Date	High HP Temp Alarm Activated	Situation During Startup	Notes
4/30/2018	Yes	A, C	
10/2/2018	Yes	A, B, C	
5/6/2019	Yes	A, B, C	
3/23/2020	Yes	A, B, C	
8/16/2020	No	None	Unit tripped during startup
4/25/2021	Yes	B, C, D	Incident 1A
11/10/2021	Yes	A, B, C, D	Incident 1B

h. As shown in the Incident 1B RCA table of contents (page 2 of 49), the Revision Log is on page 49 of the RCA. A reference on page 17 of the April 28, 2022 report to a superseded procedure being in use was removed because that statement is not correct. For specific language removed see April 28, 2022 version of the RCA provided to the parties on April 29, 2022.

i. AES Indiana is in the process of gathering information and will supplement its response to this Request.

j. AES Indiana confirms the "CDH" should be a reference to "CRH".

k. Verified. Toshiba Technical Information Letter (TTIL-KT112001X Rev 0) was issued in 2013. As also stated in the RCA report, Revision 1 to the TTIL was issued in February 2021.

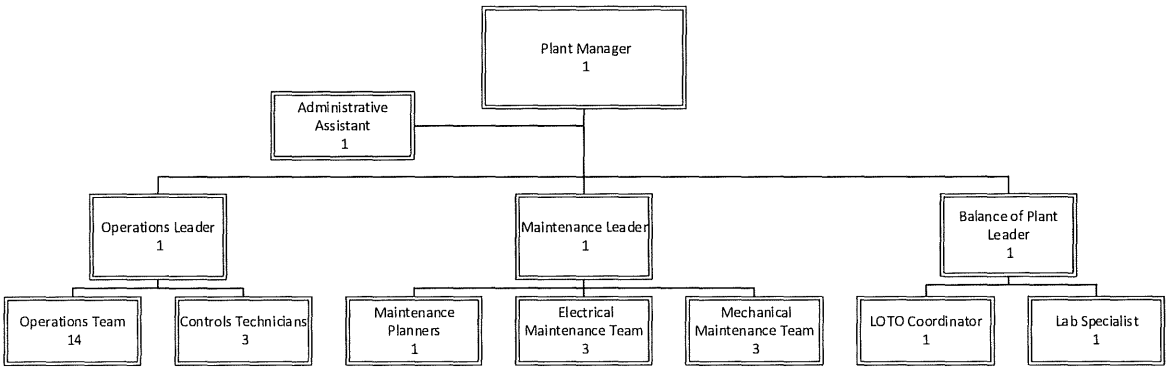
l.

i. The individual was Jason Hoage who was the Operations Leader.
ii. AES Indiana actively promotes Stop Work Authority, which is a safety program that gives all employees the right to stop any activity they feel is unsafe. The responsibility of the Operations Leader is to oversee and direct his/her personnel. During plant startup, the Operations Leader can direct his/her personnel and if the personnel have concerns, they have the ability to use Stop Work Authority.
iii. The operators work for the Operations Leader ("management"). During plant startup, it is the responsibility of the operators to complete the startup tasks. If issues arise, management will make the determination on how to proceed. In the context of this question, the Operations Leader decided to raise GT2 to 90MW in order to be emissions compliant while troubleshooting of the steam turbine continued. The operators had not run a GT at 90MW in simple cycle mode previously, which is why they questioned it. However, the system is designed to be able to operate in

this mode and the decision was made by the Operations Leader to proceed with GT2 at 90MW.

m. AES Indiana assumes this question is referring to Attachment AKH-6(C) and confirms the terms "management" and "leadership" are being used interchangeably.

n.



Supplemental Response:

i. During construction, the Company requested Toshiba send Toshiba Technical Information Letters ("TTIL") to the following personnel: Brandon Berlin, Craig Booth, Tom Craig, and Mario Fedeli. On August 3, 2018, Toshiba confirmed these four personnel were on the list to receive TTILs. On August 3, 2018, AES Indiana informed Toshiba that Craig Booth and Mario Fedeli were no longer with the plant. Tom Craig and Brandon Berlin received a TTIL on August 21, 2018. On December 6, 2018, Toshiba reached out for confirmation on who should be on the TTIL distribution list for Eagle Valley. On December 7, 2018, AES Indiana confirmed that Brandon Berlin and Tom Craig should be on the distribution list. On April 20, 2021, Joe Kokes also signed up to receive TTILs. On May 5, 2021, Toshiba indicated that Joe Kokes was the only AES Indiana employee with access to the customer portal. On December 14, 2021, Toshiba communicated that their records indicated that no AES Indiana personnel were subscribed to receive TTILs when TAES-TTIL-KT112001X Revision 1 was issued on February 11, 2021. Brandon Berlin and Tom Craig were employed at AES Indiana during Incident 1B.

CONFIDENTIAL Attachment AKH—4R

[Confidential Attachment]

CONFIDENTIAL Attachment AKH—5R

[Confidential Attachment]

OFFICIAL
EXHIBITS

FILED
May 31, 2022
INDIANA UTILITY
REGULATORY COMMISSION

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

SUBDOCKET FOR REVIEW OF INDIANAPOLIS POWER & LIGHT COMPANY D/B/A AES INDIANA'S 2021 EXTENDED FORCED OUTAGE AT EAGLE VALLEY AND ITS RELATED IMPACT ON FUEL PROCUREMENT AND FUEL COSTS.	))))))	**CAUSE NO. 38703 FAC 133 S1**

IURC
PETITIONER'S
EXHIBIT NO. 3
DATE 11-21-22 REPORTER AT

SUBMISSION OF DIRECT TESTIMONY OF
HOLCOMBE BAIRD

Indianapolis Power & Light Company d/b/a AES Indiana ("AES Indiana", "IPL", or "Company"), by counsel, hereby submits the direct testimony of Holcombe Baird.

Respectfully submitted,

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Attorneys for INDIANAPOLIS POWER & LIGHT COMPANY D/B/A AES INDIANA

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing was served this 31st day of May, 2022, by email transmission, hand delivery or United States Mail, first class, postage prepaid to:

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D/B/A AES INDIANA

VERIFIED DIRECT TESTIMONY

OF

HOLCOMBE BAIRD

ON BEHALF OF

AES INDIANA

CO-SPONSORING AES INDIANA ATTACHMENTS AKH-6, AKH-6(C), JB-1 AND JB-1(C)

VERIFIED TESTIMONY OF HOLCOMBE BAIRD
RELIABILITY CENTER, INCORPORATED

Q1. Please state your name, employer, and business address.

A1. My name is Holcombe Baird. I am employed by Reliability Center, Incorporated ("RCI"). My business address is 2907 West Marshall Street, Richmond, VA 23230

Q2. Please describe RCI.

A2. Reliability Center, Inc. provides root cause analysis and human performance consulting, training and software to companies across the globe. Over the past 40+ years we have supported hundreds of companies and trained over 25,000 students across diverse industries such Power & Energy, Oil & Gas, Mining, Chemical/Petrochemical, Pulp & Paper, Manufacturing, etc. using our PROACT® RCA services to help companies mitigate incidents and prevent them from recurring.

Q3. What is your position with RCI?

A3. I am a Senior Reliability Consultant with RCI.

Q4. Please describe your duties as a Reliability Consultant.

A4. At RCI, I provide training classes to clients on the PROACT® Root Cause Analysis method, Basic Failure Analysis techniques and Human Error Reduction Techniques. I instruct clients on utilization of our proprietary PROACT® software for managing root cause analysis investigations. I provide Root Cause Analysis facilitation services to several client teams for on-site and off-site RCA investigations: including petrochemical piping

failures, bearing failures, control system failures, power generator failures, safety incidents, repetitive equipment reliability issues and process interruptions. In doing this, I have worked with petrochemical facilities, paper mills, aluminum smelters, cement manufacturers and power generating companies.

Q5. Please summarize your educational and professional background.

A5. I have over 35 years work experience in engineering, maintenance, reliability, and consulting. As a Senior Reliability Consultant at the Reliability Center, Inc., I work to address the custom needs of client companies that want to improve their operational effectiveness and efficiency with the deployment of best practices in reliability and human performance. I possess a BS degree in Mechanical Engineering from Old Dominion University as well as a BS degree in Physics from Washington and Lee University.

Q6. Please summarize your prior work experience.

A6. Prior to joining RCI in 2015, I worked for several industrial manufacturing companies; holding engineering and management positions in production, construction, and maintenance. During my career, I worked 10 years for Fujifilm at their color photographic paper facility in South Carolina as a maintenance supervisor. There, I evaluated and revised the maintenance processes within the Computerize Maintenance Management System (CMMS) which brought about a significant increase in the operational uptime of the coating production line. It was at Fujifilm where I gained experience in Japanese Total Productive Maintenance (TPM) principles, continuous improvement process and 5-S workplace organizational activities.

After Fujifilm, I worked for Johnson Controls in managing their service delivery to Phillip Morris. Our team was responsible for the maintenance of the HVAC systems at Phillip Morris manufacturing, operations, research facilities, as well as their headquarters building. By establishing and sticking to a preventive maintenance discipline, the team was able to virtually eliminate equipment failures and the resulting hot and cold complaint calls from the building occupants. Just before joining RCI, I provided consulting services to the Virginia Department of Transportation for reliability and maintenance improvement to their smart highway systems, movable bridges, and interstate highway tunnels.

Q7. Have you previously testified before this Commission?

A7. I have not previously presented pre-filed testimony before this Commission. I participated in the FAC 133 technical conference conducted by the Commission on October 21, 2021.

Q8. Are you sponsoring any attachments?

A8. I co-sponsor the RCI root cause analysis ("RCA") reports included with the testimony of company witnesses Bigalbal and Halter and further identified below.

Q9. What is the purpose of your testimony in this proceeding?

A9. My testimony describes the root cause analysis process which I facilitated for the Eagle Valley CCGT forced outage.

Q10. What is an RCA?

A10. An RCA, short for Root Cause Analysis, is a structured, data-supported, investigative process designed to uncover the physical, human, and latent factors behind an undesirable event occurring within a given system.

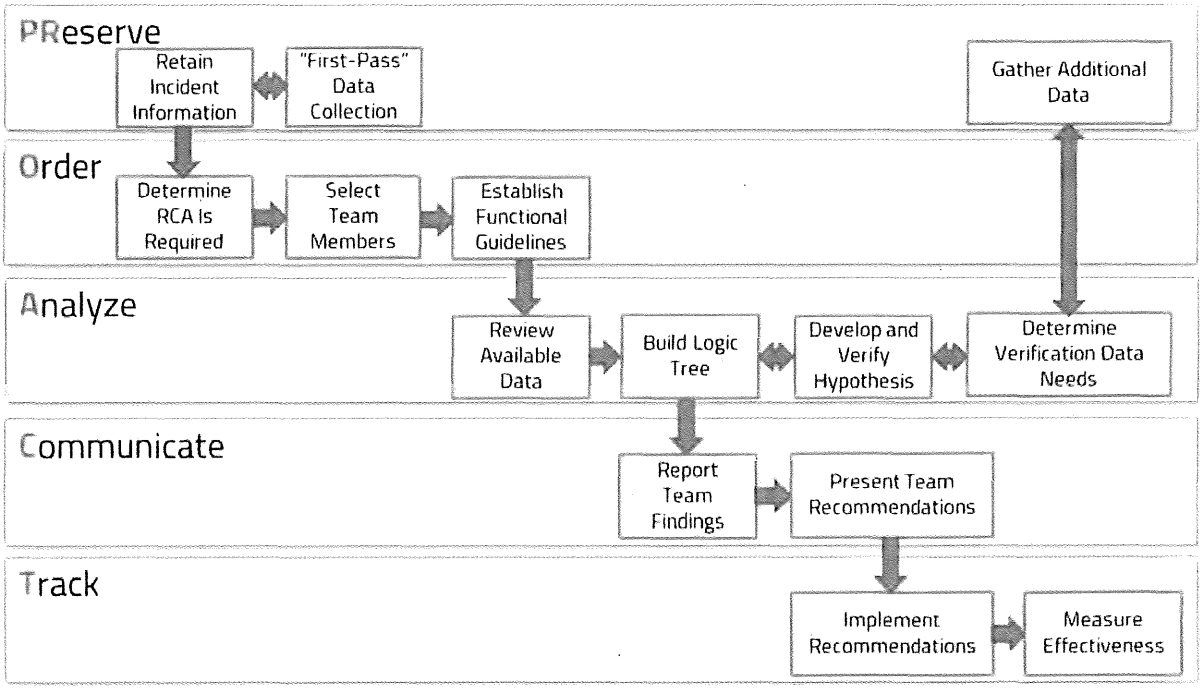
Q11. Why are RCAs performed?

A11. RCAs are performed to examine a specific failure event and uncover the root causes, the vulnerabilities in the equipment and workplace, which allowed or possibly encouraged the failure to manifest. Once these vulnerabilities are identified, appropriate corrective measures are proposed to the client, which, when implemented, will prevent recurrence of the failure, or minimize the consequences should it recur.

Q12. Please explain how RCI's RCA process is implemented.

A12. RCI follows our PROACT® RCA process when conducting or facilitating a root cause analysis. PROACT is an acronym which stands for: Preserve the data, Order the analysis team, Analyze the data, Communicate the team's findings, Track the implementation of the team's recommendations.

Please refer to this PROACT® Process Flowchart.



Preserve the Event Data: This emphasizes the need to collect data surrounding the identified failure event. The data collection process starts at the moment the event occurs and continues through the analysis process. Data is required to provide fact-based conclusions on which to make specific recommendations.

Order the Analysis Team: We highlight and emphasize that a Principal Analyst is one who can remain objective and facilitate the RCA process. The team members should provide a diversity of background needed to support and guide the investigation and analysis processes. The team is empowered by management to dedicate the time and resources needed in providing a thorough in-depth investigation into the event.

Analyze the Data: Here we use our PROACT® Logic Tree to provide a visual representation of the analysis process, and assists with identifying Physical, Human and Latent root causes. The analysis is an iterative process of breaking down the event to determine how it physically happened, the physical root causes, and more importantly why it was allowed to happen, the Latent root causes. Recommendations are proposed to address the identified root causes. The analysis process has the benefit of taking a hindsight view of the incident using data collected to determine how the failure event happened and understand what influenced the decisions and actions made which manifested into the failure. The discovered Human root causes are not addressed with recommendations as the RCA is not focused on assigning blame but to determine the systemic issues influencing the human actions and decisions. The ultimate goal of a RCA is not only to eliminate the risk of recurrence, but more importantly to transfer the knowledge used to solve the event to others who could use the information.

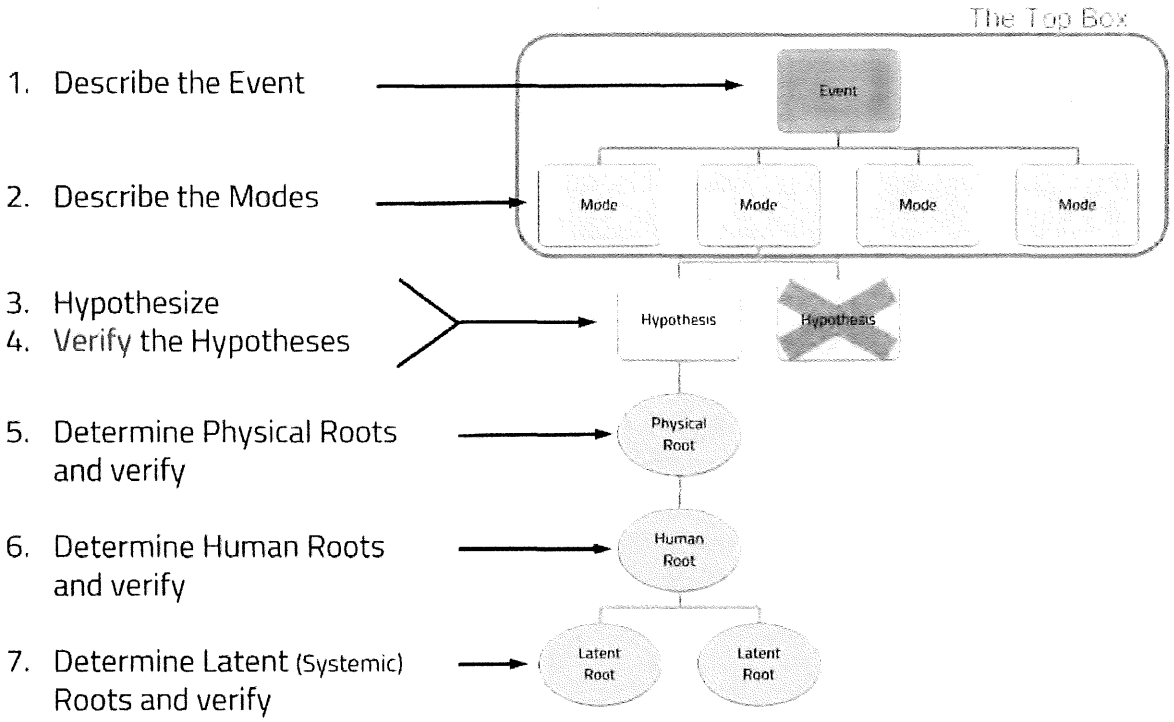
Communicate the Findings & Recommendations: The focus here is on the need to have the corrective actions and recommendations from the RCA reviewed and approved in order for success to be recognized.

Track for Results: This is where the implementation or completion of the corrective actions and recommendations are documented. Clients use their internal systems to perform this tracking as well as key metrics to prove the positive effect the recommendations had on the operation.

Q13. You indicated above that RCI uses the PROACT® Logic Tree to conduct RCAs. Please describe that further.

A13. The PROACT® Logic Tree is a graphical tool which provides a visual representation of the investigative process.

Please refer to this image of the PROACT® Logic Tree



The Logic Tree begins with the Event, a description of the unacceptable consequences prompting the analysis. The next level are the Modes which are the visible failures creating the unacceptable consequences. The combination of the Event and Mode(s) provide a definition of the problem identified for investigation which we call the Top Box. It's the factual starting point for the analysis. Each Mode is investigated by the RCA team through hypothesizing the possible ways the Mode could have happened and then reviewing the factual data to determine which of those possibilities did happen. The investigative iterations continue and identify the root causes which are then addressed with Recommendations. The Recommendations are a combination of Immediate Corrective Actions to resolve the identified the physical root causes and broader Recommendations targeting the identified latent root causes.

The two co-sponsored RCA Reports contain the following description of the PROACT® Logic Tree: Any undesirable outcome is a result of a series of "cause-and-effect" relationships. The data provided by AES, in-person interviews and on-site visits, serve as proof (evidence) as to what did or what did not occur. A Logic Tree was utilized in the PROACT® application to graphically express the "cause-and-effect" relationships. In this approach, the top two levels of blocks represent the EVENT (Level 1) and the MODE (Level 2). From-level-to-level the path represents a "cause-and-effect" relationship. These levels specifically represent the "undesirable outcomes' that did occur (facts only). From the MODE Level, the analysts do not know why they have occurred, just that they did occur. From this point the analysis becomes hypothetical and the analysts repeatedly ask the question "How Can?". As hypotheses are developed in this fashion, the evidence collected is used to verify what is true and what is not true. In this fashion, facts lead the analysis not assumptions. This process is reiterated until true root causes are uncovered; the reasons why people make decision errors that lead to undesirable outcome. Root causes originate from vulnerabilities in the organizational systems upon which employees depend to make informed decisions. These are called Latent Root Causes or Organizational Root Causes. Vulnerabilities in organizational systems lead to poor decisions being made by well-intentioned individuals. These decisions are referred to as Human Root Causes. Decision errors lead to the Physical Root Causes, or events or conditions that are visible. When the Latent Roots or Organizational System Roots are identified and addressed, the investigation becomes a true and effective Root Cause Analysis.

Q14. The RCAs refer to physical, human, and latent factors. Please describe generally what these terms mean.

A14. Physical: The tangible evidence gathered after an event that provides the mechanical or physical explanation for the event.

Human: The inappropriate decisions, actions or interventions which led to the development of the Physical factors prompting the event.

Latent: The reasons why any inappropriate Human factors were allowed, supported, encouraged, or undetected. These are vulnerabilities or weaknesses in the workplace systems. They lay dormant until events unfold in a particular order allowing them to manifest into an undesirable event.

Q15. What was your role in the RCA process?

A15. The Eagle CCGT forced outage involves two failures of Steam Turbine Generator 1 ("STG1") to start-up. This first occurred on April 25, 2021; the second occurred on November 12, 2021. I refer to these as Incident 1A and Incident 1B respectively. In both failure events, I was retained by AES Indiana to facilitate the root cause analysis.

Q16. Please elaborate on your role as the RCA facilitator for the Eagle Valley CCGT forced outage.

A16. In general, my role as an RCA facilitator for a failure event is to ensure the team's adherence to the PROACT® RCA process in conducting the root cause analysis and compile the team's findings into a written report. This includes identifying the investigative data needed, developing the exploration path using a Logic Tree, analyzing the data, confirming the conclusions are supported by the data, and preventing the team members from jumping straight to solutions without investigating the factors behind the failure event. Finally, the role includes developing the written report to present the vast

amount of technical information utilized in analyzing the complex failure event into a logical and thorough document.

For the Eagle Valley CCGT forced outage, my role was a slightly different between the RCA for Incident 1A and the RCA for Incident 1B. The technical complexity of the failure event of Incident 1B required technical resources skilled in extracting data from the control systems and in-depth knowledge of steam properties and parameters to properly operate the steam turbine. The desire to expeditiously determine the extent of the control system contribution to the failure event and report the findings to the restoration team made it necessary for me to gravitate from a coordination role to an advisory role. Even so, I remained actively involved in the analysis process. I was not directly involved in the actual review into the controls and the extraction of the data from the control systems computers, but in the discussions of the data and the findings as they pertained to the incident and the root causes. It was important for my role to provide continuity between the two RCAs, conformity to the PROACT® RCA process, and consistency in the development of the written reports.

Q17. Were the RCA analysis findings compiled into a written report?

A17. Yes. The Incident 1A report ("RCA Report STG1 Failure on Start-up April 25, 2021") was presented by the Company in FAC 133 and is included in this subdocket with the testimony of John Bigalbal as AES Indiana Attachment JB-1.

The Incident 1B report ("RCA Report STG1 Failure on Start-Up after Generator Repairs November 10, 2021") is included in this subdocket with the testimony of Alex Halter as AES Indiana Attachment AKH-5.

A written report for an RCA provides a standard format as documentation and presentation of the analysis, the supporting data, the findings, and the recommendations. In written form, it allows for the submission to management and, in this case, a copy to be provided to the regulating commission. The Logic Tree can be confusing when presented as the explanation of the failure events due to its limited text in the graphic boxes. The Logic Tree is extremely useful as a visual tool to guide the analysis team's investigative thought process during the RCA. The written report provides the depth necessary for the reader to comprehend the analysis details. Utilizing a standard report structure allows the client to efficiently share the information across business units and facilities.

Q18. Why are AES Indiana witnesses presenting the RCA reports?

A18. My expertise is the PROACT® RCA investigative process. My training, and work experience provides me exposure to a wide variety of processes, equipment, and business entities. This allows me to comprehend the technical aspects of a failure event as well as the influences on human dynamics leading up to the event. The complex control systems and processes at Eagle Valley CCGT require a high degree of expertise and specific training. I do not possess the in-depth knowledge required to provide answers to detailed technical questions regarding these systems. As such, I rely on the specific knowledgeable employees of AES Indiana not only to investigate the data needs, but to provide proper explanation in presenting the findings for the RCA effort.

Q19. Please summarize your testimony.

A19. My testimony herewith is to provide information on the root cause analysis process used to investigate the Eagle Valley CCGT forced outage. This included details on my professional background as well as specifics on the Reliability Center Inc. PROACT®

RCA process. My testimony provides insight into my role in the facilitation of the RCAs conducted at Eagle Valley.

Q20. Does that conclude your pre-filed direct testimony?

A20. Yes.

Verification

I, Holcombe Baird, RCI Senior Reliability Consultant, affirm under penalties for perjury that the foregoing representations are true to the best of my knowledge, information, and belief.

Holcombe Baird
Dated May 24, 2022