Clinton Choice Letter as soon as one is ready. Would you please ensure that we meet that request?

Thanks,

CJ Fong, P.E.

Chief, PRA Operations and Human Factors Branch (APHB)
Division of Risk Assessment
Office of Nuclear Reactor Regulation

(301) 415-8474

From: [Helton, Donald](#)
To: [Dennis, Suzanne](#)
Subject: RE: DAEC - Clarification of Scenario 1
Date: Tuesday, September 25, 2018 3:52:00 PM

OK. Thanks. I'll let you know once I do about my availability on Friday morning...

From: Dennis, Suzanne
Sent: Tuesday, September 25, 2018 3:49 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: DAEC - Clarification of Scenario 1

Not a problem at all.

At this point, (and given that I think Friday is INL's Friday off), I think we'll wait to include Bob. Depending on your availability though, if we need to move it to a couple of weeks, I'll reach out to him.

Thanks again,

Suzanne

-----Original Appointment-----

From: Helton, Donald
Sent: Tuesday, September 25, 2018 1:47 PM
To: Dennis, Suzanne; Campbell, Shawn
Subject: Tentative: DAEC - Clarification of Scenario 1
When: Friday, September 28, 2018 8:30 AM-9:30 AM (UTC-07:00) Mountain Time (US & Canada).
Where: HQ-OWFN-12B06-12p or Phone

Suzanne,

I'm accepting this as tentative, because I'm waiting on a call to get scheduled with a licensee (more on that below). Consider involving Bob Buell in the call too, as I think Bob and I may be more constructive if we can mind-meld, acknowledging that my accepting this as tentative makes it hard for you to lock in Bob.

Regarding the call with the licensee, as the "small world" works, it is a call with Fermi on the SDP that the 3 of us talked about back in August. That SDP came back to the front burner just this week, as a lull of sorts appeared on a Clinton SDP that was taking precedence. Laura and I chatted yesterday about whether to bring you/Shawn back in to the loop for this call. We ultimately decided it wasn't in anyone's best interest to spin you guys back up yet, because we think that Friday's call may resolve the remaining concerns and make any further support moot. However, if we turn out to be wrong about that, we'll reach back out...

Sorry for the non-committal response on Friday's call with you, and for the non-committal engagement on the Fermi support; regrettably both are in flux... Give me a call if you want to chat...

Thanks,

Don

From: [Helton, Donald](#)
To: [Kozak, Laura](#)
Subject: RE: Risk Communications - Clinton Prelim White
Date: Tuesday, September 25, 2018 4:21:00 PM
Attachments: [image001.png](#)

Thanks. Appreciate you keeping us in the loop. Yours and Pat's conversations with Alex (and probably others) have effectively stirred up discussion both in DIRS and DRA, but I've not seen any tangible outcome from that dialogue (or been directly involved)... I have a DIRS branch meeting, a DRA branch meeting, and a DIRS/DRA general SDP coordination meeting tomorrow, so I may have a clearer picture afterwards...

From: Kozak, Laura
Sent: Tuesday, September 25, 2018 3:28 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>; Zoulis, Antonios <Antonios.Zoulis@nrc.gov>
Subject: FW: Risk Communications - Clinton Prelim White

FYI – a communications tool that we are using to discuss GTG findings.

From: Lara, Julio
Sent: Tuesday, September 25, 2018 2:23 PM
To: DRSIII <DRSIII@nrc.gov>; DRPIII <DRPIII@nrc.gov>
Cc: Kunowski, Michael <Michael.Kunowski@nrc.gov>; Giessner, John <John.Giessner@nrc.gov>; Lipa, Christine <Christine.Lipa@nrc.gov>
Subject: FW: Risk Communications - Clinton Prelim White

FYI

From: Lara, Julio
Sent: Tuesday, September 25, 2018 2:22 PM
To: West, Steven <Steven.West@nrc.gov>; Roberts, Darrell <Darrell.Roberts@nrc.gov>; Loudon, Patrick <Patrick.Louden@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Heck, Jared <Jared.Heck@nrc.gov>; O'Brien, Kenneth <Kenneth.O'Brien@nrc.gov>
Subject: Risk Communications - Clinton Prelim White

All,

As I briefly mentioned this morning, we are proceeding with a Preliminary White finding associated with a Clinton finding - both EDGs were concurrently inoperable.

Earlier today, Pat notified Site VP (Ted Stoner) of the SERP decision to proceed with Prelim White and associated Choice letter.

In the last couple of years, the SRAs and branches have developed a communications tool to help us all better understand and effectively communicate risk perspectives associated

with potentially Greater-than-Green findings. The attached Risk Communication tool provides a summary of the finding, including risk perspectives, and licensee points of view on the significance. The document may also be helpful in internal briefings.

This is an internal-use-only document which is based upon the information contained in the SERP package.

In a continuing effort to enhance our collective risk informed thinking, I will also be forwarding the 1-pager to DRS/DRP/DNMS technical staff.

Thanks
Julio

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



From: [Kozak, Laura](#)
To: [Mitman, Jeffrey](#); [Aird, David](#); [Garmoe, Alex](#); [Helton, Donald](#)
Subject: Clinton choice letter
Date: Thursday, October 11, 2018 4:43:36 PM

FYI.

The Clinton preliminary determination letter is now in concurrence. It is currently with our enforcement staff to coordinate with HQ (Lauren Casey) to obtain HQ concurrence – OE and DRA are on concurrence.

If you can facilitate timely concurrence that would be much appreciated, as you know we are already in jeopardy with the 90 day SDP clock.

Laura

From: [Aird, David](#)
To: [Helton, Donald](#); [Kozak, Laura](#); [Garmoe, Alex](#)
Cc: [Phillips, Charles](#)
Subject: RE: Clinton Coordination
Date: Thursday, October 11, 2018 7:22:17 AM

Laura,

Paralleling Don's information, about 18 months ago in the ASP Program, we went away from publishing all (top 99%) of the cut sets in our final public reports. We still included the relevant fault trees or event trees and just summarized the dominant sequences. If my memory is correct, we were just being on the safe side and worrying about the aggregate of information even though we had been publishing cut sets for years. John would have the perspective since he was instrumental in the change. See example ASP report below:

[View ADAMS Properties ML17249A968](#)

[Open ADAMS Document \(Final Accident Sequence Precursor Analysis - Columbia Generation Station, Offsite Load Reject Causes Automatic Scram with Subsequent Operators Errors Resulting in a Loss of Condenser Heat Sink \(LER 397-2016-004\) - Precursor.\)](#)

This document is publicly available at https://www.nrc.gov/docs/ML1724/ML17249A968.pdf

-Dave

From: Helton, Donald
Sent: Wednesday, October 10, 2018 7:47 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>
Subject: Re: Clinton Coordination

We have published small numbers of event trees and sequence information in NUREGs (e.g. 2187). It has been a judgment call as to whether the information can be used to construct a perspective on plant vulnerabilities (target sets), versus being too focused to develop that type of risk-profile-wide perspective.

Sorry my absence is untimely, but I don't think I'd have been much help anyway. John Nakoski would be the right POC in RES, if you want that perspective.

Don

On: 10 October 2018 17:01,
"Kozak, Laura" <Laura.Kozak@nrc.gov> wrote:

Here is the link to the RES RASP tool box link discussing the SUNSI assessment of SPAR models

<http://drupal.nrc.gov/sites/default/files/SUNSIAssessmentofSAPHIREandSPARModels.pdf>

From: Garmoe, Alex

Sent: Wednesday, October 10, 2018 4:47 PM

To: Kozak, Laura <Laura.Kozak@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>

Cc: Aird, David <David.Aird@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>

Subject: RE: Clinton Coordination

We'll do a bit of checking and get back with you. Have other regions been consistent in treating such information as OUO or has it gone both ways?

From: Kozak, Laura

Sent: Wednesday, October 10, 2018 4:38 PM

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

Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>

Subject: RE: Clinton Coordination

Alex, David

One question that you can help with –

We are including in the choice letter more risk information that we usually do – cut-sets, screenshots of the event tree and fault trees. Does the report then need to be treated as OUO – SUNSI? My read of the guidance is no, but I know other regions have handled it this way.

Thanks

Laura

From: Helton, Donald

Sent: Tuesday, October 09, 2018 3:10 PM

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

Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>; Aird, David <David.Aird@nrc.gov>

Subject: Clinton Coordination

Laura,

I assume the intent is still to get the Clinton Choice letter in to concurrence this week. DIRS previously indicated (at the SERP) that we don't need to be on concurrence.

I'll be out for the remainder of the week, so if there is anything we can do to facilitate the process, please feel free to reach out to Alex or David directly. They are both generally familiar with the status of the SDP...

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: [Aird, David](#)
Subject: RE: Clinton preliminary White finding
Date: Friday, October 26, 2018 8:36:00 AM

Thanks for sharing!

From: Aird, David
Sent: Friday, October 26, 2018 6:15 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: FW: Clinton preliminary White finding

FYI only.

This timeline is very useful. Gives me some perspective and some ideas.

From: Kozak, Laura
Sent: Thursday, October 25, 2018 4:53 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: Clinton preliminary White finding

FYI. In anticipating the need to explain the timing of the finding, RIII has developed the attached timeline of events.

From: [Helton, Donald](#)
To: [NRREnforcement Resource](#)
Subject: Tentative: FW: Clinton Reg Conference (EA-18-104) *OFFICIAL USE ONLY--PRE-DECISIONAL ENFORCEMENT
INFORMATION/ SECURITY INFORMATION*
Start: Friday, November 30, 2018 2:00:00 PM
End: Friday, November 30, 2018 5:00:00 PM
Location: O14B41

From: [Mitman, Jeffrey](#)
To: [Helton, Donald](#)
Subject: RE: Clinton Gothic Analysis
Date: Monday, December 03, 2018 5:02:13 PM

I'm using a plant Clinton specific fee billable CAC (000502/05000461/I-2018-092-0000). As this is a Region III controlled CAC, I'm not sure what the approval process is.

Jeff Mitman

From: Helton, Donald
Sent: Monday, December 03, 2018 5:00 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: Clinton Gothic Analysis

We're not using a plant-specific CAC for this?

From: Mitman, Jeffrey
Sent: Monday, December 03, 2018 4:39 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Cc: Robinson, Jay <Jay.Robinson@nrc.gov>
Subject: RE: Clinton Gothic Analysis

A11017

Jeff Mitman

From: Helton, Donald
Sent: Monday, December 03, 2018 4:26 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: Clinton Gothic Analysis

Can you send me the CAC for this SDP...(or just direct Jay to include me on its usage)...?

Thanks.

From: Helton, Donald
Sent: Monday, December 03, 2018 12:59 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton Gothic Analysis

Got it. As we discussed, I'll take the '1 hour look' later this week and get you any knee-jerks I have by COB Friday.

From: Mitman, Jeffrey

Sent: Monday, December 03, 2018 11:59 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Clinton Gothic Analysis

Don, as we discussed, attached is the Clinton Gothic analysis for shutdown. Exelon performed the analysis.

Just a reminder, Clinton is a BWR 6 with a Mark III containment.

The elevations/levels referenced in the calculation appear to be from mean sea level. In any case:

Vessel top invert: 813.31 feet
Bottom of main steam lines (MSL) nozzle: 796.2 feet
TAF: 773.88 feet
Core plate: 760 feet
Vessel bottom invert: 744.35 feet

The gothic model has no representation of the RPV shroud.

Likewise the "drain paths" modeled are from the below core region (Volume 2 in the write ups terminology). The drain paths 3, 4, 5 & 6 are from RHR suction relief valves. In reality the RHR system takes suction from somewhat higher up in the vessel, i.e., above 760' and outside the shroud. These are obvious simplifications in the model but I don't know if they are significant.

Control volumes 7 and 8 are to atmospheric conditions. In reality the RHR relief valves would discharge to equipment drain sumps near the RHR pumps in the aux building. This is modeled as control volume 7.

While control volume 8 would be the suppression pool. As we discussed, the MSL exit the RPV turn downward and turn horizontal before exiting the containment. The SRVs are below MSL nozzles.

I'm looking for your opinion about whether the model is reasonable. From my perspective, if it is off by 10% that is okay.

Thanks for your insights.

Jeff Mitman

General:

- What are the containment conditions (temperature/pressure) late in these extended scenarios? How does this compare to the design temperature/pressure? (The information provided is focused solely on the RPV response, which might be okay given the low decay heat and generally bottled-up condition.)
- Note that the SRVs are being credited to cycle many times. A failure to reclose of an SRV would potentially result in greater inventory loss and earlier time to TAF. This is true for pressure/automatic SRV response in Case 5b/5c/6. It is true for manual SRV operation in Case 6a.

Pg. 1:

- Decay heat at 14 days, after refueling – the fact that the condition occurred after refueling makes a huge difference in the timing
- “It was after refueling had been completed and the RPV head was back on.” – Were all head bolts tensioned?
- “Control volumes #7 and #8 are atmosphere control volumes used for flows discharged through the drain path and vent path, respectively.” – Is over-pressurization of RadWaste modeled/relevant?

Pg. 3:

- As pointed out by Jeff, the drain path is taken from CV2 (bottom of RPV), whereas it would actually be off of RHR. This seems okay.
- Jeff believes the SRVs are modeled to be at the elevation of the RPV head. This is unclear to me, but I don’t think it makes a big difference either way, given the modeling.

Pg. 6:

- “External thermal conductor #3 is used to thermally connect the liquid in control volume #1 to the liquid in control volume #2.” – It seems odd to me to model it in this way, as opposed to letting the momentum and energy equations model buoyantly-driven flow. That said, it would seem to drive results in a conservative direction.

Pg. 7:

- Calculating a drain path equivalent diameter and flow resistance based solely on the initial estimated leakage rate seems a little suspect, if the transient results in significantly elevated pressures. That said, this is only relevant to the cases where operators fail to isolate the drain path.
- Is the potential failure to isolate the drain and vent paths considered in the risk analysis, either quantitatively or qualitatively? This seems to be a bigger issue than the precision of the GOTHIC calculations.

Pg. 8:

- The RHR relief valve flow rates seem remarkably low (relative to my PWR experience), and the loss coefficients seem accordingly too high. As above, this is only relevant if operator action to isolate fails.

Pg. 11

- All RPV head vent paths are assumed closed manually when RPV water temperature exceeds 200F. Again, is failure to isolate addressed in the risk analysis?

Pg. 14:

- The writeup is not clear on specifically how non-condensables were handled following heatup (Key Assumption #1), which could have a notable effect on pressurization rate. Vapor pressures prior to boiling are (e.g.,) 100F different between CV 3 and CV 1 prior to boiling. It is hard to say whether their assumption is reasonable without the details, and relates to the question above about SRV cycling.
- Is the 11 hour battery coping time for Division II consistent with the remainder of the PRA modeling? Again, the relevance relates to the cycling of SRVs. (Note that they assume SRVs continue to operate at Low-Low-Set setpoints even after battery depletion, in an effort to be conservative.)

From: [Helton, Donald](#)
To: [Helton, Donald](#)
Cc: [Fong, C.J](#)
Subject: Helton - WAH - 12.4.18
Date: Tuesday, December 04, 2018 6:33:06 AM

0.75 hours – CAC TBD – sanity check look at Clinton GOTHIC calculation at Jeff M.'s request

From: [Fong, CJ](#)
To: [Helton, Donald](#)
Cc: [Mitman, Jeffrey](#)
Subject: RE: Clinton SDP time accounting
Date: Tuesday, December 04, 2018 11:22:26 AM

Hi, Don. Please use the fee-billable CAC.
Thanks,
CJ

From: Helton, Donald
Sent: Tuesday, December 04, 2018 8:25 AM
To: Fong, CJ <CJ.Fong@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Clinton SDP time accounting

CJ,

As you are aware, I'm taking a quick sanity-check look at the Clinton GOTHIC analysis. Jeff asked for the 1-hour answer, but the size of the calculation note (60 pages) is going to require a 2-3 hour look (which I'm about halfway through now).

I've had Jay add the fee-billable SDP-specific CAC to my profile, but can you confirm whether you envision me using that, versus our generic CAC. I had the impression that we were charging direct effort to the fee-billable CAC now (based on past DIRS direction), but I could be mistaken, or there could be a degree of judgment involved in that decision... I'm good with whatever answer is consistent with our current way of doing business...

Thx,
Don

Don Helton
Senior Reliability & Risk Analyst
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
301-415-1545

From: [Helton, Donald](#)
To: [Mitman, Jeffrey](#)
Subject: RE: Clinton Gothic Analysis
Date: Tuesday, December 04, 2018 3:36:00 PM

Jeff,

I've skimmed the GOTHIC analysis. I don't have any major heartburn about what they've done. In light of how this is used in relation to the uncertainties in the HRA and the accident sequence formulation, and in light of the fortune (on their part) that this happened mid-outage and after refueling (low decay heat), it seems reasonable. There are a few aspects that I'd like to discuss with you (and Laura, if you like) when you get a chance, just to make sure we are on the same page. These are:

1. I note your initial identification that the drain path and the SRV take-off points are not faithfully modeled, elevation-wise. I don't see that as making a big difference here. Similarly, the way they've modeled heat exchange between CV 1 and CV 2 seems very odd to me (thermal connector versus letting buoyantly-driven flow determine the mass and heat exchange), but it does appear to bias the results in a conservative manner.
2. There doesn't seem to be any consideration of containment heatup and pressurization. It is probably not an issue for these accident sequences (b/c of the low decay heat), but I always get skiddish when folks run 24-hour long calculations without SPC, with no look at what containment conditions are.
3. The SRVs are credited for being manually cycled and/or for cycling automatically many times, without consideration of a valve failing to reclose. Failure to reclose would exacerbate inventory loss, and accelerate uncover. Compounding this is that the writeup is not clear on how non-condensables are treated (pg. 14), which would directly affect pressurization. There is also the related matter of crediting Division II batteries for 11 hours, and you may have insight in to the reasonableness of that.
4. Were head bolts tensioned during the exposure time?
5. Is failure to isolate the drain path, the head vent paths, and the RHR vent paths considered, as these have a big impact on time to TAF?
 - o If isolation fails, is it important that an induced LOCA would occur in the connected systems (e.g., RadWaste)?
 - o If isolation fails, the way they have calculated the drain path equivalent diameter and loss coefficient, and separately the RHR vent valve flow rates, seems somewhat suspect.

I've got decent availability over the coming days (except tomorrow of course), so let me know what works for you... I think a half-hour would be plenty...

Don

From: Mitman, Jeffrey
Sent: Monday, December 03, 2018 5:02 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Subject: RE: Clinton Gothic Analysis

I'm using a plant Clinton specific fee billable CAC (000502/05000461/I-2018-092-0000). As this is a Region III controlled CAC, I'm not sure what the approval process is.

Jeff Mitman

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Sent: Monday, December 03, 2018 5:00 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: Clinton Gothic Analysis

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From: Mitman, Jeffrey
Sent: Monday, December 03, 2018 4:39 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Cc: Robinson, Jay <Jay.Robinson@nrc.gov>
Subject: RE: Clinton Gothic Analysis

A11017

Jeff Mitman

From: Helton, Donald
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To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: Clinton Gothic Analysis

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Thanks.

From: Helton, Donald
Sent: Monday, December 03, 2018 12:59 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton Gothic Analysis

Got it. As we discussed, I'll take the '1 hour look' later this week and get you any knee-jerks I have by COB Friday.

From: Mitman, Jeffrey
Sent: Monday, December 03, 2018 11:59 AM
To: Helton, Donald <Donald.Helton@nrc.gov>
Cc: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: Clinton Gothic Analysis

Don, as we discussed, attached is the Clinton Gothic analysis for shutdown. Exelon performed the analysis.

Just a reminder, Clinton is a BWR 6 with a Mark III containment.

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Vessel top invert: 813.31 feet

Bottom of main steam lines (MSL) nozzle: 796.2 feet

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Likewise the "drain paths" modeled are from the below core region (Volume 2 in the write ups terminology). The drain paths 3, 4, 5 & 6 are from RHR suction relief valves. In reality the RHR system takes suction from somewhat higher up in the vessel, i.e., above 760' and outside the shroud. These are obvious simplifications in the model but I don't know if they are significant.

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I'm looking for your opinion about whether the model is reasonable. From my perspective, if it is off by 10% that is okay.

Thanks for your insights.

Jeff Mitman

From: [Helton, Don](#)
To: [Sancaktar, Selim](#)
Cc: [Lane, John](#); [Gonzalez, Michelle](#); [Hunter, Christopher](#)
Subject: A few minor items
Date: Tuesday, March 26, 2019 7:32:00 PM

While I successfully resisted the urge to focus on organizational/editorial aspects, here are a few minor items I noticed for your consideration...

- Please ensure Appendix G is mentioned wherever the appendices are catalogued. I recall seeing a few places where its late inclusion caused it to be left out.
- For Appendix A, we should acknowledge that much of this came from work that DIRS did as part of their investigation in to the recent decrease in inspection findings, and that it is being documented separately in a forthcoming NRR/DIRS memo.
- FYI in case you get the comment from elsewhere, regarding footnote 7...the letter on the Clinton final SDP determination is imminent, and will change the data regarding the action matrix...but to my knowledge it hasn't been issued yet, so there is nothing you could do...
- Page 113 – type – “Saint Onofre” vs. “San Onofre”

Do as you see fit...

.....
Don Helton
Senior Reliability & Risk Analyst
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
301-415-1545

From: [Mitman, Jeffrey](#)
To: [Fong, CJ](#); [Franovich, Mike](#); [Felts, Russell](#)
Cc: [Kozak, Laura](#)
Subject: Clinton - Revised DRE Results - White
Date: Monday, January 28, 2019 10:47:14 AM

We have reviewed Exelon's material submitted after the Regulatory Conference and incorporated it into the SPAR model. The revised risk evaluation is a about a factor of two lower ($\sim 2E-6$) and still in the White range.

Areas that have been reviewed and/or revised:

- Recovery of the DG – necessitated restricting of the event tree to accommodate different plant response for whether in the SBO procedures or the ELAP/FLEX procedures
- Isolation of shutdown cooling – included three sets of cues to isolate SDC
- Pressure Control – incorporated cues to maintain pressure low or depressurize early in the sequences
- Division 3 Cross-tie – revisited the Division 3 to Division 2 crosstie credit
- Revisited most human error probabilities (HEPs) and added dependency analysis among HEPs

Laura and I are working to prepare material for the re-SERP. In addition, we are continuing to verify the model inputs to ensure result accuracy.

Jeff Mitman

From: [Aird, David](#)
To: [Bowman, Gregory](#)
Cc: [Garmoe, Alex](#)
Subject: Clinton Hours
Date: Tuesday, April 02, 2019 8:14:39 AM

Greg,

The Clinton final white was signed out yesterday and the licensee was notified of the decision. Laura inquired about the hours charged and I told her I would run the reports and get back to her. I am sure R3 management is curious as well.

Although anyone can run the reports in RPS and/or CACS, I will let you take a look at the numbers before I make them available for distribution.

Dave

From: [Helton, Donald](#)
To: [Bowman, Gregory](#)
Cc: [Casey, Lauren](#); [Garmoe, Alex](#)
Subject: Clinton Planning SERP
Date: Friday, July 20, 2018 8:05:46 AM

Greg,

I'll call in to the Planning SERP for Clinton on Thursday, and as we discussed, there isn't a need for any dedicated prep of Mark/Mike. However, consider using your routine management meeting early next week to tee up the following thoughts:

- R3 and DRA have made the call that performing an HQ-led DRE is appropriate, versus going to Appendix M. This seems reasonable.
- There is not a shutdown SPAR model for Clinton, but there is a shutdown SPAR model for GGNS (a similarly-designed BWR Mark III).
- DRA and R3 are closely coordinating, and are working toward a schedule that would support the SDP 90-day metric.
- DIRS' only role at this point is to re-inforce the importance of managing that schedule (i.e., avoiding scope creep and taking a pause midway through to confirm that a DRE is still the right path).

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: [Bowman, Gregory](#); [Garmoe, Alex](#)
Cc: [Casey, Lauren](#)
Subject: Clinton Planning SERP
Date: Thursday, July 26, 2018 10:52:36 AM

Greg / Alex:

My notes from the Clinton Planning SERP are provided below if interested. Once Alex and I are both back in the office after August 6th, I'll work with Alex and Laura to better understand and capture the conflicting metrics/clocks situation that is expected to manifest. I'll also monitor progress toward an August 29th re-group...

Don

Clinton Planning SERP –

Numerous parties from Region 3...

Russ Felts representing DRA (Jeff M. and Ching also in attendance)

Mark Miller representing DIRS (Lauren and Don also in attendance)

No concerns/questions about the status of the inspection/PD/etc.

Overview of path forward:

- Region 3 (as always) retains responsibility for SDP but HQ (DRA) has lead for DRE
- Leverage GGNS shutdown SDP infrastructure, but utilize plant-specific situation for Clinton
- August 29th – complete DRE
- September 13th – SERP
- If Green outcome, stop and document
- Will re-exit in next couple of weeks; this results in a re-set of some of the clocks
 - Jeff/Russ would appreciate that being reflected in the schedule given its tight and he has other responsibilities
 - R-3 management wants to stick to the original schedule if at all possible, but recognizes the importance of not doing a rushed evaluation
 - The known issue of there being multiple clocks/metrics in play (that aren't necessarily in sync) comes up here
- Jeff and Laura will be in routine communication and are aware of the importance of efficiency

From: [Aird, David](#)
To: [Bowman, Gregory](#)
Cc: [Garmoe, Alex](#)
Subject: Clinton Reg Conference Recap
Date: Monday, December 03, 2018 7:07:32 AM

Greg,

FYI only. The Clinton Regulatory Conference on Friday went from 2 to 6pm. Chris and Jeremy were both in attendance.

The licensee presented several arguments that, when accounted for (independently) in the SPAR model and PRA analysis, would result in a Green finding. These arguments focused on time to TAF, operator actions, and FLEX implementation. The licensee wanted to make it clear that they would not declare Extended Loss of AC Power (ELAP) at one hour, thereby giving them more time to recover the failed EDG. The licensee gave a conservative estimate of 1E-8. NRC estimate is a factor of 400 higher at 3.8E-6.

Laura Kozak and Jeff Mittman are assembling a list of questions and clarifications today to send to the licensee by tomorrow. The caucus/Final SERP is scheduled for Thursday, but that might have to be rescheduled given the dialogue that occurred last week.

Issue discovery: 5/17/18 (255 day clock expires 1/27/2019)

Special inspection report issued: 8/23/18 (90 day ROP clock started – expired on 11/21/18)

Let me know if you have any additional questions.

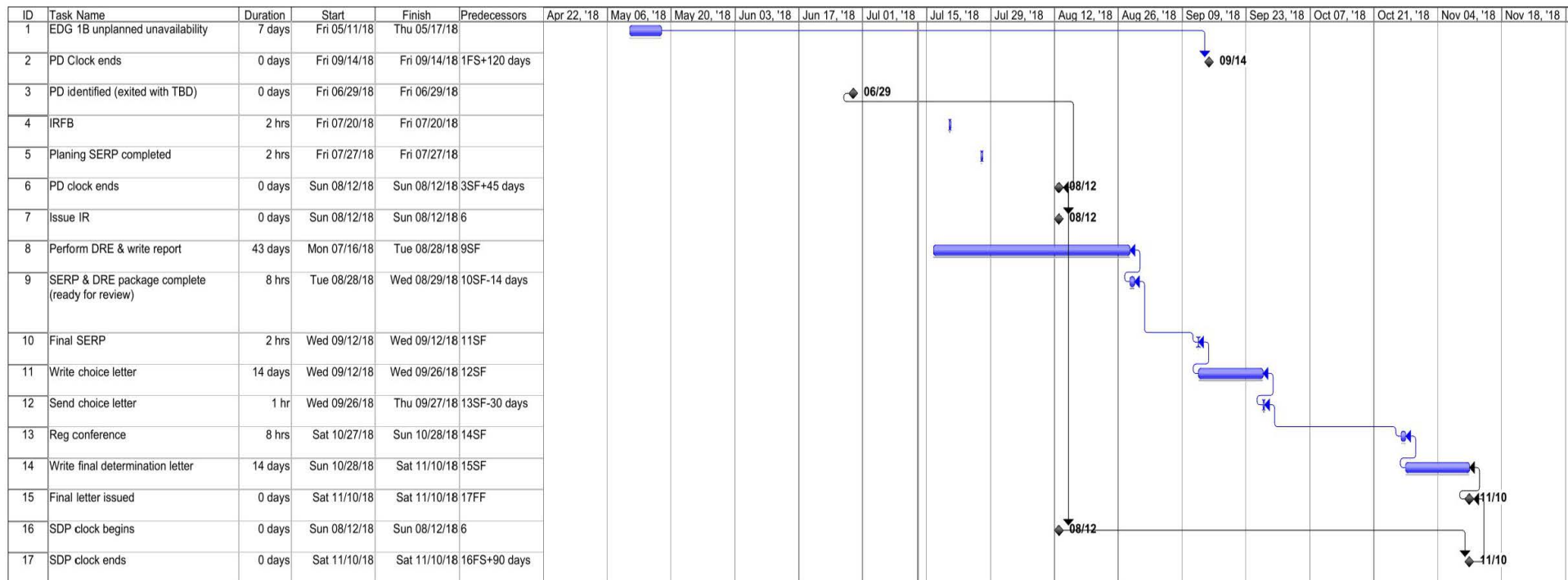
David Aird

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

Thu 07/19/18

Thu 07/19/18

ID	Task Name	Duration	% Complete	Start	Finish	May				June				July				August				September				October				November			
						04/29	05/06	05/13	05/20	05/27	06/03	06/10	06/17	06/24	07/01	07/08	07/15	07/22	07/29	08/05	08/12	08/19	08/26	09/02	09/09	09/16	09/23	09/30	10/07	10/14	10/21	10/28	11/04
1																																	
2	EDG 1B unplanned unavailability	7 days	100%	Fri 05/11/18	Thu 05/17/18																												
3	PD Clock ends	0 days	0%	Fri 09/14/18	Fri 09/14/18																												
4	PD identified (exited with TBD)	0 days	100%	Fri 06/29/18	Fri 06/29/18																												
5	IRFB	2 hrs	100%	Thu 07/19/18	Thu 07/19/18																												
6	Planing SERP completed	2 hrs	0%	Thu 07/26/18	Thu 07/26/18																												
7	PD clock ends	0 days	0%	Sun 08/12/18	Sun 08/12/18																												
8	SDP clock begins	0 days	0%	Sun 08/12/18	Sun 08/12/18																												
9	Issue IR	0 days	0%	Sun 08/12/18	Sun 08/12/18																												
10	Perform DRE & write report	43 days	2%	Wed 07/18/18	Wed 08/29/18																												
11	SERP & DRE package complete (ready for review)	0 hrs	2%	Wed 08/29/18	Wed 08/29/18																												
12	Initial SERP with HQ	2 hrs	0%	Thu 09/13/18	Thu 09/13/18																												
13	Write choice letter	13 days	0%	Thu 09/13/18	Wed 09/26/18																												
14	Send choice letter	1 hr	0%	Wed 09/26/18	Thu 09/27/18																												
15	Reg conference	8 hrs	0%	Sat 10/27/18	Sun 10/28/18																												
16	Write final determination letter	14 days	0%	Sun 10/28/18	Sat 11/10/18																												
17	Final letter issued	0 days	0%	Sat 11/10/18	Sat 11/10/18																												
18	SDP clock ends	0 days	0%	Sat 11/10/18	Sat 11/10/18																												



From: [Fong, CJ](#)
To: [Franovich, Mike](#)
Cc: [Felts, Russell](#)
Subject: RE: Clinton post reg conference SERP
Date: Thursday, December 20, 2018 1:45:29 PM

Mike,

Could you provide some additional direction here? So far, I've had a mostly hands-off approach with Jeff and Laura. Would you like me to direct Jeff to perform the sensitivity studies highlighted below? I've thought a lot about this and I could use some advice. I've considered giving them more time to see where their analysis goes but I'm also concerned that they will get bogged down by the 2000+ pages. I'm not afraid to admit that, as a new BC, I could use some guidance.

Respectfully,
CJ

From: Franovich, Mike
Sent: Wednesday, December 19, 2018 10:49 AM
To: Fong, CJ <CJ.Fong@nrc.gov>
Cc: Felts, Russell <Russell.Felts@nrc.gov>
Subject: Re: Clinton post reg conference SERP

Jeremy had a similar thought I had that a graded review on the areas that have the largest potential may expedite the review. Even if we don't fully agree with the licensee's perspectives, at the very least, partial credits are warranted. The sum of those partial credits (e.g., split fractions to weigh ELAP or no ELAP declaration; RHR isolation with extended battery life) I think could easily place the issue in the 1E-7 to 1E-6 range without a need for precise overall estimate of delta CDF.

The letter to Exelon and comm plan would help deflect some criticism that we are spending an inordinate amount of time on a low risk issue, especially if we exceed the CBJ metric. Would be good to know what is the date for the 255 day-mark.

Bottom-line, I can live with the proposed timeline.

From: Franovich, Mike
Sent: Wednesday, December 19, 2018 8:26:15 AM
To: Fong, CJ
Cc: Felts, Russell
Subject: Re: Clinton post reg conference SERP

See if we can improve on the ETA for a recommendation. I suggest that it be no later than January 24 for the post-conference SERP. The last week of January has major conflicts. We

have a two day workshop on 50.69 and TSTF505 which includes the regions and there may be a division directors counterparts meeting that week. Going into February I believe would be a non-starter for a number of reasons.

Note I indicated the 24th (Thursday) as opposed to the regularly scheduled Region III/OE Wednesday time slot that would fall on the 23rd. We have an aluminum HEAF meeting on the 23rd that has gotten high visibility/interest.

From: Fong, CJ
Sent: Tuesday, December 18, 2018 2:26:12 PM
To: Franovich, Mike
Cc: Felts, Russell
Subject: RE: Clinton post reg conference SERP

Hi, Mike. I just had a call with Jeff and Laura. The purpose of tomorrow's call will be to outline the path forward, not to make a final determination of the color.

Laura has prepared the attached one-pager, summarizing five areas where the licensee has provided new technical information that could influence the results. Despite the holidays and the 2000+ pages of info that were provided, Jeff estimates that they can complete their review and provide a recommendation to the SERP members by the end of January.

I'll be on the call as well.

Thanks,
CJ

From: Franovich, Mike
Sent: Tuesday, December 18, 2018 8:32 AM
To: Fong, CJ <CJ.Fong@nrc.gov>
Cc: Felts, Russell <Russell.Felts@nrc.gov>
Subject: Clinton post reg conference SERP

FYI... I will call into the meeting. My assumption is that this is a decision making meeting on the final outcome. But, it was not clear from the scheduler.

Are Jeff and Laura ready to provide their recommendation?

From: [Garmoe, Alex](#)
To: [McCarthy, Steve](#)
Cc: [Harris, Paula](#); [Mitchell, Recasha](#)
Subject: Meeting with Billy
Date: Thursday, March 21, 2019 11:10:00 AM

Steve,

I would like to schedule a meeting with Billy on Tuesday afternoon March 26. Attendees would be just the two of us and the subject is "Requesting Feedback on SERP Decision-Making and Clinton." Could you help identify a time that works for Billy?

Thanks,
Alex

From: [Garmoe, Alex](#)
To: [Helton, Donald](#); [Gibbs, Russell](#)
Cc: [Aird, David](#)
Subject: RE: Bi-weekly SDP Highlights
Date: Friday, September 14, 2018 3:59:54 PM

And just a couple items from my end...

- The results of the internal survey for possible changes to Appendix B can be found [here](#). They have 21 responses so far and are starting to move forward into assessing the feedback, even though a few more responses might come in.
- Alonzo has been out so no update on Appendix E updates for the moment
- Comment resolution is ongoing for IFRM procedure revisions. The internal comment period closed on 9/10.

From: Helton, Donald
Sent: Friday, September 14, 2018 3:27 PM
To: Gibbs, Russell <Russell.Gibbs@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>; Aird, David <David.Aird@nrc.gov>
Subject: RE: Bi-weekly SDP Highlights

Russ – your bi-weekly dose of SDP goings-on...

- SDPs:
 - Clinton EDG SDP – SERP on 9/20; preliminary White
 - Fermi RHR SW SDP ongoing; SERP in September-ish (if needed)
 - Peach Bottom (2 issues) still at regional level – we'll hear more on Monday
- 0609:
 - Appendix H is out for internal comment
 - Appendix I/M – both went public (draft) today ahead of the 9/20 ROP Monthly
 - Appendix O – last internal outreach today about sun-setting, ahead of saying this at the 9/20 ROP Monthly
 - TI-193/venting – memo in concurrence to clarify some points in using existing 0609 guidance

I think you know the rest, thanks to having been around the last 2 weeks...

From: Helton, Donald
Sent: Friday, August 31, 2018 4:42 PM
To: Gibbs, Russell <Russell.Gibbs@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>; Aird, David <David.Aird@nrc.gov>
Subject: RE: Bi-weekly SDP Highlights

Russ – It's been 2 weeks, so here goes...

David – I just send Russ a quick hit list every 2 weeks to keep him aware of SDP activities,

given his stints in Japan and his focus on ROP transformation when back at NRC...I'm just cc'ing you for awareness...

- SDPs:
 - Clinton EDG SDP ongoing; SERP in September
 - Fermi RHR SW SDP ongoing; SERP in September
 - Peach Bottom (2 issues) still at regional level
- 0609:
 - Appendix I – Dave Muller is out unexpectedly (I don't know the backstory) and Brian Tindell has taken over; goal is to incorporate internal comments and get it out for external availability in the next week or two
 - Appendix M – we got more comments than expected (most notably from Region 3), so we tweaked the schedule a bit and it should go out for external availability in a week or two
- DDCM presentation on FLEX (given by Frank) apparently went okay; still some folks who think that FLEX findings are inherently Green, but no takeaways/re-directs
- Discussion of 0609 FBF status (think red DIRS metric) with Chris/Mike went fine...no takeaways/re-directs
- CTA brief on AP1000 ROP/SDP SECY paper went fine...no takeaways/re-directs, and now hopefully the paper will get signed out...

From: [Garmoe, Alex](#)
To: [Bowman, Gregory](#)
Cc: [Aird, David](#)
Subject: RE: Clinton Reg Conference
Date: Monday, October 22, 2018 2:57:00 PM

Sounds good to me...just throwing it out there for consideration. I'll book flights and submit travel in the near future for the PRA conference.

From: Bowman, Gregory
Sent: Monday, October 22, 2018 2:56 PM
To: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>
Subject: RE: Clinton Reg Conference

Do we normally send someone to reg conferences? I guess we haven't had very many since we've been in DIRS, but I wouldn't think our participation would be necessary and so I'd stick with the current plan and have you both attend the PRA conference.

Greg

From: Garmoe, Alex
Sent: Monday, October 22, 2018 1:55 PM
To: Bowman, Gregory <Gregory.Bowman@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>
Subject: Clinton Reg Conference

Greg,

I talked to Laura Kozak a bit when I got in this morning and Exelon has formally requested a Reg Conference for the preliminary Clinton white finding. They are requesting the week of November 26, specifically targeting Friday, November 30. This is the same week as the PRA conference (Wednesday and Thursday morning). Would you prefer one of us support the Reg Conference rather than the PRA conference?

Thanks,
Alex

From: [Garmoe, Alex](#)
To: [Kozak, Laura](#)
Subject: RE: IMC 0609 Attachment 1 and Clinton
Date: Thursday, March 21, 2019 9:20:00 AM

I'm free all morning so whatever is convenient for you works for me. I'm in Region IV this week: 817-200-1454

From: Kozak, Laura
Sent: Thursday, March 21, 2019 8:16 AM
To: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: RE: IMC 0609 Attachment 1 and Clinton

Hi Alex

When is a good time to talk?

Laura

From: Garmoe, Alex
Sent: Tuesday, March 19, 2019 11:21 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: IMC 0609 Attachment 1 and Clinton

Laura,

When you have a bit of time, I'd be interested in hearing your thoughts/critiques on how the revised SERP decision-making guidance worked during the recent Clinton SERPs. As a refresher, the updated guidance included more information on what constitutes consensus decision-making and a revised process in the event a SERP fails to reach a consensus decision. I'd be happy to receive any feedback by e-mail or over the phone.

Thanks,
Alex

From: [Garmoe, Alex](#)
To: [Bowman, Gregory](#)
Subject: RE: IMC 0609 Feedback
Date: Tuesday, March 12, 2019 12:35:00 PM

I was thinking of requesting very specific feedback on the decision-making aspect...the new language on consensus, creating and sharing one-pagers, then re-SERPing, and only from the individuals involved in the SERP. Have not coordinated with Dave but will do so.

From: Bowman, Gregory
Sent: Monday, March 11, 2019 4:20 PM
To: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: RE: IMC 0609 Feedback

I think we need to tread very carefully in light of the nightmare we went through with Appendix M. I'd be okay with some questions specific to Clinton, but I would want to make sure Chris and Mike F. are aligned with them first and that they only go out to the people involved in Clinton (e.g., not a generic survey to all SRAs about ways to make the SDP better).

Overall, I think we might be better served by setting up some time with Chris and Mike F. to discuss an overall strategy for SDP improvements. Have you coordinated at all with Dave? Part of the discussion with them ought to discuss what his review of the data is finding (hours per finding or per year and that sort of thing).

Greg

From: Garmoe, Alex
Sent: Monday, March 11, 2019 4:13 PM
To: Bowman, Gregory <Gregory.Bowman@nrc.gov>
Subject: IMC 0609 Feedback

Greg,

I was thinking it might be a good idea to solicit feedback on the IMC 0609 SERP process changes from those that were involved in the Clinton issue while it's still fresh in their minds. I don't imagine we would make changes based on one experience, but getting timely feedback that we can reflect on once we have a couple more instances that we've worked through could help us identify whether the decision-making process changes are having their intended effect. If you agree, I can send out a request for feedback/thoughts once the final letter goes out.

Thanks,
Alex

From: [Garmoe, Alex](#)
To: [Lara, Julio](#)
Subject: SERP Decision-Making and Clinton
Date: Thursday, March 21, 2019 10:52:00 AM

Julio,

I hope all is well in the Chicago area. When you have a bit of time, I'd be interested in hearing your thoughts/critiques on how the revised SERP decision-making guidance worked during the recent Clinton SERPs. As a refresher, the updated guidance included more information on what constitutes consensus decision-making and a revised process in the event a SERP fails to reach a consensus decision. I'd be happy to receive any feedback by e-mail or over the phone.

Thank you,
Alex

From: [McDermott, Brian](#)
To: [Franovich, Mike](#)
Subject: Re: Heads-up: Clinton EDG SERP
Date: Thursday, February 14, 2019 7:55:20 PM

Thanks for filling us in. Tough issue, sounds to me like they have process blinders on.

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

From: "Franovich, Mike" <Mike.Franovich@nrc.gov>
Date: Thu, February 14, 2019 6:26 PM -0500
To: "Nieh, Ho" <Ho.Nieh@nrc.gov>, "McDermott, Brian" <Brian.McDermott@nrc.gov>
Subject: Heads-up: Clinton EDG SERP

Ho and Brian,

For your awareness, we did not achieve consensus at the SERP today. I voted Green and Region III and DIRS supported White. OE voted White but said they could go either way.

I will summarize my position in the next few days for what might be a re-SERP. In short, I find that folks are running behind that they followed a process and that the detailed risk analysis supports a White. My sense is there is regulatory outrage and that EDGs are import and could never be a green issue. The entire analysis is driven by HRA, which is a highly subjective tool. The estimated risk is low at 2E-6/yr, if you believe it. There is an unrealistic assessment of operators abilities and the emergency response organization's role.

First, for EDG recovery of the air start valves, the NRC downgraded plant operators ability to assess the problem and open the valves. Equipment operators reconfigure systems weekly and have hands on experience doing so that goes beyond classroom training. NRC is ignoring their the totality of their knowledge, skills, and abilities. Second, the NRC gave **zero credit** to realign the air start valves after one hour. Post core reload, there is very low decay heat and long timelines to recover (in some cases up to 24 hours before reaching top of active fuel, not even core damage). Most of the ERO members are onsite or nearby to support the refueling outage. Realistic assessment of EDG recovery before **or** after one hour places the issue in the Green range, at least quantitatively.

Pivotal in the NRC assessment is the assumption that the plant operators will declare an Extended Loss of AC Power (ELAP) at one-hour and abandon recovery of the misaligned EDG. The licensee stated that they won't declare an ELAP because it is not a natural disaster/Fukushima type event. Operators based on interviews gave mixed answers to indirect questions on the topic. We should not be playing plant operator and interpreting how a Shift Supervisor will evaluate a decision step in plant procedures that requires them to evaluate a case-by-case situation for power recovery.

Mike

From: [Fong, CJ](#)
To: [Kozak, Laura](#); [Mitman, Jeffrey](#)
Cc: [Helton, Donald](#); [Garmoe, Alex](#)
Subject: Re: Clinton ifrb
Date: Monday, July 09, 2018 9:10:35 PM

Jeff,

Not to make this more complicated but I would like a recommendation from you as to whether this is something you want to tackle yourself or whether there's a piece of this that could be assigned to another member of the branch as a learning opportunity. I will respect (and probably implement) your recommendation either way.

Thanks,
CJ

From: Kozak, Laura
Sent: Monday, July 9, 2018 4:29:35 PM
To: Mitman, Jeffrey
Cc: Fong, CJ; Helton, Donald; Garmoe, Alex
Subject: Clinton ifrb

Jeff

We are trying to see if we can have an IFRB for Clinton this Wednesday. Although this is normally a regional process to approve the PD, obtain a common understanding of the degraded condition, and confirm the SDP screening, it would be good if you could attend since we are planning to have you do the DRE.

If the IFRB approves at this stage, we will proceed to a planning SERP to get agreement on the path forward.

The draft IFRB package is attached – if you have any comments please let me know. Once the IFRB is scheduled, I will let you know

Laura

From: [Fong, CJ](#)
To: [Bowman, Gregory](#); [Aird, David](#)
Cc: [Garmoe, Alex](#); [Casey, Lauren](#); [Jones, Heather](#)
Subject: RE: Clinton SDP update
Date: Wednesday, January 09, 2019 8:10:59 AM

Thanks, Greg. Good idea. Just FYI, I spoke with Ho yesterday about Clinton. He told me that he was displeased with the tone of Exelon's letter and that he had already shared this perspective with their senior management.

I also pointed out that the SRAs are finding "gimmicks" in the 2000+ page supplemental analysis that haven't exactly set a good tone. I can talk you through them if you're interested. They may not affect the final result but they are (understandably) difficult for technical people to overlook/move past.

Best regards,
CJ

From: Bowman, Gregory
Sent: Wednesday, January 09, 2019 7:43 AM
To: Aird, David <David.Aird@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Jones, Heather <Heather.Jones@nrc.gov>
Subject: Re: Clinton SDP update

At some point when we get closer to finalizing the SDP, can you work with Heather to get us some information on the number of hours it took to disposition the finding? I think it would be good to know what went into each step of the process, particularly how many hours were spent reviewing all the information that came in after the conference.

I think it would be good to have that ready in the event someone from Exelon or NEI attempts to use what I'm assuming will be a high number of hours to make a point. Once we see how the numbers look, we can decide if proactive outreach with Ho is needed in advance of any questions.

Greg

On: 09 January 2019 06:54,
"Aird, David" <David.Aird@nrc.gov> wrote:

My calculation would be January 27th. Issue discovery date of May 17, 2018.

From: Bowman, Gregory
Sent: Wednesday, January 09, 2019 6:50 AM
To: Casey, Lauren <Lauren.Casey@nrc.gov>; Aird, David <David.Aird@nrc.gov>

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

Subject: Re: Clinton SDP update

Do either of you know when the 255 day metric expires?

Greg

On: 09 January 2019 06:46,
"Casey, Lauren" <Lauren.Casey@nrc.gov> wrote:

Update on Clinton.

From: Mitman, Jeffrey

Sent: Tuesday, January 08, 2019 5:18 PM

To: Franovich, Mike <Mike.Franovich@nrc.gov>; Felts, Russell <Russell.Felts@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>

Cc: Casey, Lauren <Lauren.Casey@nrc.gov>; Rosenberg, Stacey <Stacey.Rosenberg@nrc.gov>

Subject: FW: Clinton SDP update

FYI.

Jeff Mitman

From: Kozak, Laura

Sent: Tuesday, January 08, 2019 4:56 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: [Aird, David](#)
To: [Kozak, Laura](#); [Garmoe, Alex](#)
Cc: [Mitman, Jeffrey](#)
Subject: Re: Clinton final White
Date: Tuesday, April 02, 2019 8:08:16 AM

Laura,

Thanks for letting us know. As far as the hours, give us a couple days to run the reports. It shouldn't be a huge effort. Any hours reported in this pay period would not show up yet, but that shouldn't affect the overall picture much.

Dave

From: Kozak, Laura
Sent: Tuesday, April 2, 2019 7:33 AM
To: Aird, David; Garmoe, Alex
Cc: Mitman, Jeffrey
Subject: Clinton final White

David, Alex

Just FYI if you hadn't heard – the Clinton final white was signed out yesterday and the licensee was notified of the decision. This starts the 30 day clock for the licensee to decide if they want to appeal or not.

I am interested in the hours spent on the Clinton SDP. There were 3 inspection reports involved – the SIT (461/2018050), the preliminary white finding (461/2018051), and the final white finding (461/2018092). Can either of you run a report to see what the hours charged for SDP were? Maybe you have already been tracking this. I am not as familiar with the new RPS so I couldn't quite figure out how to do it.

I think the time spent to develop the preliminary white was necessary and valuable –we needed to make sure that the finding was not yellow, and also we gained some very valuable risk insights regarding FLEX/ELAP, the cross-tie, and the licensee's training and procedures for shutdown SBO and loss of RHR. I hope the licensee acts on those insights. However, since October when the preliminary significance determination letter was issued, we have not gained any new significant risk insights and the majority of the effort was to review and disposition the licensee's additional information (much of which was not very relevant).

Thanks
Laura

From: [Aird, David](#)
To: [Kozak, Laura](#); [Mitman, Jeffrey](#); [Garmoe, Alex](#)
Subject: Re: ERRATA—CLINTON POWER STATION—NRC INSPECTION REPORT 05000461/2018051 AND PRELIMINARY WHITE FINDING
Date: Wednesday, November 07, 2018 11:51:23 AM
Attachments: [image001.png](#)

Thanks Laura and Jeff for your work on this and keeping us in the loop.

From: Kozak, Laura
Sent: Wednesday, November 7, 2018 11:33:17 AM
To: Mitman, Jeffrey; Aird, David; Garmoe, Alex
Subject: Fw: ERRATA—CLINTON POWER STATION—NRC INSPECTION REPORT 05000461/2018051 AND PRELIMINARY WHITE FINDING

FYI. We re-issued the Clinton inspection report - choice letter - for the preliminary White finding to correct a few minor typos and omissions. No changes to overall evaluation or conclusion.

From: Wilk, Brenda
Sent: Wednesday, November 7, 2018 10:25 AM
To: Cook, Christopher; RidsNrrDorLpl3 Resource; RidsNrrPMClinton Resource; NrrDirslrib Resource; West, Steven; Roberts, Darrell; Cameron, Jamnes; Barker, Allan; DRSIII; DRPIII; ROPreports Resource
Subject: ERRATA—CLINTON POWER STATION—NRC INSPECTION REPORT 05000461/2018051 AND PRELIMINARY WHITE FINDING

The below attached document has been added to ADAMS.

[View ADAMS Properties ML18311A151](#)
[Open ADAMS Document \(ERRATA-CLINTON POWER STATION-NRC INSPECTION REPORT 05000461/2018051 AND PRELIMINARY WHITE FINDING \(public\)\)](#)

Thank you,

Brenda Wilk

Lead Administrative Assistant
Division of Reactor Projects
U.S. Nuclear Regulatory Commission
(630) 829-9602



This document is publicly available in ADAMS at <https://www.nrc.gov/docs/ML1831/ML18311A151.pdf>

From: [Helton, Donald](#)
To: [Mitman, Jeffrey](#); [Kozak, Laura](#)
Cc: [Garmoe, Alex](#)
Subject: RE: DECISION REQUIRED: Clinton IFRB Results and Next Actions
Date: Thursday, July 19, 2018 4:16:18 PM

Jeff / Laura,

Appreciate you both keeping me in the loop on the Clinton EDG issue, and I'll in turn keep Greg and Alex aware. I don't think you really need anything from DIRS in the near future, but certainly let me know if that changes. This is a great opportunity to show how the IFRB, planning SERP, and designated milestone targets can effectively manage a complex yet efficient SDP, and I greatly appreciate the active role you both are already taking along these lines.

Please be aware that DIRS will have a bit of a coverage issue coming up, as Alex and I are both out-of-the-office on 7/24, 7/26 (PM), 7/27 (PM), 7/30, and 7/31, and one or the other of us is out-of-the-office from now until August 7th. Also note that Russ Gibbs will be back in-the-office for most of August. If something comes up requiring immediate DIRS action or meeting support during the above days, please reach out to Greg Bowman so that he can juggle accordingly.

Thanks,
Don

From: Mitman, Jeffrey
Sent: Thursday, July 19, 2018 3:03 PM
To: Fong, CJ <CJ.Fong@nrc.gov>
Cc: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Felts, Russell <Russell.Felts@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; Circle, Jeff <Jeff.Circle@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>; Casey, Lauren <Lauren.Casey@nrc.gov>
Subject: DECISION REQUIRED: Clinton IFRB Results and Next Actions

CJ,

We completed the Clinton EDG unavailability IFRB today. The IFRB agreed that there is a performance deficiency and directed APHB to continue work on the detail risk evaluation (SDP).

I've committed to complete the DRE by August 29th. This will allow sufficient time to complete the required reviews and other process requirements needed to meet the SDP clock due date of ~11/10/18. This is a very tight timeline. It assumes that the DRE shows a greater than 1E-6 CDF. It is expected that the inspection will be re-exited. If this re-exit occurs, then the SDP clock will reset. However, any additional time made available by the clock reset will be used to perform the other required tasks, i.e., not the DRE.

Region III plans to conduct a Planning SERP with HQ next Thursday (August 26th). A planning SERP is required because HQ has the lead on the DRE instead of Region III.

An updated copy of my schedule is attached.

Do you want me to schedule a briefing with DRA management in preparation for the Planning SERP?

Jeff Mitman

From: [Bowman, Gregory](#)
To: [Aird, David](#)
Cc: [Garmoe, Alex](#)
Subject: RE: Clinton Coordination
Date: Thursday, October 11, 2018 12:16:32 PM

Great! That sounds like a good outcome to me. Thanks to both of you for working through this so quickly – this is exactly the kind of support that will help continue to improve our working relationship with the SRAs.

Greg

From: Aird, David
Sent: Thursday, October 11, 2018 10:19 AM
To: Bowman, Gregory <Gregory.Bowman@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: RE: Clinton Coordination

Greg,

Just wanted to provide you with an update to Laura's question.

I ended up setting up a conference call this morning. Alex, Laura, Antonios and John Nakoski (RES) participated. Laura described that the choice letter had cut sets and other info that could be seen as OUO (depending on interpretation of guidance and varied past practices).

John provided some insights into why ASP decided not to publish this type of info. Laura explained that since this was a shutdown event, the licensee's PRA staff would have much less familiarity with the cut sets and changes to the model. They would be much more familiar with an at-power model which is why this type of detail is usually not necessary. She felt that the cut sets were crucial for showing how they arrived at White.

It was a unanimous decision to include the cut sets as an OUO attachment to the choice letter. We may discuss this scenario at the SRA counterpart meeting if time permits. We should also consider working with DRA to see if the RASP guidance should be updated to clarify the handling of this type of info.

I think everyone was pleased with the outcome.

Let me know if you have any concerns.

-Dave

From: Garmoe, Alex
Sent: Thursday, October 11, 2018 8:03 AM
To: Bowman, Gregory <Gregory.Bowman@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>
Subject: RE: Clinton Coordination

I would think so too. Don and David provided Laura with a name in RES to get ahold of – apparently RES deals with similar decisions.

From: Bowman, Gregory
Sent: Thursday, October 11, 2018 8:00 AM
To: Garmoe, Alex <Alex.Garmoe@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>
Subject: RE: Clinton Coordination

I'm not entirely sure, but DRA would probably know how we typically treat cutsets and things of that nature from an information security standpoint. My recollection is that that sort of information is typically treated as OUO, but I could be wrong. I'd suggest getting in touch with Antonios or maybe Mike Montecalvo.

If it does turn out that the information is OUO, I'm assuming that Region III would have a publicly available choice letter with an OUO attachment. Is that your understanding?

Greg

From: Garmoe, Alex
Sent: Wednesday, October 10, 2018 4:52 PM
To: Bowman, Gregory <Gregory.Bowman@nrc.gov>
Cc: Aird, David <David.Aird@nrc.gov>
Subject: FW: Clinton Coordination

Greg,

Got this question from the Region and am not sure of the answer, especially since we haven't seen the specific information. I responded and asked Laura if other regions have been consistent in treating this as OUO or if it's gone both ways in the past. Any suggestion on who would best know the answer?

Thanks,
Alex

From: Kozak, Laura
Sent: Wednesday, October 10, 2018 4:38 PM
To: Helton, Donald <Donald.Helton@nrc.gov>
Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Phillips, Charles <Charles.Phillips@nrc.gov>
Subject: RE: Clinton Coordination

Alex, David

One question that you can help with –

We are including in the choice letter more risk information that we usually do – cut-sets, screenshots of the event tree and fault trees. Does the report then need to be treated as OUO – SUNSI? My read of the guidance is no, but I know other regions have handled it this way.

Thanks

Laura

From: Helton, Donald

Sent: Tuesday, October 09, 2018 3:10 PM

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

Cc: Garmoe, Alex <Alex.Garmoe@nrc.gov>; Aird, David <David.Aird@nrc.gov>

Subject: Clinton Coordination

Laura,

I assume the intent is still to get the Clinton Choice letter in to concurrence this week. DIRS previously indicated (at the SERP) that we don't need to be on concurrence.

I'll be out for the remainder of the week, so if there is anything we can do to facilitate the process, please feel free to reach out to Alex or David directly. They are both generally familiar with the status of the SDP...

Thanks,

Don

- - - - -

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

From: [Bowman, Gregory](#)
To: [Garmoe, Alex](#)
Cc: [Helton, Donald](#); [Aird, David](#)
Subject: RE: Clinton preliminary white determination "choice" letter
Date: Tuesday, October 16, 2018 3:05:35 PM

Thanks. No sense worrying too much about it at this point.

Going forward, part of our messaging when we exceed the 90-day metric probably ought to be that we met the overall 255-day metric (assuming that's accurate). Of course, all that could be moot if we decide to stop tracking the 90- and 120-day metrics from a QPR and IMC 0307 standpoint.

Greg

From: Garmoe, Alex
Sent: Tuesday, October 16, 2018 3:02 PM
To: Bowman, Gregory <Gregory.Bowman@nrc.gov>
Cc: Helton, Donald <Donald.Helton@nrc.gov>; Aird, David <David.Aird@nrc.gov>
Subject: FW: Clinton preliminary white determination "choice" letter

Greg,

Passing along since you weren't on Laura's initial e-mail. The timeline will be tight. While the 90-day clock will be up on November 23, the 255 day clock isn't up until January 29. We'll keep you up to speed.

Alex

From: Kozak, Laura
Sent: Tuesday, October 16, 2018 11:33 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Zoulis, Antonios <Antonios.Zoulis@nrc.gov>; Fong, CJ <CJ.Fong@nrc.gov>; Helton, Donald <Donald.Helton@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: Clinton preliminary white determination "choice" letter

Please see attached letter – signed on 10/15.

The licensee has 10 days to respond if they want a regulatory conference or to submit additional information. The regulatory conference should be held within 30 days after the initial 10 day period.

The 90 day clock is up November 23 (the Friday after Thanksgiving). As you can see, if the licensee decides to have a regulatory conference (which they have at least verbally indicated they want one to our managers), it will be very hard to meet the deadline.

New information supplied by the licensee must be dispositioned and possibly re-SERPed and this must be documented in the final letter.

From: [Wilson, George](#)
To: [Mitman, Jeffrey](#); [Kozak, Laura](#)
Cc: [Franovich, Mike](#); [Lara, Julio](#)
Subject: Thank you Jeff and Lara
Date: Thursday, February 14, 2019 5:30:31 PM

I wanted to personally thank Jeff and Lara for the very informative and well done brief and presentation today on the EDG issue at Clinton

From: [Lara, Julio](#)
To: [Miller, Chris](#); [Dickson, Billy](#)
Subject: RE: Clinton
Date: Monday, March 25, 2019 9:01:30 AM

It is in concurrence. It should be in your "in-box" today or tomorrow. As of Friday, OE/DRA/DIRS were next.

From: Miller, Chris
Sent: Monday, March 25, 2019 7:58 AM
To: Lara, Julio <Julio.Lara@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>
Subject: Clinton

Has the letter with White significance gone out to licensee yet?
Thanks
Chris

Mitman, Jeffrey

From: Mitman, Jeffrey
Sent: Tuesday, April 02, 2019 2:13 PM
To: Fong, CJ
Subject: FW: EA-18-104 CLINTON POWER STATION - FINAL SIGNIFICANCE DETERMINATION OF A WHITE FINDING WITH ASSESSMENT FOLLOW-UP AND NOTICE OF VIOLATION; NRC INSPECTION REPORT NO. 05000461/2018092

CJ, you are probably aware, but in the off chance that you are not, the final Clinton EDG white finding letter was sent to Exelon yesterday. There was a phone call discussion between Julio Lara and Clinton site management yesterday also. The final letter is now in ADAMS, see below.

Jeff Mitman

From: Kozak, Laura
Sent: Tuesday, April 02, 2019 12:12 PM
To: Zoulis, Antonios <Antonios.Zoulis@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>; Aird, David <David.Aird@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>
Subject: FW: EA-18-104 CLINTON POWER STATION - FINAL SIGNIFICANCE DETERMINATION OF A WHITE FINDING WITH ASSESSMENT FOLLOW-UP AND NOTICE OF VIOLATION; NRC INSPECTION REPORT NO. 05000461/2018092

FYI

From: Clay, Jim
Sent: Tuesday, April 02, 2019 10:51 AM
To: RidsSecyMailCenter Resource <RidsSecyMailCenter.Resource@nrc.gov>; OCA Distribution <OCADistribution@nrc.gov>; Doane, Margaret <Margaret.Doane@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>; Peduzzi, Francis <Francis.Peduzzi@nrc.gov>; Peralta, Juan <Juan.Peralta@nrc.gov>; Marshfield, Mark <Mark.Marshfield@nrc.gov>; Roberts, Darrell <Darrell.Roberts@nrc.gov>; Giessner, John <John.Giessner@nrc.gov>; Lew, David <David.Lew@nrc.gov>; Haney, Catherine <Catherine.Haney@nrc.gov>; Lemoncelli, Mauri <Mauri.Lemoncelli@nrc.gov>; Nieh, Ho <Ho.Nieh@nrc.gov>; Klukan, Brett <Brett.Klukan@nrc.gov>; Kowal, Mark <Mark.Kowal@nrc.gov>; Vasquez, Michael <Michael.Vasquez@nrc.gov>; Harrington, Holly <Holly.Harrington@nrc.gov>; Lee, David <David.Lee@nrc.gov>; Shuttleworth, Andy <andy.shuttleworth@nrc.gov>; Blair, Meghan <Meghan.Blair@nrc.gov>; Rivera-Varona, Aida <Aida.Rivera-Varona@nrc.gov>; McCoppin, Michael <Michael.McCoppin@nrc.gov>; Rosenberg, Stacey <Stacey.Rosenberg@nrc.gov>; NrrDirslrib Resource <NrrDirslrib.Resource@nrc.gov>; Barker, Allan <Allan.Barker@nrc.gov>; Logaras, Haral <Haral.Logaras@nrc.gov>; Mitlyng, Viktoria <Viktoria.Mitlyng@nrc.gov>; Chandrathil, Prema <Prema.Chandrathil@nrc.gov>; Lambert, Kenneth <Kenneth.Lambert@nrc.gov>; Pelke, Paul <Paul.Pelke@nrc.gov>; DRPIII <DRPIII@nrc.gov>; DRSIII <DRSIII@nrc.gov>; RidsOeMailCenter Resource <RidsOeMailCenter.Resource@nrc.gov>; OEWEB Resource <OEWEB.Resource@nrc.gov>; ROPassessment Resource <ROPassessment.Resource@nrc.gov>; Clark, Brooke <Brooke.Clark@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Morris, Scott <Scott.Morris@nrc.gov>; Dorman, Dan <Dan.Dorman@nrc.gov>; RidsNrrPMClinton Resource <RidsNrrPMClinton.Resource@nrc.gov>; RidsNrrDorlLpl3 Resource <RidsNrrDorlLpl3.Resource@nrc.gov>
Subject: EA-18-104 CLINTON POWER STATION - FINAL SIGNIFICANCE DETERMINATION OF A WHITE FINDING WITH ASSESSMENT FOLLOW-UP AND NOTICE OF VIOLATION; NRC INSPECTION REPORT NO. 05000461/2018092

The subject document has been submitted to ADAMS DPC for final profiling. Please use the link below to review this document.

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DETERMINATION OF A WHITE FINDING WITH ASSESSMENT FOLLOW-UP AND NOTICE OF VIOLATION; NRC INSPECTION REPORT NO. 05000461/2018092)

Jim Clay, CWCA

***Administrative Assistant to Darrell J. Roberts
Regional Administrator, Region III***

Phone: 630-829-9657

Purpose means intention, objective, goals based on your deepest core values.

Meaning is of value, significance, and important to me.

Email: jim.clay@nrc.gov



Mitman, Jeffrey

From: Mitman, Jeffrey
Sent: Tuesday, April 02, 2019 9:56 AM
To: Kozak, Laura
Subject: RE: Clinton final White

Laura, I looked at my HRMS account and since the pay period ending July 8th, when I first started billing to the Clinton CACs, I've billed 636 hours.

Jeff Mitman

From: Kozak, Laura
Sent: Tuesday, April 02, 2019 7:33 AM
To: Aird, David <David.Aird@nrc.gov>; Garmoe, Alex <Alex.Garmoe@nrc.gov>
Cc: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Clinton final White

David, Alex

Just FYI if you hadn't heard – the Clinton final white was signed out yesterday and the licensee was notified of the decision. This starts the 30 day clock for the licensee to decide if they want to appeal or not.

I am interested in the hours spent on the Clinton SDP. There were 3 inspection reports involved – the SIT (461/2018050), the preliminary white finding (461/2018051), and the final white finding (461/2018092). Can either of you run a report to see what the hours charged for SDP were? Maybe you have already been tracking this. I am not as familiar with the new RPS so I couldn't quite figure out how to do it.

I think the time spent to develop the preliminary white was necessary and valuable –we needed to make sure that the finding was not yellow, and also we gained some very valuable risk insights regarding FLEX/ELAP, the cross-tie, and the licensee's training and procedures for shutdown SBO and loss of RHR. I hope the licensee acts on those insights. However, since October when the preliminary significance determination letter was issued, we have not gained any new significant risk insights and the majority of the effort was to review and disposition the licensee's additional information (much of which was not very relevant).

Thanks
Laura

Mitman, Jeffrey

From: Kozak, Laura
Sent: Tuesday, March 26, 2019 3:27 PM
To: Mitman, Jeffrey
Subject: Clinton final White

Just FYI. I heard today that the plan is to issue the final letter next Monday. OE has also concurred and the notification to the Commission was sent up today (3 day notification required).

Mitman, Jeffrey

From: Mitman, Jeffrey
Sent: Tuesday, March 26, 2019 10:39 AM
To: Kozak, Laura
Subject: RE: 1992 Information Notice with events similar to Clinton

Another IN about more unplanned criticality events. These were caused by improper CR withdrawals during shutdown (not feedwater issues).

<https://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/1988/in88021.html>

Jeff Mitman

From: Kozak, Laura
Sent: Tuesday, March 26, 2019 9:03 AM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: FW: 1992 Information Notice with events similar to Clinton

From: Kozak, Laura
Sent: Monday, March 25, 2019 4:09 PM
To: Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Sanchez Santiago, Elba <Elba.SanchezSantiago@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Giessner, John <John.Giessner@nrc.gov>
Subject: 1992 Information Notice with events similar to Clinton

Just FYI

<https://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/1992/in92039.html>

Mitman, Jeffrey

From: Mitman, Jeffrey
Sent: Monday, March 25, 2019 4:42 PM
To: Kozak, Laura
Subject: FW: ACTION FOR HQ CONCURRENCE - EA-18-104 CLINTON POWER STATION - FINAL SIGNIFICANCE DETERMINATION OF A WHITE FINDING WITH ASSESSMENT FOLLOW-UP AND NOTICE OF VIOLATION; NRC INSPECTION REPORT NO. 05000461/2018092

Laura,

FYI

Jeff Mitman

From: Miller, Chris
Sent: Monday, March 25, 2019 2:15 PM
To: Casey, Lauren <Lauren.Casey@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Dickson, Billy <Billy.Dickson@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: RE: ACTION FOR HQ CONCURRENCE - EA-18-104 CLINTON POWER STATION - FINAL SIGNIFICANCE DETERMINATION OF A WHITE FINDING WITH ASSESSMENT FOLLOW-UP AND NOTICE OF VIOLATION; NRC INSPECTION REPORT NO. 05000461/2018092

DIRS concurs.
chris

From: Casey, Lauren
Sent: Friday, March 22, 2019 1:36 PM
To: Miller, Chris <Chris.Miller@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>
Cc: Dickson, Billy <Billy.Dickson@nrc.gov>; Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: ACTION FOR HQ CONCURRENCE - EA-18-104 CLINTON POWER STATION - FINAL SIGNIFICANCE DETERMINATION OF A WHITE FINDING WITH ASSESSMENT FOLLOW-UP AND NOTICE OF VIOLATION; NRC INSPECTION REPORT NO. 05000461/2018092

Good afternoon,

Attached for your concurrence is the final action for Clinton.

Please provide me with your comments and concurrence as soon as possible.

Thank you,

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

Mitman, Jeffrey

From: Lara, Julio
Sent: Friday, March 15, 2019 9:33 AM
To: Mitman, Jeffrey; Kozak, Laura
Subject: Re: Clinton

thanks Jeff. will take a look at shortly.

julio

From: Mitman, Jeffrey
Sent: Thursday, March 14, 2019 3:16:36 PM
To: Kozak, Laura
Cc: Lara, Julio
Subject: RE: Clinton

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

Mitman, Jeffrey

From: Fong, CJ
Sent: Wednesday, March 13, 2019 8:29 AM
To: Kozak, Laura
Cc: Mitman, Jeffrey
Subject: RE: Clinton Final Significance Determination Letter input

Hi, Laura. Sorry – it's been a bit crazy with the RIC this year, as you ascertained. I will block off some time to provide written comments over my lunch break today. Basically, DRA and OE management are okay with the overall write-up but would like two changes:

1. Make the discussion about providing post-1 hour EDG recovery "more prominent."
2. Shorten and streamline.

I will take a shot at putting those comments (provided verbally to me by Mike F and George W) into writing today.

Thanks,
CJ

From: Kozak, Laura
Sent: Wednesday, March 13, 2019 7:50 AM
To: Fong, CJ <CJ.Fong@nrc.gov>
Subject: Fw: Clinton Final Significance Determination Letter input

Hi CJ

I tried to call but you must be busy with the RIC. When can we expect the OE/DRA comments back on the input to the letter?

Laura

From: Wilson, George
Sent: Wednesday, March 13, 2019 4:37 AM
To: Kozak, Laura; Lara, Julio; Miller, Chris; Franovich, Mike
Cc: Fong, CJ
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

Mitman, Jeffrey

From: Kozak, Laura
Sent: Monday, March 11, 2019 11:46 AM
To: Riemer, Kenneth
Cc: Mitman, Jeffrey
Subject: FW: HRMS & Clinton

Ken

It looks like the RPS activity for Clinton expired. Can you create a new activity for us to charge time for FSD documentation? Is there someone else I should work with on this?

Laura

From: Mitman, Jeffrey
Sent: Monday, March 11, 2019 10:30 AM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: HRMS & Clinton

Laura, my Clinton CAC is gone from HRMS. Have we switched to a new one for the post analysis? If so, can you forward this on to whomever can add that CAC to my HRMS profile?

Thanks.

Jeff Mitman

Mitman, Jeffrey

From: Hasan, Nasreen
Sent: Friday, March 08, 2019 9:16 AM
To: Lara, Julio; Riemer, Kenneth; Orlikowski, Robert; Stoedter, Karla; Kozak, Laura; Sanchez Santiago, Elba; Phillips, Charles; Cameron, Jamnes; Lambert, Kenneth; Robbins, John; Draper, Jason; Petrella, Vance; McGowan, Thomas; Dickson, Billy; Garmoe, Alex; Casey, Lauren; Aird, David; Franovich, Mike; Mitman, Jeffrey; Fong, CJ; Wilson, George; Peduzzi, Francis; Torres, Edgardo; Marshfield, Mark
Subject: EA-18-104-2, Exelon Generation Co., LLC, Clinton

Please see the link.

[View ADAMS Properties ML19067A054](#)

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Thank you,

Nasreen Hasan

Administrative Assistant

Office of Enforcement

Location: O-14B16

Mailstop: O-14A50

Office #: (301)287-9527

Mitman, Jeffrey

From: Mitman, Jeffrey
Sent: Thursday, March 07, 2019 2:38 PM
To: Kozak, Laura
Subject: RE: Clinton Final Significance Determination Letter input

Laura, please ignore my previous email as I've found a way to compare the current version with the last version that I have.

Thanks.

Jeff Mitman

From: Mitman, Jeffrey
Sent: Thursday, March 07, 2019 2:27 PM
To: Kozak, Laura <Laura.Kozak@nrc.gov>
Subject: RE: Clinton Final Significance Determination Letter input

Laura, could you send me a version of the document that shows the changes?

Jeff Mitman

From: Kozak, Laura
Sent: Thursday, March 07, 2019 2:16 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: FW: Clinton Final Significance Determination Letter input

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

Mitman, Jeffrey

From: Mitman, Jeffrey
Sent: Tuesday, March 05, 2019 5:34 PM
To: Sancaktar, Selim
Subject: RE: uncertainty analysis

I'm interested. Do you have time Wednesday to talk?

Jeff Mitman

From: Sancaktar, Selim
Sent: Tuesday, March 05, 2019 3:08 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: uncertainty analysis

Hi Jeff,

I thought of a clever way to make the uncertainty analysis you talked about, by making a FT in SAPHIRE. It may work!

If you are still interested, I can show you a simple example.

Regards, Selim

Mitman, Jeffrey

From: Kozak, Laura
Sent: Friday, March 01, 2019 10:55 AM
To: Mitman, Jeffrey
Subject: appeal criteria

0609.02-03 LIMITATIONS

Once the above prerequisites have been met, licensee appeals to reduce the significance of an inspection finding will be considered as having sufficient merit for review by this appeal process only if the licensee's contention falls into one of the following categories:

- a. The staff's significance determination process was inconsistent with the applicable SDP guidance or lacked justification. Issues involving the staff's choice of probabilistic risk modeling assumptions used in the SDP will not be considered appealable under this process, provided the staff documented its justification in those cases where the licensee presented a different point of view.
- b. Actual (verifiable) plant hardware, procedures, or equipment configurations, identified by the licensee to the NRC staff at the Regulatory Conference or in writing prior to the staff reaching a final significance determination, was not considered by the staff.
- c. A licensee submits new information which was not available at the time of the Regulatory Conference. New information will be considered only if the licensee informed the staff that additional information was under development prior to or during the Regulatory Conference, or in their written response to the preliminary significance determination. The information under development should have been received within a reasonable period of time (agreed upon between the licensee and the staff) for the staff to review it.

From: [Casey, Lauren](#)
To: [Miller, Chris](#); [Dickson, Billy](#); [Franovich, Mike](#)
Subject: Request: Clinton Follow-up SERP Position Papers
Date: Friday, February 22, 2019 6:59:50 AM

Good morning,

A follow-up SERP for Clinton will be held on Thursday, February 28, 2019, at 10:30am (EST). Position papers articulating the areas of disagreement need to be distributed to voting members several days in advance of the panel to allow time for review.

Please provide your position paper articulating your areas of disagreement by COB on Monday, February 25th. If you need more time to develop your position paper, need help with this request, or if you have any questions, please let me know.

Thank you,

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

From: [Groom, Jeremy](#)
To: [Franovich, Mike](#)
Subject: Have time to discuss Clinton SDP
Date: Wednesday, December 19, 2018 11:40:47 AM

Spoke to Chris Miller and he and I have some thoughts that we should share with you.

Jeremy

Jeremy Groom
Deputy Director, Division of Inspection and Regional Support (Acting)
Office of Nuclear Reactor Regulation
US Nuclear Regulatory Commission
301-415-1004

From: [Riemer, Kenneth](#)
To: [Lara, Julio](#); [Giessner, Jack](#); [Kozak, Laura](#); [McDermott, Brian](#); [Franovich, Mike](#); [Orlikowski, Robert](#); [Cameron, Jamnes](#); [Wilson, George](#)
Cc: [Sanfilippo, Nathan](#); [Shuaibi, Mohammed](#); [Roberts, Darrell](#); [Sanchez Santiago, Elba](#); [Sargis, Daniel](#)
Subject: RE: Exelon will not appeal the Final Clinton White
Date: Thursday, April 18, 2019 7:59:47 AM

I have received the readiness letter for the 95001 (advance copy via email prior to it hitting the public docket). The letter itself is pretty straightforward and says nothing more than they are ready for the supplemental inspection. However, in the email transmitting the letter, they state that they would like the inspection to be completed in May.

The SRI and I have communicated with the site on the timing. I informed them that May is very optimistic and not likely as it comes down to available resources. We reminded them that per the process, we have up to six months to complete a 95001 after formal receipt of the readiness letter. That being said, I don't foresee the need for six months; as the spring outage season winds down we're freeing up more inspector resources and June is a more realistic timeframe.

We'll keep everyone informed as we move forward.

Ken

From: Lara, Julio
Sent: Wednesday, April 17, 2019 5:23 PM
To: Giessner, Jack <John.Giessner@nrc.gov>; Kozak, Laura <Laura.Kozak@nrc.gov>; McDermott, Brian <Brian.McDermott@nrc.gov>; Franovich, Mike <Mike.Franovich@nrc.gov>; Orlikowski, Robert <Robert.Orlikowski@nrc.gov>; Riemer, Kenneth <Kenneth.Riemer@nrc.gov>; Cameron, Jamnes <Jamnes.Cameron@nrc.gov>; Wilson, George <George.Wilson@nrc.gov>
Cc: Sanfilippo, Nathan <Nathan.Sanfilippo@nrc.gov>; Shuaibi, Mohammed <Mohammed.Shuaibi@nrc.gov>; Roberts, Darrell <Darrell.Roberts@nrc.gov>
Subject: Re: Exelon will not appeal the Final Clinton White

Thanks for the update.

I have been waiting for the 30-day appeal window to close before I engage Exelon on this further. I plan a site visit to discuss the same observations regarding the surveys with the SVP. I also plan to engage him on the risk insights that hopefully they learned as an outcome of this issue. I also plan to travel down to Exelon corporate and talk to Reg Assurance (Gullot) to discuss their response as it relates to surveys and the recently submitted LER (scram) which was lacking.

Separately, I have discussed with Ken Riemer DRP BC, the 95001 planning to ensure our focus is appropriate not only in scope but also in terms of inspection resources.

Thx
Julio

From: Giessner, Jack
Sent: Wednesday, April 17, 2019 5:11:19 PM

To: Lara, Julio; Kozak, Laura; McDermott, Brian; Franovich, Mike; Orlikowski, Robert; Riemer, Kenneth; Cameron, Jamnes; Wilson, George

Cc: Sanfilippo, Nathan; Shuaibi, Mohammed; Roberts, Darrell

Subject: Exelon will not appeal the Final Clinton White

All,

I talked to George Geldrich, Sr Vp Exelon this afternoon. He informed me they evaluated their appeal options and will **not appeal the Final White**.

He went on to say they still did not agree with HRAs assigned (no new information there). I took the opportunity to tell him a key item they mentioned at the Regulatory conference was the survey of other operators from other sites and ELAP transition. I said the survey did not to address the scenarios we were looking for (1 hr, no find the problem); and some survey data (although not asked) said they would have went earlier—at the one hour point if the problem was not found. Hence we concluded if the issue was not found, the operator would very likely transition to ELAP. He was silent and offered no comment on that. He did then note that the training PSF was too pessimistic on discovery in the 1 hr, and that it would have been found with a higher frequency in that one hour. We had a good discussion on complexity and he mentioned scram had more needed actions; although a scram may have had more actions, I said, an SBO is complex/high stress and without strong procedures, this led us to our results. He noted our differences and made comments about the HRAs for outside the control room. And he would talk to DRA about the future of HRAs.

He also noted we will get the letter tomorrow on requesting the 95001 in May. I asked why May vs June (which we heard in Exelon drop-in). He said this was to build margin in case there were questions during the 95001. I told him (with no assurances) that end of June was reasonable, but May I would ask DRP to get with site VP.

Jack

From: [Sigmon, Rebecca](#)
To: [Thompson, John](#)
Cc: [Robles-Alcaraz, Jesse](#); [Carneal, Jason](#)
Subject: RE: MD 8.3/IMC 0309 -Calvert Cliffs, Units 1 and 2 - Loss of Starting Air
Date: Thursday, October 25, 2018 7:39:00 AM
Attachments: [image002.png](#)

For the risk at least, it was 30 minutes. The Clinton SIT was in the low-mid E-6 range with both EDGs out for 3 days (~4300 minutes). So a factor of a hundred difference in the time exposure (although in mode 6 instead of Mode 1) and a factor of 100 difference in the risk exposure. So the risk estimate, makes sense.

The induced voltages issue is very circuit specific thing. I think the fact that they caught it during install is a sign that they're doing the appropriate testing and applying OpE.

I'm more interested in this common cause failure mechanism. The fact that you're doing work on one EDG on Unit 1 and can cause a CCF loss of safety function on the opposite unit is... non-ideal. That's where the risk alarms are going to start clanging. ASP might have a blast with this one.

From: Thompson, John
Sent: Thursday, October 25, 2018 7:21 AM
To: Sigmon, Rebecca <Rebecca.Sigmon@nrc.gov>
Cc: Robles-Alcaraz, Jesse <Jesse.Robles-Alcaraz@nrc.gov>; Carneal, Jason <Jason.Carneal@nrc.gov>
Subject: FW: MD 8.3/IMC 0309 -Calvert Cliffs, Units 1 and 2 - Loss of Starting Air

What bothers me about this, is that what is the chance that the induced voltages (which they don't yet know the cause) would not have revealed itself when it did, but later, after the EDG was declared operable? I mean, when we look back on other events, where induced voltages have been a problem, they don't always reveal themselves when a mod or replacement activity occurs, it usually is at some point in time after the fact. This was worth investigating more to understand if they understood the exact cause and window of exposure.

I don't believe for a second that the risk was in the 1E-8 range.

From: Robles-Alcaraz, Jesse
Sent: Thursday, October 25, 2018 6:56 AM
To: King, Mark <Mark.King@nrc.gov>
Cc: Nolan, Catherine <Catherine.Nolan@nrc.gov>; Carneal, Jason <Jason.Carneal@nrc.gov>; Pannier, Stephen <Stephen.Pannier@nrc.gov>; Thompson, John <John.Thompson@nrc.gov>; Sigmon, Rebecca <Rebecca.Sigmon@nrc.gov>
Subject: FW: MD 8.3/IMC 0309 -Calvert Cliffs, Units 1 and 2 - Loss of Starting Air

FYI

Jesse

From: Pinkham, Laurie

Sent: Wednesday, October 24, 2018 4:07 PM

To: NRR_Reactive_Inspection Resource <NRR_Reactive_Inspection.Resource@nrc.gov>

Cc: R1-DL-DRP <R1-DL-DRP@nrc.gov>; R1-DL-DRS <R1-DL-DRS@nrc.gov>; Krohn, Paul <Paul.Krohn@nrc.gov>; Munday, Joel <Joel.Munday@nrc.gov>; Franke, Mark <Mark.Franke@nrc.gov>; Loudon, Patrick <Patrick.Louden@nrc.gov>; Lara, Julio <Julio.Lara@nrc.gov>; Vogel, Anton <Anton.Vogel@nrc.gov>; Lantz, Ryan <Ryan.Lantz@nrc.gov>; Burket, Elise <Elise.Burket@nrc.gov>; Ayala, Juan <Juan.Ayala@nrc.gov>

Subject: MD 8.3/IMC 0309 -Calvert Cliffs, Units 1 and 2 - Loss of Starting Air

DISTRIBUTION:

MD 8.3/IMC 0309

Calvert Cliffs Units 1 and 2 – Loss of Starting Air

Event Date: 8/11/2018

Evaluation Date: 8/12/18

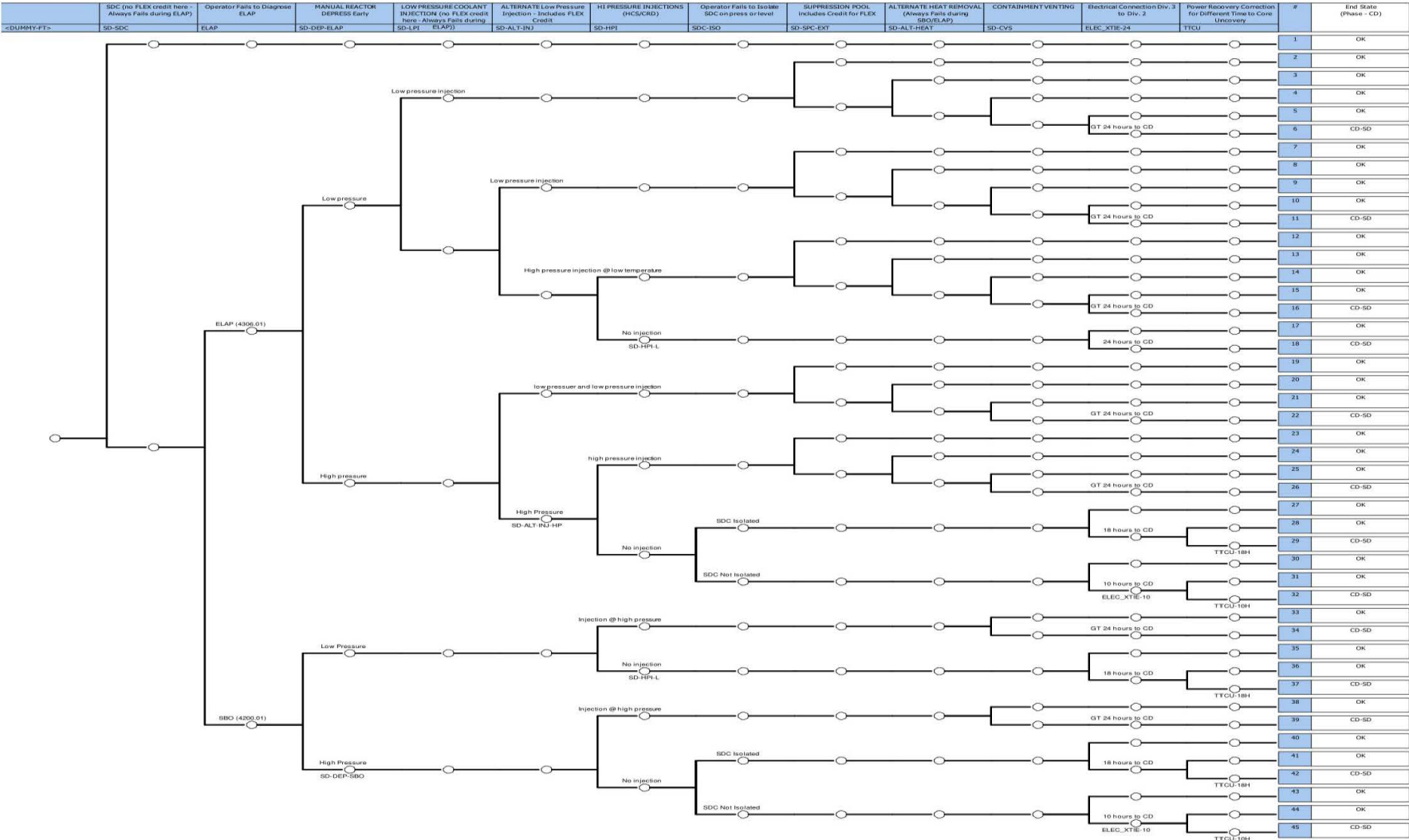
ADAMS Accession No. ML18297A163

Thanks and have a great day!

Laurie Pinkham, Lead Administrative Assistant
Division of Reactor Projects
(610) 337-5384



Figure 1: Loss of Ofsite Power (LOOP) Event Tree



Package Name: EA-18-104

Accession Number: ML19023A556

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	Name	Accession Number	Official Record?	Availability	Document Date	ADAMS Date Added
	Attachment 10: HEP Evaluation Related to Shutdown Cooling Isolation	ML18360A478	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:18 PM
	Attachment 11: Procedures and Training Material on Maintaining RPV Pressure Low.	ML18360A479	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:18 PM
	Attachment 12: Time Validation - Performance of Division 3 DG to Division 2 Bus Cross-tie	ML18360A480	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:18 PM
	Attachment 13: Simulator Exercise Guide SE-JIT-42, "Loss of AC, Loss of SDC and Lowering RPV Level," Rev 1.	ML18360A481	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:18 PM
	Attachment 14: CPS Procedure 4200.01 C002, "DC Load Shedding During a 580," Rev 5a.	ML18360A482	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:18 PM
	Attachment 15: FLEX and Cross-tie Training Material.	ML18360A483	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:19 PM
	Attachment 16: Graph of RPV Water Level.	ML18360A484	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:19 PM
	Attachment 17: Inconsistencies Between FLEX SE and Choice Letter Assumptions.	ML18360A485	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:19 PM
	Attachment 1: Summary of Exelon Position.	ML18360A469	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:16 PM
	Attachment 2: Response to NRC Questions and Documentation Requests.	ML18360A470	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:16 PM
	Attachment 3: EC 626319, "Battery Coping Time Evaluation to Support Inadvertent Isolation of Div. II Air Start Receiver Valves"	ML18360A471	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:16 PM
	Attachment 4: Training Material on Diesel Generator Malfunctions	ML18360A472	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:17 PM
	Attachment 5: Senior Reactor Operator Surveys.	ML18360A473	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:17 PM
	Attachment 6: CPS Shift Manager Surveys Regarding ELAP Scenarios.	ML18360A474	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:17 PM
	Attachment 7: Time Validation - Performance of SBO and Starting of Division 2 Diesel Generator.	ML18360A475	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:17 PM
	Attachment 8: 2017 Training Material on Diesel Generator Air Start Flow Plow.	ML18360A476	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:17 PM
	Attachment 9: Procedures on Shutdown Cooling Isolation.	ML18360A477	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:18 PM
	Clinton Power Station, Unit 1 - Exelon Evaluation of Preliminary White Finding.	ML18360A468	Yes	Publicly Available	Dec 14, 2018	Dec 26, 2018 2:15 PM

There are 18 Documents in this Package

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Clinton Regulatory Conference Notes

New information supplied by presentation (we have not yet formed any opinion)

1. **Knowledge-based DG recovery will occur in 11 minutes** – Previous licensee information discussed DG recovery in 2 hours with the valves identified in 40 minutes using procedures.
2. **DG training on recovery** – Simulator and JPMs not previously reviewed are mentioned.
3. **Shutdown cooling isolated per procedure extending the time to core damage** – A procedure to close the valves and a licensee developed human error probability are mentioned which were not previously reviewed.
4. **Battery capacity increased from 11 hours to 24 hours** – This is mentioned but no details are provided.

Points of Disagreement (not new)

1. **ELAP declaration at 1 hour** – Procedures direct ELAP decision at 1 hour and instruct operators to exit the Loss of AC (SBO) procedures. We agree that if valves are found before 1 hour, ELAP should not be declared. If operators decide not to follow this proceduralized guidance, they enter territory with increased decision making errors.
2. **Division 3 to Division 2 cross-tie complexity, timing and training** – The cross-tie procedure contains many steps (37), has never been exercised, takes place in multiple plant locations and is not frequently trained on. Note that licensee risk evaluation indicates: There is no JPM, the action is complex, and there are negative performance shaping factors.
3. **RPV pressure control between 60 and 100 psig without injection** – NRC review indicates there are no procedures for opening SRVs (which would pass lower RCS water as level as it start with level is above the MSL) to control pressure without low pressure injection available. Gothic calculations indicate this action would extend the time to CD but it is not in licensee procedures. Note that the licensee risk evaluation does not credit pressure control without injection.
4. **Parallel recovery efforts** – NRC review indicates that the recovery activities can't be performed in parallel to completion. Division 2 can only be powered by one method at a time. If the diesel or offsite power are not recovered in one hour, load shed and FLEX implementation complicate further recovery of those methods.
5. **Command and Control** – If Clinton operators do not follow procedures because there is a "better solution" then there is an additional probability-human action that needs to be added that evaluates this decision-making. Because this is an un-proceduralized step, and is not subject to training, the probabilities of failure would be significant.

Important Considerations

1. **Many licensee arguments are deterministic, not probabilistic** – Statements are made that the valves will be found in one hour. From a risk perspective, the valves are very-likely to be found within 1 hour (80% success), but success is not assumed to occur 100% in PRA. Other points about being in compliance with requirements for FLEX, passing the TI-191 inspection, having a systems approach to training, do not provide information about the reliability of operator actions. A risk evaluation looks at the reliability of actions and equipment.
2. **The NRC risk analysis shows operators are likely to succeed** – Operators are likely to recover the diesel (80% success) and are overall likely to mitigate the SBO if it occurred (-99.6%). The NRC's threshold for a GTG finding is low – one in a million change in the frequency of core damage.
3. **Relevant procedure direction not presented in slides** – Selective presentation of procedure direction. There are equally important statements in the annunciator response procedures and the loss of AC procedures that provide more context on the decisions facing the operator.

4. **The licensee's risk evaluation has not considered everything they propose the NRC should consider** – It appears that the licensee risk estimate would be much lower than $1\text{E-}8$ if they considered all the points presented and that recovery of the diesel would not be relevant, i.e., an unrecoverable EDG would also be a finding of very low safety significance.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

June 7, 2018

MEMORANDUM TO: Charles Phillips, Project Engineer
Division of Reactor Projects, Branch 1

FROM: Patrick L. Loudon, Director /RA/
Division of Reactor Projects

SUBJECT: SPECIAL INSPECTION TEAM CHARTER FOR INOPERABILITY
OF THE CLINTON POWER STATION DIVISION 1 AND
DIVISION 2 EMERGENCY DIESEL GENERATORS

On Thursday, May 17, 2018, a non-licensed operator discovered the Division 2 emergency diesel generator (EDG) was inoperable due to the air receiver outlet valves being in the closed position. At the time of this discovery, the Division 1 EDG was inoperable and unavailable to complete planned outage maintenance on the Division 1 alternating current (AC) electrical power system. The licensee determined operations personnel failed to open the Division 2 EDG air receiver outlet valves when the EDG was returned to service on May 11, 2018. The licensee subsequently removed the Division 1 EDG from service on May 14, 2018. Once the concurrent inoperability and unavailability of the Division 1 and Division 2 EDGs was identified, operations personnel opened the Division 2 EDG air receiver outlet valves to restore the EDG to an operable status.

The inoperability and unavailability of the Division 1 and Division 2 EDGs resulted in a loss of safety function for the onsite AC electrical power system and placed the Unit in an unplanned shutdown risk red condition for the electrical power key safety function. This condition also caused an unplanned shutdown risk orange condition for the decay heat removal key safety function due to the unavailability of safety-related electrical power to the primary and alternate decay heat removal systems.

Based on the deterministic criteria provided in Management Directive (MD) 8.3, "NRC Incident Investigation Program," the event met MD 8.3 criterion (d), in that there was a loss of safety function for the Division 1 and Division 2 EDGs. The event also met MD 8.3 criterion (h), in that the event raised concerns pertaining to operational performance in the areas of configuration control, risk management and oversight. The risk assessment resulted in an estimated Conditional Core Damage Probability (CCDP) range of E-6 and put the event in the Routine Inspection/Special Inspection overlap region.

In addition to this event, Region III also noted the licensee's recent performance in the areas of configuration control, risk management and oversight. Between May 1 and May 13, 2018, three self-revealing events occurred indicating weaknesses in configuration control, risk management and oversight may be more widespread. The issues included:

CONTACT: Karla Stoedter, DRP
630-829-9731

Inability to Trip a Reactor Recirculation Pump Breaker – During activities to trip the pump breaker, the breaker would not trip. Although the licensee initially believed the breaker's failure to trip was due to circuitry issue, a subsequent review determined licensee personnel were unaware the breaker's control power configuration had changed from energized to de-energized due to planned maintenance on the Division 4 NSPS system.

Unexpected SCRAM Signal due to Maintenance Activities – On May 7, 2018, with one division of the instrument range monitoring system (IRMs) out of service, the licensee performed maintenance and testing on another IRM division which caused a SCRAM signal to be generated. The work instructions in use did not specify an order for disconnecting the test equipment used during this activity. In addition, operations and maintenance personnel did not recognize a SCRAM signal could occur based upon the order the test equipment was removed.

Failure to Verify Valve Position Prior to Operation Results in Equipment Damage – On May 9, 2018, operations personnel directed an equipment operator into the plant to relax the high pressure core spray minimum flow valve off of its seat. Based upon the direction provided, the equipment operator assumed the minimum flow valve was in the closed position and the valve needed to be opened to relax it off its seat. Neither the operations personnel providing the direction nor the equipment operator sent into the plant used configuration control information to validate the minimum flow valve's position. As the operator applied force and attempted to open the valve, the valve was forced into its backseat (due to being in the open position) and over torqued shearing the valve's stem.

Based on the deterministic and risk criteria in MD 8.3, the licensee's recent performance discussed above, and after consultation with NRR, Region III has decided to commence a Special Inspection on June 20, 2018. The Special Inspection will be led by you and will include Robert Murray and Jason Draper. In addition, Laura Kozak, RIII Senior Reactor Analyst, and Jeff Mitman, Senior Reliability and Risk Engineer, will assist the team as needed. The focus of the inspection is to gather information to determine the cause of the EDG event, understand the increased plant shutdown risk condition, and evaluate the licensee's immediate and planned corrective actions for the personnel and process weaknesses that led to the event. On a daily basis, the team should evaluate the need for increasing the scope of the inspection if conditions warrant.

The Team's charter is enclosed.

Docket No. 50-461
License No. NPF-62

Enclosure: Clinton Special Inspection Team Charter

CONTACT: Karla Stoedter, DRP
630-829-9731

DRAFT CLINTON SPECIAL INSPECTION TEAM CHARTER

This special inspection team is chartered to assess the circumstances surrounding the concurrent inoperability and unavailability of the Division 1 and Division 2 emergency diesel generators (EDGs) during the 2018 Refueling Outage. The Special Inspection will be conducted in accordance with Inspection Procedure 93812, "Special Inspection." The special inspection will include, but is not limited to, the items listed below. This charter may be revised based on the results and findings of the inspection. The inspection results will be documented in NRC Inspection Report 2018050.

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.
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. Evaluate 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.
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.
9. Continually evaluate the complexity and significance of the event to determine if the circumstances warrant escalation of the inspection to an augmented inspection team.
10. Identify any lessons learned from the Special Inspection, and prepare a feedback form on recommendations for improving reactor oversight process (ROP) baseline inspection procedures.

Enclosure

Special Inspection Team

Charles Phillips, Project Engineer, DRP, Special Inspection Team Leader
Robert Murray, Senior Resident Inspector, Quad Cities
Jason Draper, Health Physicist, DNMS

Charter Approval

/RA/ 6/5/18 K. Stoedter, Chief, Branch 1, Division of Reactor
Projects

/RA/ 6/6/18 K. O'Brien, Director, Division of Reactor Safety

/RA/ 6/7/18 P. Loudon, Director, Division of Reactor Projects

ADAMS Accession Number: ML18158A170

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
OFFICE OF NEW REACTORS
WASHINGTON, DC 20555-0001

NRC INFORMATION NOTICE 2019-XX: INADEQUATE IMPLEMENTATION OF
CLEARANCE PROCESSES RESULTS IN
CONFIGURATION CONTROL ISSUES

ADDRESSEES

All holders of an operating license for a nonpower reactor (i.e., research reactor, test reactor, or critical assembly) under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those that have permanently ceased operations.

All holders of an operating license or construction permit for a nuclear power reactor under 10 CFR Part 50, except those that have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

All holders of and applicants for a combined license under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice (IN) to inform addressees of several recent events in which operators failed to ensure the proper implementation of plant processes governing clearance activities that resulted in configuration control issues that affected the operability of safety-related systems. The NRC expects that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar issues. However, the suggestions in this IN are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

Cooper Nuclear Station

On September 29, 2016, during planned maintenance on the Division 1 residual heat removal (RHR) system during a scheduled refueling outage at Cooper Nuclear Station, the RHR minimum flow isolation valves were danger-tagged in the closed position, as required by a clearance order.

On October 7, 2016, when the clearance order was lifted, licensee personnel failed to reposition the RHR minimum flow isolation valves for RHR pumps A and C to the open position before reinstalling the valve sealing devices. The clearance order directed that the valves be repositioned to open, then sealed in the open position as part of restoration to reduce the chances that the valves could be inadvertently shut. The clearance order also required a

second, independent verification of the valve restoration. Both the individual responsible for repositioning and sealing the valves, and the individual responsible for verifying the valve position, confirmed through their signatures that the rising-stem manually operated valves were sealed in the open position.

A quarterly sealed valve audit conducted from November 23–29, 2016, verified that the seals on the valves were correctly installed. However, the procedure did not require verification of the position of the valves; it only required verification that the seals were intact. The incorrect position was not noted at the time. On February 5, 2017, during the next quarterly sealed valve audit, the operator performing the audit noted that the position of the rising stems indicated that the valves appeared closed and notified the control room. Personnel were directed to reposition the valves and seal them open, restoring operability of the Division 1 RHR system.

The licensee determined that the affected pumps had been operated 15 times while the minimum flow line was isolated and that the longest time any pump was continuously operated in this condition was 2 minutes and 18 seconds. After demonstrating satisfactory performance of the affected pumps using the 2-year comprehensive surveillance test procedure and performing a detailed analysis of the 2-year comprehensive surveillance data by comparing test results from October 2007 through February 6, 2017, the licensee's evaluation of operability concluded that the Division 1 RHR pumps had not degraded.

The NRC chartered a special inspection in response to this event and identified a noncited violation of technical specification requirements for the operability of the emergency core cooling system. Cooper Licensee Event Report 05000298/2017-001, "Residual Heat Removal Minimum Flow Valves out of Position Results in Loss of Safety Function and Condition Prohibited by Technical Specifications," Revision 1, dated December 15, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17354A150), and NRC Special Inspection Report 05000298/2017009, dated June 27, 2017 (ADAMS Accession No. ML17179A282), provide further details on this event.

Clinton Power Station

During a scheduled refueling outage at Clinton Power Station, the licensee hung tags under several clearance orders, including on the Division 2 emergency diesel generator (EDG) and associated support systems, for planned work on the 1B1 electrical bus. On May 9, 2018, one of the clearance orders, which included the Division 2 EDG air receiver isolation valves, was completed, with instructions to remove tags and restore the systems involved to standby status. However, a note in the control room log stated that system restoration was not completed and needed to be performed after other ongoing work associated with the Division 2 shutdown service water system was finished. The clearance order was closed out with only the control room log entry tracking the abnormal (closed) position of the Division 2 EDG air receiver isolation valves.

The following day, a control room operator directed a portion of the clearance order for the EDG system restoration procedure to be completed to restore the Division 2 EDG lubrication system. The operator who directed the restoration turned over the shift before completion of the activity. When the partially completed restoration procedure was returned to the control room, the new control room operator incorrectly believed that all restoration activities for the Division 2 EDG had been completed and declared the EDG operable early on May 11, 2018.

Three days later, at 12:30 a.m. on May 14, 2018, the Division 1 EDG was declared inoperable for scheduled maintenance on the 1A1 electrical bus. At this point, with the Division 2 EDG air receiver isolation valves still in the closed position, both EDGs were inoperable. Had a loss of offsite power event occurred, an immediate station blackout event would have taken place. The impact would have been mitigated by the availability of diverse and flexible coping strategies (FLEX) equipment, the smaller Division 3 EDG that could have been cross-tied to selected Division 2 loads, and two diesel-driven fire pumps that could have worked in conjunction with safety relief valves to provide feed-and-bleed cooling to the reactor core if necessary.

The licensee discovered the out-of-position air receiver isolation valves on the Division 2 EDG during shift rounds on May 17, 2018. It restored the valves to the open position and declared the EDG operable at 9:04 p.m. that evening.

The NRC chartered a special inspection in response to this event and identified a violation of Criterion V, "Instruction, Procedures, and Drawings," of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50 and the technical specification requirements for EDG operability. Clinton Licensee Event Report 05000461/2018-002, "Division 2 Diesel Generator Inoperability due to Air Receiver Remaining Isolated Following Clearance Removal Resulting in Unplanned Shutdown Risk Change," dated July 16, 2018 (ADAMS Accession No. ML18199A106); NRC Special Inspection Report 05000461/2018050, dated August 23, 2018 (ADAMS Accession No. ML18235A170); NRC Inspection Report 05000461/2018051, dated November 6, 2018 (ADAMS Accession No. ML18311A151); and NRC Inspection Report 05000461/2018092, dated April 1, 2019 (ADAMS Accession No. ML19092A212), provide further details on this event.

Watts Bar Nuclear Plant, Unit 1

On July 21, 2018, the licensee for Watts Bar Nuclear Plant performed work to repair a leak on a 7.6-centimeter (3-inch) pipe in the high-pressure fire protection (HPFP) system. Before beginning the work, the licensee generated a clearance order to isolate and tag out the affected portion of the system. The "Remarks" section of the clearance order specified a drain valve and two vent valves that were to be used to drain that portion of the system; however, the valves were not written into the tagging portion of the clearance order. Therefore, the order did not assign any information or danger tags to these valves. Licensee personnel attempting to drain the piping found that the valves identified on the clearance order were insufficient for the task. Additional drain locations were identified through an e-mail from the fire marshal, and they proved adequate for draining the system. However, the clearance order was not modified to identify these additional drains.

After completing the pipe repair, the licensee restored the system based on the tags identified in the clearance order. The licensee personnel responsible for restoration did not recognize that either the drain or vents identified in the "Remarks" section of the clearance order or the drains identified in the fire marshal's e-mail were still open. As a result, the clearance order was released with these components still open. As the HPFP system was returned to operation, water discharged through the open vent and drain paths and flooded portions of the Unit 1 auxiliary building and the Unit 1 auxiliary equipment building.

The flooding caused the annunciation of alarms in the control room from (1) high sump levels, (2) erratic indications to the source range and intermediate-range nuclear instruments caused by water intrusion to electrical equipment associated with the instruments, and (3) grounds on the Unit 1 vital battery boards. The licensee isolated the affected portions of the HPFP header,

performed walkdowns to identify potentially affected equipment, and evaluated the continued operability of the equipment.

The event resulted in a noncited violation of technical specification requirements for implementing procedures. NRC Integrated Inspection Report 05000390/2018003 and 05000391/2018003, dated November 1, 2018 (ADAMS Accession No. ML18308A007), provides further details.

DISCUSSION

Operability of systems required by plant technical specifications depends on operator awareness of the current configuration of system components to ensure compliance with the plant-specific licensing basis. Plant procedures that govern clearance activities allow for the systematic isolation, tagging, and subsequent restoration of components and systems for maintenance and testing activities. Performing these activities in a deliberate and rigorous manner establishes an instrumental administrative barrier that helps to ensure the safety of plant personnel by providing proper isolation of high-energy systems and ensuring the operability of equipment relied on for safe plant operation.

The events described above illustrate how the clearance process can break down. Valve manipulations outside the documented scope of work, inadequate communications during the turnover of ongoing work across multiple shifts, actions taken based on assumptions made without adequate verification, and informal methods of tracking abnormal component configurations on systems with the ability to impact safety were contributing factors to these events. Rigorous adherence to process requirements for tracking components in an abnormal configuration, even when current plant conditions allow such a configuration, helps maintain awareness for potential impacts to operability and facilitates communication for work that continues across multiple shifts.

CONTACT

This IN requires no specific action or written response. Please direct any questions about this matter to the technical contacts listed below or to the appropriate NRC Office of Nuclear Reactor Regulation (NRR) project manager.

Robert M. Taylor
Division of Licensing, Siting, and
Environmental Analysis
Office of New Reactors

Christopher G. Miller, Director
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

Technical Contact: Rebecca Sigmon, NRR
301-415-0895
Rebecca.Sigmon@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site,
<http://www.nrc.gov>, under NRC Library.

ADAMS Accession Number: ML19084A081 *via email

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DATE	5/6/2019				

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GENERIC REG CONFERENCE DIVISION DIRECTOR REMARKS

Good afternoon, I'm [name and title]. Welcome to Region III.

We'll do introductions in a moment.

This is a regulatory conference between the NRC and [name] to discuss issues associated with [topic] at [facility name].

The conference is OPEN to public observation. Members of the public who are in attendance at this meeting, you should be aware that this is a meeting between the Nuclear Regulatory Commission and [licensee]. Following the conference, NRC staff will be available to answer questions and receive comments from members of the public concerning matters discussed at this conference.

But before we begin discussing the issues, let's start by doing introductions. Again I'm [name]

<INTRODUCTIONS at table or in room at speaker's discretion>

I would now ask that any members of the public in the audience or listening over the phone introduce themselves.

OPERATOR, PLEASE OPEN ALL LINES.

<When introductions completed> Thank you. **OPERATOR, PLEASE MUTE ALL LINES.**

For our agenda this morning/afternoon, I'll start with the purpose of this regulatory conference. Then **[enforcement officer]** will discuss aspects of our enforcement policy, as they relate to the matters before us today.

Then **[inspector or branch chief]** will briefly summarize our inspection finding and present our preliminary significance determination.

After which I'll turn the meeting over to you to discuss the issues and to provide any additional information that you want us to consider in making our final decision on the significance of the finding. Normally, the NRC asks questions during the presentation. However, you should not take questions, or their absence, to indicate an NRC position on the issues. We are using this opportunity to obtain more information concerning the issues, so that we can develop a final decision that considers all relevant aspects of the issues.

After your presentation, we'll break for a quick caucus of the NRC staff to discuss the information that you provided and to formulate any additional questions we want to ask before we end the meeting.

Are there any questions about the meeting agenda?

A Regulatory Conference is the last step of the inspection process before the NRC makes its final decision on the significance of the inspection findings. The purpose of this conference, which you requested, is to allow you to identify your disagreements, in part or all, with the facts and assumptions that the NRC used to make its preliminary

significance determination, and to allow you to present new information that may assist the NRC in arriving at the most appropriate final significance determination.

We would also appreciate your views as to whether there is any other information that may be relevant to the application of the significance determination in this case, including your position on the content and accuracy of the inspection report findings which were provided to you in advance of this conference. If you have any additional information that is under development and is not available to be presented at this regulatory conference, please inform us of the nature of the information. The NRC must receive any additional information which you would like us to consider by no later than fifteen days from this conference if you would like us to consider it as part of our review.

In addition to discussing your views on the safety significance of the finding, you may want to present your views on the identified apparent violation. The primary purpose of this meeting is to discuss issues related to the safety significance of the finding, which informs the outcome of the apparent violation. However, because a separate predecisional enforcement conference is normally not convened to discuss the apparent violation, any discussion concerning apparent violations and the applicable corrective actions will be considered.

We will use the information obtained today, and any followup information supplied to reach a significance determination and enforcement decision. As a reminder, the NRC's goal is to issue the final significance determination letter within 90-days of the first official notification describing the finding.

If you have any questions now or at any time during this conference, we would be pleased to answer them. However, this meeting is not intended to be a debate, especially when it comes to the probabilistic methods used.

Offer RA/DRA/Other Senior Managers opportunity to speak: Before I turn things over to the Enforcement Officer, [RA/DRA] would you like to add anything?

Turn over to Enforcement Officer to discuss enforcement details: [Enforcement representative] will now refresh us on those aspects of our enforcement policy that are germane to the matters before us today.

Turn over to the branch chief or inspector to discuss violations: Thank you [Enforcement representative.] [Branch chief/inspector] will briefly summarize our inspection findings and present our preliminary significance determination.

<The **inspector or branch chief** will briefly go over the facts of each apparent violation, specifically mentioning what requirement was violated. Severity level for a traditional violation is **NOT** mentioned.>

<Turn over to **senior risk analyst** to discuss risk.>

Turn over to licensee: [Licensee main person], I now turn the meeting over to you. For those who will be following the licensee's presentation on the phone, and who have access to a computer, the licensee's slides are available in the NRC's ADAMS document system at **ML**. <If members of the public are in the room: A few copies are available on the counters here in the room.>

<During the meeting, NRC will ask questions based on issues pertinent to the case, as discussed during the pre-conference caucus. However, the purpose is to understand what new information the licensee is providing, not to engage in a debate with them. Even if the NRC disagrees with the licensee's position, it may be enough to ask them if they are providing new information from what was previously considered by the NRC in the inspection report, state that it appears to have already been considered, and move on.>

CAUCUS

<The purpose of the caucus is to determine if there are any outstanding questions to be asked prior to closing the conference.>

CLOSING

I want to thank you for taking advantage of this aspect of our enforcement process and for making the trip to our offices to discuss the issues and their significance. **Highlight any commitments made and timeframe when they will provide it.**

Enforcement Representative will go over the next steps in the enforcement process. He will specifically ask the licensee if they agree or disagree with each violation.

The **RA/DRA** is then offered a chance to make closing remarks.

SPAR-H

2.2.1 Guidance for Diagnosis

Guidance for diagnosis has to do with attributing the most likely causes of the abnormal event to the level required to identify those systems or components whose status can be changed to reduce or eliminate the problem. It includes interpretation and (when necessary) decision making. Diagnosis tasks typically rely on knowledge and experience to understand existing conditions, plan and prioritize activities, and determine appropriate courses of action.

When answering the question “Does this task contain a significant amount of diagnosis activity?” one should consider whether the operator or crew has to expend mental energy to observe and interpret what information is present (or not present), determine what that means, think of possible causes and decide what to do about it. The greater the amount of observing, interpreting, thinking and deciding the operator or crew performs, the more significant the amount of diagnosis activity that is taking place.

SPAR-H Step by Step

Section 2. Step-1 – Categorizing the HFE as Diagnosis and/or Action

In addition to basic documentation on the HFE and related context, one key decision to be made by the analyst is judging what type of event is being quantified. In the context of SPAR-H, HFEs are categorized as either Diagnosis tasks or Action tasks (or combined Diagnosis and Action). Diagnosis for the purpose of SPAR-H quantification refers to the entire spectrum of cognitive processing, from the very complex process of interpreting information and formulating an understanding of a situation, to the very simple process of just deciding to act.

The bases for the nominal SPAR-H HEP values and for the PSF modifier values are discussed in detail in Boring & Blackman (2007). They explain that the nominal HEP value for the “Action” part of the SPAR-H worksheets (0.001) is based on error rates for simple action implementation, such as pressing a button or turning a dial, and simple slips or lapses in the taxonomy used by (Reason, 1990). Furthermore, “Diagnosis” in SPAR-H is intended to refer to cognitive processing and not to Diagnosis, per se. Most HFEs in the SPAR models involve much more cognition than merely pushing a switch; therefore it is not appropriate to routinely exclude the Diagnosis component from HFE quantification. The only exception where it can be justified that the HFE involves no cognitive activity beyond simple action implementation is when the cognitive aspect is modeled as a separate HFE and only the execution is being considered.

It is a rare situation where Diagnosis is judged to not be a relevant contributor to the overall HEP for HFE in SPAR models. In the context of PRA in general, and SPAR models in particular, there are very few

situations where a Diagnosis and an Action are not linked somehow. Action rarely occurs without Diagnosis, but it might be possible to have a Diagnosis that is not followed by an Action. Really the only question here is: is the Diagnosis represented in the PRA or SPAR model as a separate HFE, or is it combined with the Action part into a single-composite HFE?

Therefore, the default modeling in SPAR-H should include both Diagnosis (cognitive processing) and Action (execution). Justification is needed to eliminate one of these elements. This is consistent with the Good Practices for HRA (Kolaczowski et al, 2005), which states that both screening and detailed quantification should include both Diagnosis and Execution components, unless the qualitative HRA “indicate(s) that one of these failure modes predominates the other in such a way that the effect of only one failure needs to be quantified.”

From: Leech, Matthew
Sent: Fri, 15 Feb 2019 14:26:55 +0000
To: Gonzalez, Felix;Yeilding, Dale;Wang, Zeechung;Hunter, Christopher
Subject: Clinton SDP

Just thought I would give you an update. Yesterday afternoon management held another SERP for the Clinton shutdown finding in which they inadvertently had both EDGs out of service during an outage at the same time for several days.

Originally there was a SERP held which agreed with a preliminary White finding, then the licensee had a reg conference to offer their defense and followed by them giving the NRC 2000 pages of documents arguing for a Green finding.

Yesterday's SERP was to see if the finding would remain White or not based on a review of the new information that Clinton provided and any revised risk estimates. Unfortunately, the SERP panel could not reach a consensus among all members (which is required, it's not just a majority). Most wanted to keep it White, at least one member was advocating to lower it to Green.

The next step in the process could go 2 ways. #1 - they can address any differences or issues and could reconvene to have another SERP to see if all parties can agree OR #2 - they won't meet again and instead will turn it over to senior management like the director of NRR and the regional administrator to sit down and decide what it will be.

In the case of Cooper's SDP that I was involved in back in 2017, on the first SERP we couldn't agree so we re-analyzed it and then had a re-SERP and agreed on a preliminary White.....eventually after a reg conference that one went Green.

From: Miller, Chris
Sent: Mon, 25 Mar 2019 14:20:11 +0000
To: Nieh, Ho; Felts, Russell; Evans, Michele; McDermott, Brian
Subject: FW: Clinton White

We in DIRS and DRA concurred on the Detailed Risk Evaluation changes. The concurrence on the letter is upcoming.
chris

From: Lara, Julio
Sent: Monday, March 25, 2019 9:01 AM
To: Miller, Chris <Chris.Miller@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>
Subject: RE: Clinton

It is in concurrence. It should be in your "in-box" today or tomorrow. As of Friday, OE/DRA/DIRS were next.

From: Miller, Chris
Sent: Monday, March 25, 2019 7:58 AM
To: Lara, Julio <Julio.Lara@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>
Subject: Clinton

Has the letter with White significance gone out to licensee yet?
Thanks
Chris

From: Hunter, Christopher
Sent: Mon, 3 Dec 2018 17:50:37 +0000
To: Leech, Matthew
Subject: RE: Clinton Reg Conference

Thanks for the information...very interesting.

From: Leech, Matthew
Sent: Monday, December 3, 2018 12:13 PM
To: Hunter, Christopher <Christopher.Hunter@nrc.gov>
Subject: RE: Clinton Reg Conference

I think the NRC was asking a lot of detailed questions and challenging a lot of what they were saying to the point where it was really slowing things down. Not that the NRC was wrong, it just seemed to disrupt the flow a lot more than I've seen in the 2 conferences that I had been to before. Granted, Jeff and Laura know a LOT about this event.

One funny point....some guy from Exelon got really frustrated at one point and argued that the dominant sequence was all hypothetical.....of course it is, we are talking about PRA.

A couple key things I found that depending on how they get decided will make or break it I think....

1. Clinton is really arguing that they would have found the out of position valves within 30 minutes....I didn't stay long enough to hear their argument. They claimed they did some sort of test with operators including operators from different sites and they all found the valves quickly.....to me that test sounds un-objective, of course the operators are going to know where to look they will know why they are there. I didn't hear an explanation of why or how the operators doing rounds for 6 days failed to find the valves.
2. Clinton is arguing that they would NOT have entered ELAP space and instead just stayed in a standard SBO procedure. Jeff M and Laura would know who to believe, I have heard 2nd or 3rd hand that when the NRC did a site inspection and interviewed operators they said they would have entered FLEX and ELAP space....now at the reg conference Clinton is arguing that they did interviews and 28 out of 28 operators would NOT have entered ELAP....not sure who to believe. If they don't enter ELAP they have much more time to recover EDG. ELAP would have them de-energize control power to the EDG so Jeff cuts off EDG recovery quickly at 1 hour in his model, which is influential.
3. They made a point that their batteries would last much longer than their typical coping time because they were shut down and a lot of equipment that drains the batteries is shutdown and out of service. That would potentially give them more mitigation.....
4. Clinton claimed our model doesn't credit them shutting a RHR cooling valve that when that valve is closed changes time to core damage from 10 hours to about 24 hours.....if we credit that then they should get more recovery time.

It was very interesting but no bombshells. I'll look forward to hearing how this gets resolved.

From: Hunter, Christopher
Sent: Monday, December 03, 2018 10:17 AM

To: Leech, Matthew <Matthew.Leech@nrc.gov>

Subject: Clinton Reg Conference

How did it go?

Thanks,
Chris

Sr. Reliability and Risk Engineer

RES/DRA/PRB

T-10A50

Phone: (301) 415-1394 (Wednesday)

Home Phone: (b)(6)

Mobile Phone: (b)(6)

Email: Christopher.Hunter@nrc.gov

From: Kichline, Michelle
Sent: Fri, 26 Oct 2018 15:57:35 +0000
To: Mitman, Jeffrey
Subject: RE: Re-evaluation of HFE for EDG non recovery - Clinton

Do you have an estimate for how long it would take to work through procedure 3506.01P002 to get to step 2.2.6 where the air valves are found? There is a step in the lube oil section to take off all the cylinder caps to look for moisture. That doesn't seem like a quick step. That section leaves the control switch in the lockout position, so they can't just skip the rest of section 2.0 and get the EDG started. They have to at least perform section 2.5 before trying to restart the EDG.

Since you are asking me to ignore the fact that they start load shedding in the beginning of the LOAC procedure and assume they have the full hour to find the valves closed, I may want to revise my answer.

Michelle Kichline

Division of Risk Assessment
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
301-415-3153

From: Mitman, Jeffrey
Sent: Friday, October 26, 2018 9:09 AM
To: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Kichline, Michelle <Michelle.Kichline@nrc.gov>; Leech, Matthew <Matthew.Leech@nrc.gov>; Demers, Jerrod <Jerrod.Demers@nrc.gov>; Hartle, Brandon <Brandon.Hartle@nrc.gov>
Cc: Fong, CJ <CJ.Fong@nrc.gov>
Subject: RE: Re-evaluation of HFE for EDG non recovery - Clinton

Michelle has asked for some additional information. I'm supplying it to everyone.

1. The only EDG specific alarm in the MCR that I'm aware of is the "Tripped Diesel Gen 1B" annunciator. The alarm response card is attached. Obviously, there will be multiple additional MCR indications that the LOOP has occurred. Keep in mind that EDG1 was tagged out for maintenance and would not attempt to start. EDG3 would start and load the Div. 3 bus, however, the MCR knew that the only associated RCS injection pump (HPCS) was tagged out for maintenance. Even if the HPCS pump were available, plant procedures describe situations without EDG1 and EDG2 but with EDG3 as a SBO. Because EDG2 was the protected EDG during the period of interest, the MCR would at least initially focus on it.
2. The Loss of AC Power procedure (CPS 4200.01) in Step 1.5 defines an ELAP as "A total and sustained (>1 hour) loss of both offsite and onsite AC power sources **as a result of a postulated Beyond Design Basis External Event (BDBEE)** which is expected to exceed the 4 hour SBO coping period (emphasis added)." While the language about BDBEE is clear and unambiguous, it was also clear from discussion with the Clinton personnel that if the loss of power occurred from some other initiator, they would still consider utilization of the FLEX equipment. We (NRC) immediately saw this narrow

definition but after discussions with Clinton personnel opted to ignore the definition and to credit FLEX where appropriate. Michelle asked specifically: When are the crews trained to go to ELAP? My interpretation of all of the information supplied: If they expect that the SBO to last more than 1 hour. Specifically, if they have a "high assurance of power restoration," they will not declare the ELAP. This has been a topic of intense discussion both with the licensee and internally. However, this question is outside the definition of the HFE that you have been asked to evaluate.

The HFE write-up refers to CPS 3506.01P002 "Division 2 Diesel Generator Operations." I should have supplied this in my original email. I will reiterate what the HFE says about this procedure:

Section 8 (of CPS 3506.01) supplies operator guidance on how to place EDG2 in standby using CPS 3506.01P002, "Division 2 Diesel Generator Operations." This 35 page procedure supplies no guidance on troubleshooting diesel failures to start. However, it does supply checklists on how to place the diesel in standby and how to start and stop the diesel. The standby setup discussion has sub-sections on the lubricating oil, the starting air, and jacket water diesel fuel oil systems. This lineup process entails some 100 steps. In those steps there is specific direction to open and lock open the starting air receiver outlet valves 1DG160 and 161. This is the specific, proceduralized direction to open the valves that are the cause of the diesel's failure.

Let me know if you have additional questions.

Thanks for the help.

Jeff Mitman

From: Mitman, Jeffrey

Sent: Monday, October 22, 2018 11:54 AM

To: Montecalvo, Michael <Michael.Montecalvo@nrc.gov>; Kichline, Michelle <Michelle.Kichline@nrc.gov>; Leech, Matthew <Matthew.Leech@nrc.gov>; Demers, Jerrod <Jerrod.Demers@nrc.gov>; Hartle, Brandon <Brandon.Hartle@nrc.gov>

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

Subject: Re-evaluation of HFE for EDG non recovery - Clinton

Mike Franovich has requested that I poll the branch for their insights and input into a significant HFE on the Clinton SDP. The SDP address a 3.5 day period during their most recent refueling outage during which neither the Div. 1 nor 2 EDG was available. The SERP has determined that the finding is preliminarily White. A choice letter has been written and the licensee has requested a Reg. Conf.

The HFE looks at the non-recovery probability of the inadvertently unavailable EDG2. It is a dominant HFE and is driving the results.

The purpose of the re-evaluation is to use it as additional sensitivity analysis and input into the final decision making.

Attached is the HFE analysis itself minus the quantification. I have not supplied the quantification as I don't want it to influence your analysis. Also attached are the annunciator response card for the associated annunciators. Finally, attached are the relevant procedures.

Hopefully, the HFE analysis document will supply all of the information needed to understand the scenario and what the operators would have faced. In reality, you will probably have questions.

Please review the HFE document. Also the procedures to the degree you feel necessary. I'll try to find a time slot after the SRA counterparts meeting this week to meet as a group to answer any questions and to go through the quantification.

There is one additional piece of information that I want everyone to have. The non-recovery probability for an EDG based on data is 0.88 for the one hour available.

Thanks for the help.

Jeff Mitman

From: Mitman, Jeffrey
Sent: Mon, 29 Oct 2018 19:57:31 +0000
To: Kichline, Michelle
Cc: Kozak, Laura
Subject: RE: Re-evaluation of my Re-evaluation of HFE for EDG non recovery - Clinton

Michelle, thanks for the input.

BTW, my estimate was 2.02E-1 based on:

Relevant Diagnostic Performance Shaping Factors

- Time: Nominal (1)
- Stress: High (2)
- Complexity: Nominal (1)
- Experience/Training: Low (2)
- Procedures: Nominal (1)
- Ergonomics/FFD/Work Processes: Nominal (1)

Total: 0.2 without adjustment. No adjustment needed.

My thinking was that while the licensee had experience/training on system aligning and with troubleshooting, they had never looked at this particular problem.

Relevant Action Performance Shaping Factors

- Time: nominal (1)
- Stress: High (2)
- Complexity: nominal (1)
- Experience/Training: nominal (1)
- Procedures: nominal (1)
- Ergonomics/FFD/Work Processes: Nominal (1)

Total: .002 (the action part of this HEP is simple and does not require a procedure)

Until I have feedback from the other branch members, please refrain from discussing the issue.

Thanks.

Jeff Mitman

From: Kichline, Michelle
Sent: Monday, October 29, 2018 2:26 PM
To: Mitman, Jeffrey <Jeffrey.Mitman@nrc.gov>
Subject: Re-evaluation of my Re-evaluation of HFE for EDG non recovery - Clinton

My previous evaluation assumed that the only way to find the problem was for someone to walk in the room and notice the valves were out of place because it seemed likely to me that DC load shedding would occur quickly, before troubleshooting could occur or the lineup procedures could be referenced. Based on our discussion, I have re-evaluated the diagnosis portion of the

HEP assuming that there is a full hour available to perform the action before any load shedding or ELAP declaration occurs. Therefore, licensee staff will have time to go through the EDG operating procedure to get to the step that will instruct them to close the valves. I also used your excel spreadsheet, which appears to be calculating the adjusted HEP correctly. My spreadsheet was not. That makes the diagnosis HEP .168 when adjusted for the 3 negative PSFs. There are no changes to the action part of the evaluation.

Relevant Diagnostic Performance Shaping Factors

- Time: Nominal (1)
- Stress: high (2)
- Complexity: moderately complex (2)
- Experience/Training: nominal (1)
- Procedures: available but poor (5)
- Ergonomics/FFD/Work Processes: Nominal (1)

Total: .2 without adjustment, .168 with adjustment for negative PSFs.

Relevant Action Performance Shaping Factors

- Time: nominal (1)
- Stress: nominal (1)
- Complexity: nominal (1)
- Experience/Training: nominal (1)
- Procedures: nominal (1)
- Ergonomics/FFD/Work Processes: Nominal (1)

Total: .001 (the action part of this HEP is simple and does not require a procedure)

From: Miller, Chris
Sent: Mon, 25 Mar 2019 14:20:30 +0000
To: Lara, Julio
Subject: RE: Clinton

Thanks!

From: Lara, Julio
Sent: Monday, March 25, 2019 9:01 AM
To: Miller, Chris <Chris.Miller@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>
Subject: RE: Clinton

It is in concurrence. It should be in your "in-box" today or tomorrow. As of Friday, OE/DRA/DIRS were next.

From: Miller, Chris
Sent: Monday, March 25, 2019 7:58 AM
To: Lara, Julio <Julio.Lara@nrc.gov>; Dickson, Billy <Billy.Dickson@nrc.gov>
Subject: Clinton

Has the letter with White significance gone out to licensee yet?
Thanks
Chris

From: Miller, Chris
Sent: Sat, 15 Dec 2018 16:48:08 +0000
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
Sent: Sun, 7 Apr 2019 16:08:17 -0400
To: Casey, Lauren
Cc: Bowman, Gregory
Subject: Short discussion on Clinton appeal needed

Monday any time