

NON-CONCURRENCE PROCESS

SECTION A - TO BE COMPLETED BY NON-CONCURRING INDIVIDUAL

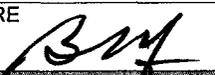
TITLE OF DOCUMENT Susquehanna PI&R Inspection Report -- 05000387,388/2008006	ADAMS ACCESSION NO.
DOCUMENT SPONSOR Mel Gray	SPONSOR PHONE NO. 610-337-5209
NAME OF NON-CONCURRING INDIVIDUAL Barry S. Norris	PHONE NO. 610-337-5111

DOCUMENT AUTHOR DOCUMENT CONTRIBUTOR DOCUMENT REVIEWER ON CONCURRENCE

TITLE Senior Project Engineer	ORGANIZATION Region I / DRP / Branch 5
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REASONS FOR NON-CONCURRENCE
see Attachment A

CONTINUED IN SECTION D

SIGNATURE 	DATE 03/17/08
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SUBMIT FORM TO DOCUMENT SPONSOR AND COPY TO YOUR IMMEDIATE SUPERVISOR

The Branch Chief, Technical Support & Assessment Branch, does not agree with the Susquehanna PI&R Team Leader that one of the Findings that the team identified should be included in the inspection report. I informed the BC that I would not concur if the finding was removed, as I consider the finding to be significant and indicative of current licensee performance. The final report was returned to me on day 45 for concurrence (or non-concurrence) after the Finding was removed from the report. I did indicate my formal Non-Concurrence on March 17th (day 45).

The failure of the Susquehanna staff to correctly evaluate operability of two safety-related systems should be considered by the NRC to be completely unacceptable. By removing the Finding from the inspection report, after the team discussed the finding at the exit meeting, the agency is sending a message to the Susquehanna staff and management that as long as they were lucky and the equipment was eventually determined to be operable, then it is okay for them to make a critical mistake in the evaluation process.

The Finding that was removed, and as submitted to the BC, is below:

(d) Inadequate Operability Evaluations for Safety-Related Systems

Introduction: The NRC identified a Green Finding because Susquehanna failed to correctly evaluate the operability of two safety-related systems. Specifically, during this inspection, the operability evaluations of the Residual Heat Removal (RHR) suppression pool (SP) cooling function and the Post-Accident Monitoring (PAM) RPV level instrumentation were flawed, in that they did not accurately evaluate the status of the systems in accordance with the TS definition of operability.

Description: On January 5, 2006, AR/CR 739371 was initiated to document an inconsistency related to the SP cooling function following a design basis accident loss of coolant accident (DBA LOCA), and that there would be a loss of RPV water level indication. The equipment operability assessment in the CR noted that there were no component deficiencies identified, and therefore no impact on operability. The inspectors questioned the operability of the RHR SP cooling function and the PAM RPV level instrumentation, based on the statements in the CR.

Suppression Pool Cooling

The Susquehanna FSAR, Sections 6.2.1.1.3.3.1.3.d and e, "Containment Systems – Assumptions for Long Term Cooling," state: "The suppression pool is assumed to be the only heat sink available in the containment system [in the event of a DBA LOCA]. No credit is taken for passive heat sinks in the drywell, suppression chamber air space or suppression pool. The initial suppression pool mass is the value corresponding to low water level. After approximately 600 seconds [10 minutes], the RHR heat exchangers are activated to remove energy from the containment via recirculation cooling from the suppression pool with the RHR service water systems."

The operability determination for SP cooling, as documented in CR 959670, stated that the SP cooling function was operable. Specifically, the CR stated that there may be a possible need for EOP revision, but does not identify any system that can not perform its design function; and that all equipment remains operable. Because of the delay that would be experienced due to the forced transition to the RPV flooding

procedure, and the design of the RHR system, SP cooling would most likely not be placed into service for up to four hours. This is not consistent with the design basis, as described in the FSAR, that SP cooling would be placed in service after ten minutes. Subsequent discussions between the NRC team and representatives from the operations and engineering departments determined that the system was operable but degraded. NRC Regulatory Issue Summary (RIS) 2005-20, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," states, in part, that a system is considered "not fully qualified" (i.e., degraded or nonconforming) when it does not conform to all aspects of its current licensing basis, which includes the FSAR. By the end of the inspection, Susquehanna was evaluating what the appropriate course of action would be to resolve the discrepancy for SP cooling.

PAM RPV Level Instrumentation

The Susquehanna FSAR, Section 7.5.1a.4.2.1, "Safety-Related Display Instrumentation - Post-Accident Tracking, Reactor Water Level," states, in part, that no operator action is required for at least 20 minutes following an accident although various monitoring devices are continuously tracking and indicating important parameter information and displaying it to the operator. The following process instrumentation provides information to the operator after a DBA-LOCA - Reactor Water Level, specifically, two wide range, two fuel zone range, and two extended range level instruments. In addition, the Susquehanna TS, Section 3.3.3.1.c, "Post-Accident Monitoring Instrumentation," states, in part, that if two required channels of one or more Functions is inoperable, then restore one channel within seven days, or be in Mode 3 (Hot Shutdown) with the next 12 hours. Table 3.3.3.1-1 lists the wide, extended, and fuel zone ranges as required functions. The TS Bases states that the three level ranges are the primary method of indication for use by the operator during an accident.

The operability determination for the PAM level instruments, as documented in CR 963065, stated that the instruments were operable. During follow-up discussions, the inspectors were told during by operations and engineering personnel that all of the PAM instrumentation together functioned to provide the needed indications to the operators, and that the RPV level indications were not needed after the initial entry into the EOPs. This was not consistent with the requirements for the operability of each individual Function of the PAM, as detailed in TS 3.3.3.1.

Subsequent discussions with the Susquehanna staff determined that the most (if not all) of the PAM RPV level instruments would indicate post-LOCA, and that their assumption that the all level indications would always be lost was erroneous.

The performance deficiency is the failure to correctly evaluate the operability status of the SP cooling function of the containment system and the PAM RPV level indications. Susquehanna documented in 2006 that both systems were operable; in 2008, during this inspection, the Susquehanna staff again documented that both systems were fully operable. Based on their incorrect assumption that all RPV level indications would be lost post-LOCA, the SP cooling function would have been operable but degraded, and the RPV level indications would have been inoperable.

During the inspection, Susquehanna determined that the SP cooling function was operable, but degraded, as defined in RIS 2005-20. They also determined that the PAM RPV level instrumentation would indicate post-LOCA and were operable. Corrective actions included revising the associated CRs, and stopping the use of simulator scenarios that involve the PAM RPV level instruments until they can be reconfigured.

Analysis: The performance deficiency is more than minor because it is associated with the Human Performance (Human Error - Pre-Event) attribute of the Mitigating Systems cornerstone and affects the objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Starting with their assumption that all RPV level instruments would be lost post-LOCA, Susquehanna believed that both systems were operable and available to perform their safety functions as described in the FSAR. In fact, the SP cooling function would not have been available for initiation within ten minutes, and the RPV level instruments would not have been available to the operators after a LOCA. The inspectors performed a review of the finding in accordance with IMC 0609, and determined that the finding screened out as having very low safety significance (Green), because it was not a design deficiency, did not result in an actual loss of safety function, and did not screen as potentially risk significant due to external initiating events.

This finding has a Cross-Cutting aspect in the area of PI&R, CAP, because Susquehanna failed to thoroughly and adequately evaluate the systems (PAM RPV level instruments and the SP cooling function) identified in AR/CR 739371 for operability. [P.1(c)]

Enforcement: Enforcement action does not apply because the performance deficiency did not involve a violation of regulatory requirements because the PAM RPV level instrumentation was eventually determined to be operable, and that the SP cooling function was eventually determined to be operable but degraded. Susquehanna entered this issue into their corrective action program as AR/CR964836. Because this finding does not include a violation of regulatory requirements and is of very low safety significance (Green), it is identified as a Finding.

(FIN 05000387/2008006-04; 05000388/2008006-04 – Inadequate Operability Evaluations for Safety-Related Systems)

NON-CONCURRENCE PROCESS

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

NAME Raymond J. Powell

TITLE Branch Chief, Reactor Projects Branch 5	PHONE NO. 610-337-6967
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ORGANIZATION Region I / DRP / Branch 5

COMMENTS FOR THE DOCUMENT SPONSOR TO CONSIDER

- I HAVE NO COMMENTS
- I HAVE THE FOLLOWING COMMENTS

See Attachment B

CONTINUED IN SECTION D

SIGNATURE 	DATE 3-18-08
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The inspector raises valid concerns.

Specifically, there is substantive regulatory precedent which establishes that equipment does not have to be inoperable for there to be a more than minor performance deficiency. Additionally, Inspection Manual Chapter 0612, Appendix E contains a note that states: "The intent behind examples "j" and "k" is to illustrate that equipment inoperability is not a prerequisite to an issue being more than minor." Although the referenced examples are not applicable, the clear implication is that issues should be evaluated on individual merit, not screened based on licensee's ultimate disposition.

NON-CONCURRENCE PROCESS

TITLE OF DOCUMENT Susquehanna PI&R Inspection Report -- 05000387,388/2008006	ADAMS ACCESSION NO.
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SECTION C - TO BE COMPLETED BY DOCUMENT SPONSOR

NAME Mel Gray <i>M-My</i>	<i>4/19/08</i>
TITLE Branch Chief, TSAB	PHONE NO. 610-337-5209

ORGANIZATION
Region I / DRP / TSAB

ACTIONS TAKEN TO ADDRESS NON-CONCURRENCE

Please see attached.

CONTINUED IN SECTION D

NON-CONCURRING INDIVIDUAL (To be completed by document sponsor):

- CONCURS
- NON-CONCURS
- WITHDRAWS NON-CONCURRENCE

The Branch Chief (BC), Technical Support and Assessment (TSAB) respectfully differed from a view held by the Team Leader of the Susquehanna Problem Identification and resolution (PI&R) regarding whether a finding should be issued for an operability evaluation completed during the inspection for reactor wide range reactor pressure vessel (RPV) level indications. The final inspection report described three findings related to this issue. The TL requested a fourth finding be issued for an inadequate operability evaluation. The BC did not consider operability evaluation issue to meet the requirements of IMC0612 for a performance deficiency and described the operability evaluation issue as an observation in the inspection report. The TL disagreed with this approach and did not concur on the inspection report. The following describes the issue and the BC views in this regard.

During the inspection, the team identified an issue where the licensee did not understand the RPV level configuration in response to design basis accident conditions. Specifically, the licensee assumed for all design basis conditions involving a LOCA or steam line break in containment that the RPV level reference legs would flash and the control room indicators would peg upscale. Although the licensee did not recognize this issue, the team identified it through a condition report (CR) in the corrective action process, generated by the licensee in January 2006, where the licensee identified that containment cooling may be delayed beyond design basis assumptions because of the EOP structure. The EOP directed operators to flood the RPV because RPV level was unavailable. The CR indicated RPV flooding would delay containment cooling beyond the design basis assumption of 30 minutes. In the CR, the licensee concluded this was related to the in progress Extended Power Uprate (EPU) and did not affect the current licensing basis. The issue was ongoing when the team reviewed it.

The team, after many hours of discussion with the licensee, identified the issue was related to the licensee's assumption that RPV level was unavailable during DBA conditions. When challenged on this assumption, the licensee, in the second week of the inspection on 1/29/08, developed an operability determination that concluded, assuming reference leg flashing, the RPV indicators were operable. The licensee determined that the indicators are RG 1.97 Type A variables and that they would perform their intended function, that is to provide level indication to operators, to support all manual actions described in EOPS.

About a day later (mid-week of second week of onsite inspection) the licensee determined their understanding of the plant response was incorrect because RPV level reference legs would likely not flash for most DBAs and would remain onscale. The licensee took immediate action to address the issue and scheduled longer term actions to revise EOPs and the simulator. The team identified the following three findings related to this issue:

1. Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to identify that an inconsistency between the procedures and the design basis for suppression pool (SP) cooling was a condition adverse to quality (CAQ), which resulted in corrective actions not being taken in a timely manner. Specifically, in January 2006, a Condition Report (CR) identified an inconsistency between an assumption in the Final Safety Analysis Report (FSAR) for the design basis accident and the emergency operating procedures (EOPs) regarding the timing for the implementation of SP cooling. This performance deficiency had a cross-cutting aspect in PI&R, identification, because the licensee did not identify that the inconsistency documented in the CR should have been categorized as a CAQ, commensurate with its safety significance.

2. Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because, in the 1990s, Susquehanna failed to adequately evaluate a deviation from

the Boiling Water Reactor Owner's Group Emergency Procedure Guidelines / Severe Accident Guidelines (BWROG EPG/SAG), which resulted in one of the emergency operating procedures (EOPs) being inadequate. Specifically, Caution #1 in the BWROG EPG/SAG warned the operators that reactor pressure vessel (RPV) level instrumentation may be unreliable if the drywell temperatures exceeded RPV saturation temperature. The purpose of the Caution was to give the operators a chance to evaluate the validity of the RPV level instrumentation to avoid premature entry into the RPV flooding contingency procedure. Susquehanna did not adequately evaluate the deviation, and the Susquehanna EOPs did not use a Caution statement; but instead, changed the caution to a procedural step, which directed the operators to transition directly to the RPV flooding procedure.

3. Non-Cited Violation of 10 CFR 55.46(c)(1), "Plant Referenced Simulators," because the Susquehanna simulator did not accurately model RPV level instrumentation following a design basis accident loss of coolant accident (DBA LOCA). Specifically, an analysis performed in 1994 to determine if the observed simulator response during a large break LOCA was consistent with the expected plant response, was based on an overly conservative assumption that the drywell would experience superheated conditions, which would cause RPV water level instrumentation reference leg flashing and a subsequent loss of all RPV level indication. The expected plant response, as stated in the analysis, was incorrect; in that a LOCA would not always cause a loss of all RPV level instruments. As a result, the simulator modeling was incorrect.

The TL proposed a fourth finding related to this issue regarding an inadequate operability evaluation. In the draft inspection report, the TL wrote: "The performance deficiency is the failure of the licensee to correctly evaluate the operability of the suppression pool cooling function of the containment system and the PAM level indications, resulting in conclusions inconsistent with the technical specifications."

The BC concluded this performance deficiency was already captured in the proposed green finding and violation of Criterion XVI, and was not a distinct separate finding. This view is elaborated in the following:

First, the BC concluded the operability process was not deficient. The deficiency involved the licensee's understanding of their design basis. The deficiency occurred when the licensee assumed the RPV level indicators would peg high during DBA conditions. Assuming this, the licensee applied the definition of RG 1.97 Type A variables, as described in the TS basis, to the level indicators and concluded the indicators would appropriately provide information to operators to take manual actions in accordance with EOPS. This met the basis for operability described in the TS Bases.

Related to the first issue, the TL did not identify the standard that was not met iaw IMC0612. No citation against the licensee's operability procedure was identified, only a conclusion that the conclusion was not correct. The BC view was that coming to an incorrect operability conclusion, developed in January 2008, was very likely when the starting basic assumption is incorrect. Therefore the performance deficiency involved the starting assumption and this was captured in the criterion XVI finding.

Second, the TL wished to extend the inadequate operability evaluation finding to include the January 2006 operability screening, when the licensee screened the CR that described the issue as related to EPU. The team (appropriately) accepted the licensee's position that they did not recognize the actual issue, and the team appropriately identified a finding and cross cutting

aspect in identification. Because the licensee did not recognize the issue in January 2006, it was not reasonable for the licensee to correctly screen the issue for operability at that time.

Therefore the TL concluded the proposed finding, for the January 2006 operability determination, did not meet the "reasonable to foresee and correct" standard in the performance deficiency definition of IMC0612.

BC

M. Asg

Third, even if the BC accepted there was a fourth performance deficiency with regard to the operability evaluation of the RPV level indicators, the performance deficiency could not be more than minor, in the BC view, because the condition did not, and would not exist in the plant during DBA conditions. The licensee determined the RPV level indicators would in fact remain operable throughout DBA conditions consistent with their design basis. Therefore the inadequate operability determination would not have affected the plant response. Also the issue was not programmatic, but related to one technical issue. The TL noted the PI&R inspection team appropriately captured all other aspects of the licensee performance by citing findings involving EOP development, simulator fidelity and inadequate identification.

The BC realizes that inspecting and assessing highly technical issues involves significant discussion and judgment, and reasonable safety inspectors can arrive at different conclusions. While the BC respectfully disagreed with the TL with regard to one finding, the BC recognizes the TL, and the PI&R inspection team, significantly enhanced safety by identifying a long standing problem at the plant and ensuring the licensee resolved the issues. Additionally, the BC believes the team captured the most germane aspects of the issue (identification) in support of the agency assessment process. Additionally, the BC is grateful that the TL was willing to use the non-concurrence process.

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SECTION D: CONTINUATION PAGE

CONTINUATION OF SECTION

A B C

See Attached email for
SES Manager's review.

 4/24/00
David C. Lew

David Lew

From: David Lew
Sent: Thursday, April 24, 2008 10:58 AM
To: Mel Gray; James Clifford
Subject: RE: non-concurrence form - next step

Below is my review. While there was verbal guidance that an SES notation is provided for awareness, the Qs & As on the website (Question 26), and the draft MD 10.158 state that, "The NCP requires that the final review of a non-concurrence be performed by SESE management. Thus if the document signer is not at the SES level of management, the review of the non-concurrence must be elevated to the first SES level management in the organization."

SES Manager Review:

Prior to the issuance of the subject inspection report, I was previously briefed by the branch chief on the inspection issue for which the team leader did not concur. I have also reviewed the non-concurrence package.

While there are valid views expressed on specific aspects of these issues, I concluded that the final characterization of this issue as an observation in the inspection report is appropriate. My conclusion was based in the context of the other findings and observations made in the report. Specifically, from a performance based perspective, the undesirable outcomes were that (1) the licensee did not have appropriate procedures for a certain scenario, and (2) the simulator modeling for this scenario was not appropriate. In any undesirable outcome, there are often multiple barriers that failed to preclude the problem. However, we do not normally have multiple findings on the same result unless there is good cause to do so. That is, the exception (vice the rule) is to have multiple findings for fundamentally the same undesired outcome.

In this case, the undesired outcome was inappropriate procedures/response to a specific scenario. There were several deficiencies leading to this issue not being identified and corrected, including (1) failure to recognize the issue in a 2006 condition report. (2) failure to evaluate a deviation from the EPGs in the 1990's which would have lead to the identification; and (3) failure to recognize this during a operability determination when raised by the NRC during the subject inspection.

In my view, the most meaningful deficiency was their failure to identify and correct. A possible option would have been to take all three findings initially proposed by the team leader and treat them as one finding in which the licensee failed to identify and correct, with multiple examples where the opportunity existed.

In this case, the final decision was to focus on the most meaningful aspect which was the failure to identify and correct, to treat one finding as minor (reasonable arguments provided on both sides) and to treat the failure to evaluate the deviation from the EPGs in the 1990's as a second finding. While not my personal preference, the second finding did not have a crosscutting aspect since it was dated, and therefore from an assessment process perspective, there is no difference in the inputs into the NRC's assessment.

From: Mel Gray
Sent: Tuesday, April 22, 2008 6:02 PM
To: James Clifford
Cc: David Lew
Subject: non-concurrence form - next step

I talked with Renee Pederson in HQ today at her office. Next step for SSES PI&R form is for SES notation to be added for awareness. Form has no place for this, so can be added on last page. Although process is not clear, SES notation would normally be noted on concurrence page of inspection report. Renee indicated the form could be annotated. She was glad to get feedback on process.