Inspection Procedure Assessment Summary and Outline of Proposed Changes

Inspection Procedure (IP): IP 71153, "Follow-up of Events and Notices of Enforcement Discretion"
Inspector Procedure Lead: Chris Cauffman
Estimated Hours to Complete Review: 8 hrs
Date Review Completed: 8/28/18

1. Results and assessment of review of IMC 0308, ROP basis document review

   Complete

2. Results and assessment of review of any applicable changes to PIs

   A three year review by the PI lead did not identify any significant changes to PIs that would result in a reduction or unintended gap in the key safety attributes of each safety cornerstone.

3. Results and assessment of review of any applicable changes to Rules and STSs

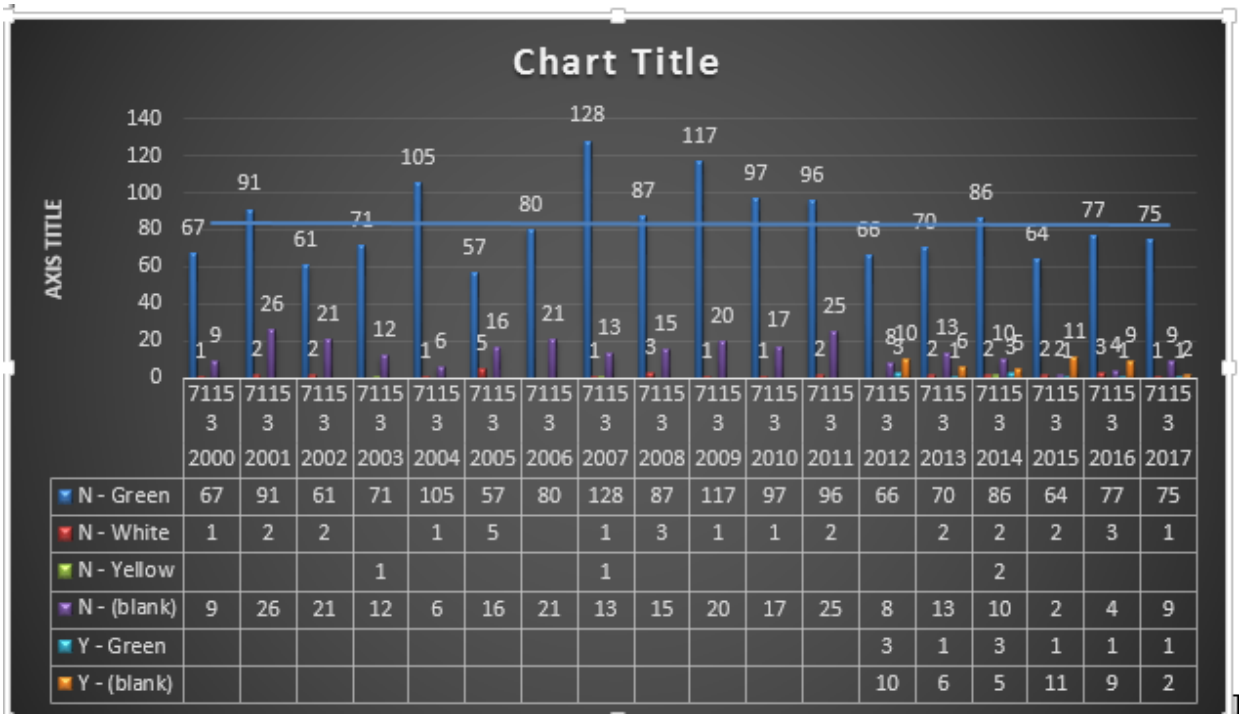
   Revisions to rules and Standard Technical Specifications within the last three years did not indicate a need for revision.

4. Results and assessment of review of recent Operating Experience

   None noted

5. Results and assessment of review based on RRPS data

   Adverse trends or outliers noted: No



	71153 2000	71153 2001	71153 2002	71153 2003	71153 2004	71153 2005	71153 2006	71153 2007	71153 2008	71153 2009	71153 2010	71153 2011	71153 2012	71153 2013	71153 2014	71153 2015	71153 2016	71153 2017
N - Green	67	91	61	71	105	57	80	128	87	117	97	96	66	70	86	64	77	75
N - White	1	2	2		1	5		1	3	1	1	2		2	2	2	3	1
N - Yellow				1				1							2			
N - (blank)	9	26	21	12	6	16	21	13	15	20	17	25	8	13	10	2	4	9
Y - Green													3	1	3	1	1	1
Y - (blank)													10	6	5	11	9	2

Numerous problems seen with correctly document TE violations.

Discuss if the actual inspection hours charged per IP sample is consistent with the estimated inspection hours listed in the IP.
1 Unit: 7.1 samples * 8.8 hrs/sample = ~62 hrs
2 Unit: 7.3 samples * 7.6 hrs/sample = ~55 hrs
3 Unit: 8.5 samples * 10.2 hrs/sample = ~87 hrs

IP is budgeted for
1 Unit: 65 hrs
2 Unit: 80 hrs
3 Unit: 100 hrs

Discuss any greater than green findings or greater than Severity Level IV violations:

05000368 Arkansas Nuclear 2 – White NOV **Failure to Ensure Adequate Lubrication for Emergency Diesel Generator Bearing**	The inspectors reviewed a self-revealing finding that was preliminarily determined to have low to moderate safety significance (White) for the failure to perform maintenance activities in a manner that ensured adequate lubrication to Unit 2 emergency diesel generator A. This finding involved a violation of Technical Specification 6.4.1.a, because the licensee failed to provide adequate work instructions for maintenance on the inboard generator bearing oil sight glass to ensure that the scribe mark indicated the minimum acceptable oil level to ensure adequate lubrication to the bearing. As a result, the licensee reinstalled the sight glass with the oil level scribe mark below the bottom of the bearing rollers. Subsequently, on June 22, 2016, the oil was drained and replaced with oil level close to the sight glass scribe mark, and the bearing failed on September 16, 2016, during a 24-hour surveillance. The licensee entered this issue into the corrective action program as Condition Report CR-ANO-2-2016-03307. The licensee resolved the safety concern by repairing the bearing, successfully testing the diesel, and verifying the condition did not exist in any other safety-related equipment. The failure to ensure adequate lubrication to the inboard generator bearing so that the Unit 2 emergency diesel generator A would be capable of performing its safety functions for the intended mission time is a performance deficiency. This performance deficiency is more than minor, and therefore is a finding, because it is associated with the procedure quality attribute of the mitigating systems cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to properly preplan and perform work that could affect this safety-related system in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances such that the minimum bearing oil level was correctly marked and maintained. This performance deficiency subsequently affected the availability and reliability of the emergency diesel generator, a mitigating system. The

	inspectors evaluated the finding with NRC Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined that the finding required a detailed risk evaluation because an actual loss of function of a single train of mitigating equipment occurred for greater than its technical specification allowed outage time.
05000461 Clinton – White NOV **FAILURE OF THE DIVISION 3 SHUTDOWN SERVICE WATER PUMP DUE TO AN INADEQUATE BUSHING DESIGN**	A self-revealed finding, determined to be of low to moderate safety significance (White) and an associated AV of 10 CFR 50 Appendix B, Criterion III, Design Control, was identified for the failure to review the suitability of application of the Division 3 Shutdown Service Water pump modifications essential to the safety related functions of the high pressure core spray system. Specifically, the licensee failed to ensure the modified pump internals would not degrade under expected operating conditions in a way that impacted the safety function. The causal evaluation determined the pump failed at the conclusion of its surveillance run on May 30, 2014, and this condition did not reveal itself until the attempted pump start on September 16, 2014. This resulted in the pump being inoperable for approximately 108 days, a period greater than allowed by Technical Specifications. Additionally, because the licensee was not aware of the pump's inoperability during the unit's operation cycle, the TS required actions were not followed. This finding does not represent an immediate safety concern because the licensee replaced the pump in September of 2014 with a pump of similar design and provided adequate documentation that assures the pump will remain operable until a different design for the bushing that failed can be installed by June of 2016. The inspectors determined that the licensee's failure to verify the suitability of the design for the Division 3 Shutdown Service Water pump was a performance deficiency warranting a significance evaluation. The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the Mitigating Systems Cornerstone attributes of design control and equipment performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. A Significance and Enforcement Review Panel (SERP), using IMC 0609, Appendix A, "Significance Determination Process For Findings At-Power," dated June 19, 2012, preliminarily determined the finding to be of low to moderate safety significance (White). The performance deficiency associated with this finding did not reflect current licensee performance; therefore, no cross cutting aspect was identified with this finding.
05000249 Dresden 3 - White NOV **Failure to Verify the**	A self-revealing finding determined to be of low to moderate safety significance, and a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was associated with the licensee's failure to ensure that the applicable design basis for applicable structures, systems, and components was maintained by the performance of design reviews, through the use of alternate or simplified calculational methods, or by

Adequacy of Design for the Unit 3 HPCI AOP Motor Shunt Resistor Setting	the performance of a suitable testing program. Specifically, the licensee failed to verify the adequacy of design for the Unit 3 high pressure coolant injection (HPCI) auxiliary oil pump (AOP) motor shunt resistor setting during motor replacement in March of 2002, and then again in March of 2015, eventually resulting in pump failure in June of 2016, and inoperability of the HPCI system. The licensee documented this issue in its corrective action program (CAP) as IR 2686163. The inspectors determined that the licensee's failure to verify the adequacy of design for the Unit 3 HPCI AOP motor shunt resistor setting was a performance deficiency, the cause was reasonably within the licensee's ability to foresee and correct due to previous events and licensee generated causal determinations regarding the significance of adjusting the shunt field resistors on motor and pump operations, and should have been prevented. The inspectors determined the issue was more than minor because it adversely impacted the Mitigating Systems Cornerstone attribute of Design Control and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the failure to control the design of the Unit 3 HPCI AOP motor resulted in the degradation and ultimate failure of the pump motor windings, which is a required component for HPCI operation. The inspectors applied IMC 0609, Attachment 4, and IMC 0609, Appendix A, Exhibit 2, Section A, for "Mitigating Systems" to screen this finding and determined that a detailed risk evaluation was required because the finding represented a loss of system and/or function. Therefore, a coordinated effort between inspection staff and regional Senior Reactor Analyst (SRA) was required to perform an appropriate risk evaluation for the degraded condition that resulted from the finding. The SRA used the Dresden Standardized Plant Analysis Risk (SPAR) model, version 8.24 for the detailed risk evaluation. This evaluation concluded that the exposure time for the HPCI system was 1 year. The total delta core damage frequency (CDF) for the 1 year exposure period was 6.9E-6/year, which is a finding of low to moderate safety significance (White). HPCI is an important high pressure injection system that is used to mitigate internal events, internal flooding, and internal fire events at Dresden. The inspectors determined the contributing cause that provided the most insight into the performance deficiency was associated with the cross-cutting area of Human Performance, Design Margins because the licensee failed to operate and maintain equipment within design margins, in that margins are carefully guarded and changed only through a systematic and rigorous process with special attention placed on maintaining fission product barriers, defense-in-depth, and safety-related equipment [H.6]. Specifically, the licensee failed to verify the adequacy of design for the Unit 3 HPCI AOP motor shunt resistor setting during motor replacement in March of 2002 and then again in March of 2015.
05000237 Dresden 2 – White NOV	A finding of low- to-moderate safety significance, and an associated Violation of Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion III, "Design Control"; TS 3.4.3, "Safety and Relief

Failure to Ensure Continued Operability of Unit 2 Electromatic Relief Valve 2-0203-3C (2C) Following Implementation of Extended Power Uprate Plant Conditions	Valves"; and TS 3.5.1, "ECCS Operating", was self-revealed on February 7, 2015, following the discovery that one of the Unit 2 electromatic relief valves (ERVs) would not have performed its intended safety function. Vibration induced wear experienced while operating at extended power uprate (EPU) power levels resulted in the degradation of multiple ERV actuator subcomponents, which rendered the valve inoperable. This finding does not represent an immediate safety concern in that the licensee has replaced all Unit 2 and 3 ERV actuators with a hardened design successfully utilized at the Quad Cities Nuclear Power Station, which has also experienced significant steam line vibrations post EPU. The inspectors determined that the licensee's apparent failure to ensure measures be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of SSCs, in particular ERV 2-0203-3C (2C), was a performance deficiency warranting a significance evaluation. The finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the Mitigating Systems Cornerstone attributes of design control and equipment performance, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. A Significance and Enforcement Review Panel, using IMC 0609, Appendix A, "Significance Determination Process for Findings At-Power," dated June 19, 2012, determined the finding to be of low to moderate safety significance. The inspectors determined that this finding has a cross-cutting aspect of Resolution in the area of Problem Identification and Resolution, since it involves the failure to implement effective corrective actions to address issues in a timely manner commensurate with their safety significance. This cross-cutting issue is conditional depending on the outcome of the preliminary White finding. [P.3]
05000335 Saint Lucie 1 – White FIN **Failure to Maintain Component Configuration Control Resulted in a Complicated Reactor Trip**	(WHITE). A self-revealing finding was identified for the licensee's failure to maintain configuration control of the inadvertent energization lockout relay manual synchronization circuitry as required by licensee procedures MA-AA-100 and ADM-08.12, during the October 2013 modification to the Unit 1 automatic main generator synchronization circuit. The performance deficiency was more than minor because it was associated with the human performance attribute of the Initiating Events Cornerstone and it adversely affected the associated cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions because it resulted in an actual plant trip. The inspectors screened the finding under the initiating events cornerstone using Attachment 4 (October 7, 2016) and Appendix A (June 19, 2012) of Inspection Manual Chapter 0609, "Significance Determination Process" (April 29, 2015). The inspectors determined the finding required a detailed risk evaluation because the finding caused a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition (e.g.

	loss of condenser and loss of feedwater). The NRC reviewed and analyzed the information provided in support of each of the cases that your staff presented at the Regulatory Conference held on March 21, 2017. When evaluated collectively, the risk results remained greater than 1E-6 ?CDF (White). We determined that this did not change the preliminary significance provided in our previous correspondence dated February 2, 2017. Therefore the NRC has determined the final significance of the performance deficiency was greater than 1E-6 ?CDF or White. The finding involved the cross-cutting area of human performance associated with the cross-cutting aspect of avoiding complacency because the individuals involved failed to recognize and plan for the possibility of mistakes, latent issues, and inherent risk and failed to implement human error reduction tools associated with configuration control. (H.12)

Other casual observations & Noted Problems
05000259 Browns Ferry 1 URI pending 2015001-07 **significance pending**. **Not aligned with program requirements**
05000331 Duane Arnold **PIM entry for Enforcement Discretion**
05000416 Grand Gulf 1 2015002-03 **Writeup say NCV but RPS has NOV & Writeup involving TE is not aligned with program requirements.**
05000395 Summer 2016004-04 **Writeup say NCV but RPS has NOV**
05000390 Watts Bar 12016001-07 **Writeup say NCV but RPS has NOV**
05000482 Wolf Creek 1 2016008-01 **White AV** – not aligned with approved process (Preliminary White or NOV)

6. Feedback Forms

   No open feedback forms

   The following feedback form was closed in the last 3 years:
   ML15349A022 - Corrected reference TG 9900 to IMC 0410 (editorial) 12/15/15

7. Other Considerations

   Timeliness of LER review consideration incorporated into draft 71153.

8. Results of discussions with regions

   M. Draxton
   Regions II, III, and IV did not attend

<u>Recommendations</u>

Discuss whether two unit sites are being given appropriate resources to appropriately review LERs (avoid short sampling).

Discuss need to train on documenting TE violations.