

## NON-CONCURRENCE PROCESS COVER PAGE

The U.S. Nuclear Regulatory Commission (NRC) strives to establish and maintain an environment that encourages all employees to promptly raise concerns and differing views without fear of reprisal and to promote methods for raising concerns that will enhance a strong safety culture and support the agency's mission.

Employees are expected to discuss their views and concerns with their immediate supervisors on a regular, ongoing basis. If informal discussions do not resolve concerns, employees have various mechanisms for expressing and having their concerns and differing views heard and considered by management.

Management Directive, MD 10.158, "NRC Non-Concurrence Process," describes the Non-Concurrence Process (NCP), <http://nrcweb.nrc.gov:8600/policy/directives/catalog/md10.158.pdf>.

The NCP allows employees to document their differing views and concerns early in the decision-making process, have them responded to (if requested), and attach them to proposed documents moving through the management approval chain to support the decision-making process.

NRC Form 757, "Non-Concurrence Process" is used to document the process.

Section A of the form includes the personal opinions, views, and concerns of a non-concurring NRC employee.

Section B of the form includes the personal opinions and views of the non-concurring employee's immediate supervisor.

Section C of the form includes the agency's evaluation of the concerns and the agency's final position and outcome.

NOTE: Content in Sections A and B reflects personal opinions and views and does not represent official factual representation of the issues, nor official rationale for the agency decision. Section C includes the agency's official position on the facts, issues, and rationale for the final decision.

At the end of the process, the non-concurring employee(s):

- Concurred
- Continued to non-concur
- Agreed with some of the changes to the subject document, but continued to non-concur
- Requested that the process be discontinued
  
- The non-concurring employee(s) requested that the record be non-public.
- The non-concurring employee(s) requested that the record be public.
  
- This record is non-public and for official use only.
- This record has been reviewed and approved for public dissemination.



NCP PM 117117  
NCP-2017-013

**NON-CONCURRENCE PROCESS**

**SECTION A - TO BE COMPLETED BY NON-CONCURRING EMPLOYEE**

TITLE OF SUBJECT DOCUMENT Watts Bar Integrated Inspection Report 2017003		ADAMS ACCESSION NO. NA
DOCUMENT SIGNER Alan Blamey		SIGNER TELEPHONE NO. (404) 997-4415

TITLE Branch Chief	ORGANIZATION Division of Reactor Projects, RII
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NAME OF NON-CONCURRING EMPLOYEE(S) Curt Rapp	TELEPHONE NUMBER (404) 337-4674
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TITLE Sr. Project Engineer	ORGANIZATION Division of Reactor Projects, RII
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DOCUMENT AUTHOR   
  DOCUMENT CONTRIBUTOR   
  DOCUMENT REVIEWER   
  ON CONCURRENCE

NON-CONCURRING EMPLOYEE'S SUPERVISOR  
Alan Blamey (at the time of the report)

TITLE Branch Chief	ORGANIZATION Division of Reactor Projects, RII
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I WOULD LIKE MY NON-CONCURRENCE CONSIDERED AND WOULD LIKE A WRITTEN EVALUATION IN SECTION B AND C.  
 I WOULD LIKE MY NON-CONCURRENCE CONSIDERED, BUT A WRITTEN EVALUATION IN SECTIONS B AND C IS NOT NECESSARY

WHEN THE PROCESS IS COMPLETE, I WOULD LIKE THE NCP FORM:   
 PUBLIC   
 NON-PUBLIC

REASONS FOR THE NON-CONCURRENCE, POTENTIAL IMPACT ON MISSION, AND THE PROPOSED ALTERNATIVES  
(use continuation pages or attach Word document)

Integrated Report 2017003 documents a self-revealing NCV when licensee personnel did not properly implement a surveillance procedure. (See attached 4-part writeup.)

In the analysis section, the reason for a more than minor determination was the performance deficiency "...caused a depressurization that had to be stopped by operator action." The rationale used was detailed in an e-mail to me from Alan Blamey (see attached e-mail); the opening of the PORV impacted plant stability (depressurization) and challenged the critical safety function of heat removal (loss of inventory). However, as stated in the analysis section "...the resultant leakage from the open PORV would not have caused the current decay heat removal method to fail if it went undetected and leakage would be self-limiting such that it would stop before impacting the operating method of decay heat removal." This statement directly contradicts the rationale for a more than minor determination that either depressurization impacted plant stability or the loss of inventory challenged the critical safety function of heat removal.

The performance deficiency did not upset plant stability because the unit was in Mode 5 and the leakage would be self-limiting nor did the loss of inventory challenge critical safety function of heat removal. Further, if the performance deficiency was left uncorrected, it would not become more safety significant because the unit response would be the same. Therefore, the performance deficiency does not meet the threshold for more than minor and should not be documented in the inspection report. The lifting of a PORV would certainly be greater concern if the unit were in an operating mode where inventory is critical for heat removal due to the greater heat load. However, the event did not occur in that condition and no evidence is presented the procedure would be performed in other operating modes of higher heat load. The lifting of a PORV in itself does not represent a challenge to plant safety. (See Continuation Page)

SIGNATURE <i>Curtis Rapp</i>	DATE 11/6/17
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**NON-CONCURRENCE PROCESS**

NCP-2017-013

TITLE OF SUBJECT DOCUMENT

Watts Bar Integrated Inspection Report 2017003

ADAMS ACCESSION NO.

CONTINUATION OF SECTION

A     B     C

As an additional justification for documenting this issue as a finding "...were several aggravating factors that played into our conclusion that the issue should be written up ..." (See attached e-mail from Jared Nadel.) These are extraneous to the underlying issue of concern and are not criteria for documenting an issue of concern as a finding. In conclusion, there was either no or an insignificant challenge to plant safety and this issue does not meet the criteria for documentation in an inspection report.

The ROP was designed to exclude issues that had no or insignificant impact on overall plant safety (minor issues of concern). While the decision is qualitative, criteria are provided to make that decision. When inspectors inappropriately apply these criteria, or use other factors, the ROP becomes less consistent and reduces confidence in NRC's regulatory ability.

This issue should be removed from the inspection report. Further, direct contact training should be provided to all inspectors on ROP fundamentals and how to apply the criteria for issue of screening.

Introduction: A self-revealed finding of very low safety significance (Green) and associated NCV of Technical Specification (TS) 5.7.1.1.a, "Procedures," was identified for the failure to follow TVA procedure 2-SI-68-86, 18 Month Channel Calibration of Remote Shutdown Monitoring Narrow Range Pressurizer Pressure Loop 2-LPP-68-337C, Revision 4. The licensee failed to properly follow step 6.2.6 [1.3], which resulted in the inadvertent lifting of a pressurizer power operated relief valve (PORV).

Discussion: On June 21, 2017, instrumentation and control technicians were performing Surveillance 2-SI-68-86. The surveillance verified the function of the transfer switches for the PORV and its associated block valve to transfer power from the main control room to the auxiliary control room. Step 6.2.6 [1.3] of the procedure directed that the distributed control system (DCS) demand for the PORV be toggled to 0 (closed). When the technicians came to this step, they toggled the output as directed in the beginning of the procedure step. However, they did not recognize that the DCS demand was at 0 and, therefore, toggled it to 1 (open). When the auxiliary transfer switch was operated, the PORV had an open signal present and opened. This resulted in a reactor coolant pressure drop from 335 psig to 310 psig. The main control room operators were alerted to this condition by an annunciator for high pressure in the pressurizer relief tank, properly diagnosed the inadvertent PORV opening, and shut the associated PORV block valve stopping the pressure decrease.

Analysis: The licensee's failure to follow TVA procedure 2-SI-68-86, was a performance deficiency. The performance deficiency was more than minor because it affected the Initiating Events Cornerstone attribute of Human Performance and adversely affected the cornerstone objective in that failing to follow procedure 2-SI-68-86 caused a depressurization of the plant that had to be stopped by operator action. The finding was screened in accordance with NRC IMC 0609, "Significance Determination Process, dated April 29, 2015, Attachment 4, "Initial Characterization of Finding" dated October 7, 2016, which determined that an IMC 0609, Appendix G, "Shutdown Operations Significance determination process Phase 1 Initial Screening and Characterization of Findings" dated May 9, 2014. The finding was screened to Green based on the answers to questions 2 and 3. Specifically, the resultant leakage from the open PORV would not have caused the current decay heat removal method to fail if it went undetected and leakage would be self-limiting such that it would stop before impacting the operating method of decay heat removal.

The finding had a cross-cutting aspect in the Challenge the Unknown component of the Human Performance area as defined in NRC IMC 0310, because the technicians failed to recognize that the output was already set to 0, but proceeded anyways to toggle the output which resulted in setting it to 1 [H.11].

Enforcement: TS 5.7.1.1.a, "Procedures," required, in part, that written procedures be established, implemented, and maintained covering activities related to procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, 1978. Regulatory Guide 1.33, Section 8, "Procedures for Control of Measuring and Test Equipment and for Surveillance Tests, Procedures, and Calibrations" requires procedures for surveillance tests. Contrary to the above, required surveillance procedure 2-SI-68-86, revision 4, was not implemented when step 6.2.6 [1.3] was not performed as written. Corrective actions taken or planned by the licensee include revisions to 2-SI-68-86 to clarify the steps relating to toggling the DCS output, training for the craft, and management oversight of pre-job briefs. This violation was entered into the CAP as CR 1309345 and

is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy. This violation is identified as **NCV 05000391/2017003-03**, Failure to Follow a Surveillance Procedure Led to an Inadvertent Lift of a Pressurizer Power Operated Relief Valve.

## Rapp, Curtis

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**From:** Blamey, Alan  
**Sent:** Tuesday, October 24, 2017 4:52 PM  
**To:** Rapp, Curtis; Nadel, Jared; Hamman, Jeffrey  
**Cc:** Freeman, Scott  
**Subject:** Watts Bar 2017-003

### PORV Minor / Greater than Minor

Based on my discussions with HQ today and my understanding of the issue I plan to move forward with a greater than minor issue. This was based on the following understanding.

- (1) The performance deficiency is failure to follow procedure. This resulted in the unexpected opening of a PORV which impacted plant stability and challenged critical safety functions.
- (2) Plant stability was impacted because of the unexpected pressure transient which reduced reactor pressure from 335 psig to 310 psig.
- (3) Critical safety function was challenged because of the loss of inventory and challenge to Core Colling.

My understanding was that the operators were alerted to this condition by an annunciator, properly diagnosed lowering pressure and inadvertent PORV opening. In addition, the reactor pressure was high enough that if the PORV continued to fill the PRT, the rupture diaphragm would have relieved the pressure and reactor coolant would have spilled into containment.

In addition, the next step of the maintenance procedure had the maintenance staff remove power from the PORV. Therefore, if the operators were slower or the maintenance staff was faster, it would have prevented / delayed the operators from mitigating this event.

### **Decision Basis:**

- Performance Deficiency: failure to follow procedure.
- Mitigating Action: Operator diagnosis and closure of the PORV block valve.

Discussions with HQ process owners / experts noted that for determining if critical safety functions are effected only the performance deficiency should be evaluated (minor / greater than minor evaluation). Not the performance deficiency and mitigating actions. Therefore, in this case only looking at the performance deficiency without mitigating actions would have resulted in the primary system inventory passing through the PORV to the PRT and rupturing the PRT rupture diaphragm ultimately spilling primary system coolant into containment.

The operator actions, which were good in this case prevented the event from further degradation and rupturing of the PRT diaphragm.

### ERCW Loop Cross tie:

I spoke to Scott Freeman and he noted that this issue will be GREEN. Specifically, the risk associated with this issue will be 10E-8, due to all the issues that need to occur at the same time. He will document this over the next week.

**Alan Blamey, Chief**  
Project Branch 6, Division of Reactor Projects

From Nadel, Jared

Sent Thursday, October 05, 2017 8:06 AM

To: Blamey, Alan <Alan.Blamey@nrc.gov>

Cc: Ninh, Son <Son.Ninh@nrc.gov>; Masters, Anthony <Anthony.Masters@nrc.gov>; Rapp, Curtis <Curtis.Rapp@nrc.gov>; Seat, Jamin <Jamin.Seat@nrc.gov>; Monarque, Stephen <Stephen.Monarque@nrc.gov>; Dumbacher, David <David.Dumbacher@nrc.gov>; Hardage, David <David.Hardage@nrc.gov>

Subject: Resident staff position on the 6/21/17 Inadvertent PRZ PORV Lift Finding

Alan,

As discussed at the last plant issues call on 09/21/17, we reviewed both the ID credit (self-revealed) and the MTM designation on our proposed finding for the 6/21/17 PRZ PORV lift event. On the first question of ID credit we sent an email the same day after confirming that a MCR alarm for HI PRT Pressure came in shortly after the PORV lifted. This meets the requirements for a self-revealed issue and the write-up has been updated to explicitly mention the alarm.

As for the MTM part, the residents still believe that the issue is MTM. While they are subjective by design, it clearly meets the minimum requirements of our process in that it did affect the cornerstone objective for Initiating Events in that a PRZ PORV that is inappropriately demanded open (in any mode where RCS pressure is above atmosphere) and would require operator action to close, does upset plant stability and does also challenge critical safety functions. Reasonable people can disagree about the degree of that challenge, but those discussions occur within the box of subjectivity that was deliberately created around the minor vs MTM decision in our guidance. There were several aggravating factors that played into our conclusion that the issue should be written up, including:

- The recent high level site-wide focus on procedure use/adherence as part of the recovery plan (everyone passes multiple signs on the subject just walking to work)

- The existence of past HU events that also resulted in the inadvertent lifting of a PRZ PORV.
- Longstanding resident observations and focus on PU&A as an inspector identified weakness onsite, which has been communicated to plant management many times, including at virtually every exit meeting for the last 3 years.

Finally, I have included below OE from an event at SQN where the starting press/temp were very similar and although it was not a PORV, it was a relief path to the PRT for a little over an hour. Please let me know if you have any questions,

Jared Nadel

Senior Resident Inspector, Watts Bar

(O) [423-365-5487](tel:423-365-5487)

### 3/20/2000 Sequoyah U1 Failure Of A Relief Valve In The RHR Pump Discharge Flow Path

On March 13, 2000, Sequoyah Unit 1 was in shutdown condition Mode making preparations to transition to Mode 4 at the conclusion of the refueling outage. The reactor coolant system (RCS) was at 360 psig and 145F with pressurizer (PZR) level at 76 percent. At 11:51 p.m., operators initiated a procedure to vent the residual heat removal (RHR) discharge piping with the RHR pump running. The operators expected a pressurizer (PZR) level drop of up to 15 percent.

When the PZR level continued to decrease beyond the expected amount, the operators entered an abnormal operating procedure to stabilize the unit. The recovery actions were effective and by 12:57 a.m. the operators stabilized the unit in Mode 5 at 130 psig and 145F with pressurizer level at 40 percent. The licensee estimates that 10,000 gallons of reactor coolant were discharged to the pressurizer relief tank (PRT) during the event. About half that volume overflowed onto the primary containment floor when the PRT's available capacity was exceeded, and the PRT rupture disc opened.

**NON-CONCURRENCE PROCESS**

NCP-2017-013

**SECTION B - TO BE COMPLETED BY NON-CONCURRING EMPLOYEE'S SUPERVISOR**

TITLE OF SUBJECT DOCUMENT

Watts Bar Integrated Inspection Report 2017003

ADAMS ACCESSION NO.

NAME

Alan Blamey

TITLE

Chief, Projects Branch 2, DRP Region II

TELEPHONE NUMBER

(404) 977-4415

ORGANIZATION

Region II, Division of Reactor Projects

COMMENTS FOR THE NCP REVIEWER TO CONSIDER (use continuation pages or attach Word document)

Based on the following issues, I believe that the issue should be greater than minor:

- (1) The performance deficiency is failure to follow procedure. This resulted in the unexpected opening of a PORV which impacted plant stability and challenged critical safety functions.
- (2) Plant stability was impacted because of the unexpected pressure transient which reduced reactor pressure from 335 psig to 310 psig.
- (3) Critical safety function was challenged because of the loss of inventory and challenge to Core Colling.

The operators were alerted to this condition by an annunciator, properly diagnosed lowering pressure and inadvertent PORV opening. In addition, the reactor pressure was high enough that if the PORV continued to fill the PRT, the rupture diaphragm would have relieved the pressure and reactor coolant would have spilled into containment. In addition, the next step of the maintenance procedure had the maintenance staff remove power from the PORV. Therefore, if the operators were slower or the maintenance staff was faster, it would have prevented / delayed the operators from mitigating this event.

Decision Basis:

- Performance Deficiency: failure to follow procedure.
- Mitigating Action: Operator diagnosis and closure of the PORV block valve.

Discussions with HQ process owners / experts noted that for determining if critical safety functions are effected only the performance deficiency should be evaluated (minor / greater than minor evaluation). Not the performance deficiency and mitigating actions. Therefore, in this case only looking at the performance deficiency without mitigating actions would have resulted in the primary system inventory passing through the PORV to the PRT and rupturing the PRT rupture diaphragm ultimately spilling primary system coolant into containment.

The operator actions, which were good in this case, prevented the event from further degradation and rupturing of the PRT diaphragm.

SIGNATURE

*Necota Staples* 

DATE

11/15/17

**NON-CONCURRENCE PROCESS**

NCP-2017-013

**SECTION C - TO BE COMPLETED BY NCP COORDINATOR**

TITLE OF SUBJECT DOCUMENT

Watts Bar Integrated Inspection Report 2017003

ADAMS ACCESSION NO.

NAME

Mark Franke

TITLE

Deputy Director, DRP, Region II

TELEPHONE NUMBER

(404) 997-4501

ORGANIZATION

Region II, Division of Reactor Projects

AGREED UPON SUMMARY OF ISSUES (use continuation pages or attach Word document)

On June 21, 2017, instrumentation and control technicians were performing Surveillance 2-SI-68-86. The surveillance verified the function of the transfer switches for the PORV and its associated block valve to transfer power from the main control room to the auxiliary control room. Step 6.2.6 [1.3] of the procedure directed that the distributed control system (DCS) demand for the PORV be toggled to 0 (closed). When the technicians came to this step, they toggled the output as directed in the beginning of the procedure step. However, they did not recognize that the DCS demand was at 0 and, therefore, toggled it to 1 (open). When the auxiliary transfer switch was operated, the PORV had an open signal present and opened. This resulted in a reactor coolant pressure drop from 335 psig to 310 psig. The main control room operators were alerted to this condition by an annunciator for high pressure in the pressurizer relief tank, properly diagnosed the inadvertent PORV opening, and shut the associated PORV block valve stopping the pressure decrease. The licensee's failure to follow TVA procedure 2-SI-68-86, was a performance deficiency.

EVALUATION OF NON-CONCURRENCE AND RATIONALE FOR DECISION (use continuation pages or attach Word document)

See Attached Document.

TYPED NAME OF NCP COORDINATOR

Mark Franke

TITLE

Deputy Division Director

ORGANIZATION

Region II, Division of Reactor Projects

SIGNATURE - NCP COORDINATOR



DATE

11/15/17

TYPED NAME OF NCP APPROVER

Mark Franke

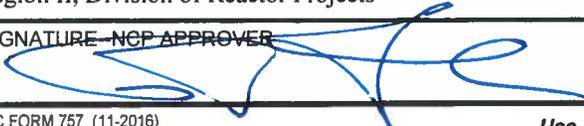
TITLE

Deputy Division Director

ORGANIZATION

Region II, Division of Reactor Projects

SIGNATURE - NCP APPROVER



DATE

11/15/17

## NCP 2017-013 Section C Attachment

I reviewed the inspectors' inspection report draft describing the issue, the reasons for the non-concurrence by Curt Rapp, and the comments by Alan Blamey.

While in Mode 5, licensee maintenance technicians erred while implementing a test procedure and incorrectly manipulated a control, which caused the power operated relief valve to inadvertently open. Reactor coolant pressure began to lower and coolant flowed to the pressurizer relief tank, resulting in a high pressure alarm. Control room operators responded to the high pressure alarm on the relief tank, diagnosed the open relief valve, and shut the block valve to stop the pressure decrease.

The disagreement is whether the licensee performance deficiency in procedure implementation should be considered "minor" or "more-than-minor" per IMC 0612 Appendix B. This determination is a qualitative decision where two reasonable people could disagree based on the same set of facts. In keeping with safety focus, where disagreements on the "minor" or "more-than-minor" threshold arise, our desire is to make decisions in a timely manner.

The inspectors answered more-than-minor screening question 4, in Appendix B, page B-4, Block 3, "Is the performance deficiency more-than-minor?". The inspectors determined that the performance deficiency was associated with the initiating event cornerstone attribute of human performance. This was supported by the Discussion section of the draft report, where the inspectors described how licensee personnel committed a human performance error when they erred in following the procedure. The inspectors also concluded that it adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power conditions because it caused a depressurization of the plant that had to be stopped by operator action. While reviewing this, I considered that the performance deficiency affected reactor coolant pressure and inventory. Appendix B, page B-4, Block 3, stated that inspectors should consider using IMC 0612, Appendix E, "Examples of Minor Issues," to inform answers to the screening questions listed above. Appendix E, Section 4, Insignificant Procedure Errors, includes an Example B that is similar in that it is a procedure error where personnel manipulated a control incorrectly. This example is considered minor when it is an insignificant procedural error and there were no safety consequences; however, it is not minor if the error caused a plant trip or other transient. Because the actual error in question caused a transient, specifically a temporary lowering of reactor coolant pressure and loss of inventory, it can be argued that it is similar to the example that is not "minor" per Appendix E.

While operators took action to stabilize coolant pressure and inventory, the discussion of operator actions may be more appropriate to keep in the Discussion section of the report because it is not a factor in the more-than-minor screening question, and it is not relied upon in the Analysis section for determining safety significance. Because the draft report subject to the non-concurrence did not contain the other extra factors discussed by the inspectors, Curt Rapp, and Alan Blamey, these factors were not assessed.

In summary, while there were no actual safety consequences and while the performance deficiency is likely of very low safety significance, I support the inspectors' conclusion that the performance deficiency was more-than-minor based on answering Appendix B, screening question 4; informed by the example provided by Appendix E. This decision is not intended to set precedent for decisions regarding future performance deficiencies, as each would need to be evaluated on a case-specific basis.