Duke Energy

ATTACHMENT B OF ENCLOSURE 1 CONTAINS PROPRIETAY INFORMATION REQUESTED TO BE WITHHELD FROM PUBLIC DISCLOSURE PER 10 CFR 2.390. WHEN SEPARATED FROM ATTACHMENT B OF ENCLOSURE 1, THE BALANCE OF THIS LETTER MAY BE CONSIDERED NON-PROPRIETARY.

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August 25, 2009

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-001

ATTENTION: Document Control Desk

Subject: Duke Energy Carolinas (DEC), LLC

McGuire Nuclear Station, Units 1 and 2
Docket Nos. 50-369 and 50-370

Catawba Nuclear Station, Units 1 and 2
Docket Nos. 50-413 and 50-414

License Amendment Request (LAR) for Technical Specification (TS) 3.6.13, Ice Condenser Doors, Response to Request for Additional Information (RAI)

This letter provides the response to a RAI for a LAR submitted on October 2, 2008 to revise TS 3.6.13 - Ice Condenser Doors for the McGuire and Catawba Nuclear Stations. The RAI was sent via electronic mail from Jon Thompson dated May 21, 2009. The draft response to the RAI was discussed during a conference call with the NRC staff on June 18, 2009. The NRC staff's questions and DEC's responses are provided in Enclosure 1.

The additional information provided in this RAI does not impact the conclusions of the No Significant Hazards Considerations and the basis for the categorical exclusion from performing an Environmental/Impact Statement presented in the October 2, 2008 LAR submittal. Specifically, the proposed revisions to TS 3.6.13 do not affect the current post-accident Containment Response analysis of record.

Attachment B of Enclosure 1 contains information that the owner, Westinghouse Electric Corporation (WEC), considers proprietary. In accordance with the provisions of 10 CFR 2.390, Enclosure 2 contains a request and affidavit CAW -09-2643 from WEC that the proprietary information identified in Attachment B of Enclosure 1 be withheld from public disclosure. Enclosure 3 provides the non-proprietary version of Enclosure 1, Attachment B.

A001
NRR

This RAI response contains no regulatory commitments for McGuire or Catawba.

Please direct any questions with regard to this matter to Julius W. Bryant at (980) 875-4162.

Very truly yours,

B. H. Hamilton

Enclosures

xc w/ Enclosures

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OATH AND AFFIRMATION

Bruce H. Hamilton affirms that he is the person who subscribed his name to the foregoing statement, and that all the matters and facts set forth herein are true and correct to the best of his knowledge.

Bruce Hamilton

Bruce H. Hamilton, Site Vice President

Subscribed and sworn to me: August 25, 2009

Date

Lori C. Gibby

Notary Public

My commission expires: July 1, 2012

Date

Enclosure 1

Response to NRC Staff RAI Related to October 2, 2008 LAR for TS 3.6.13, Ice Condenser Doors,

NRC Staff Question SCVB#1 (Three Parts; 1a, 1b, and 1c)

Please provide the following clarifications on TS 3.6.13 as to how Condition A and Condition B are applied under the current TS versus how they are intended to be applied under the proposed TS.

NRC Staff Question SCVB#1a:

Technical Specification Surveillance Requirement (TSSR) 3.6.13.1 and TSSR 3.6.13.4 are applicable to the lower inlet doors. TSSR 3.6.13.1 is performed at a frequency of 12 hours during modes 1, 2, 3, & 4. TSSR 3.6.13.4 is conducted at a frequency of 18 months during outages. Please explain what condition statement the plant will be in upon failure to pass TSSR 3.6.13.1 - "Verify all inlet doors indicate closed by the Inlet Door Position Monitoring System." Is it Condition A, Condition B, or both? If the answer is Condition B only, what is 1 hour completion time for Require Action A.1 mean under the proposed revision to the TS?

DEC Response to NRC Staff Question SCVB#1a:

Revision 3.0 of the Standard Technical Specifications (STS) for Westinghouse Plants (NUREG-1431) is worded such that Condition A of STS TS 3.6.16 applies only to the Inlet Doors ("Inlet Doors" and "Lower Inlet Doors" represent synonymous terms) [1]. However, the current McGuire/Catawba TS 3.6.13 wording does not incorporate the "Inlet" or "Lower Inlet" text into the Condition A description [2]. As a result, Condition A of the current McGuire/Catawba TS 3.6.13 is applicable to all Ice Condenser Doors (Lower Inlet Doors, Intermediate Deck Doors, and the Top Deck Doors). The proposed revision to the McGuire/Catawba TS 3.6.13 wording adopts the Westinghouse STS clarification in Condition A (i.e., by adding the descriptor "Lower Inlet") so that only the Lower Inlet Doors are affected by Condition A.

For both the current McGuire/Catawba TS 3.6.13 and the proposed McGuire/Catawba TS 3.6.13, TSSR 3.6.13.1 is applicable to the Lower Inlet Doors only ("Inlet Doors" and "Lower Inlet Doors" represent synonymous terms). If a Lower Inlet Door (or more than one Lower Inlet Door) opens while in a Mode of Applicability (i.e., Modes 1, 2, 3, or 4), TSSR 3.6.13.1 is not met, and only Condition B is entered since the Condition as described for such an occurrence would be "not closed".

Under the proposed revision to McGuire/Catawba TS 3.6.13, the one-hour Required Action Completion Time for Condition A would be entered only if one or more Lower Inlet Door(s) is physically restrained from opening. Such a condition could arise if a Lower Inlet Door blocking device, which is temporarily installed during outages to prevent inadvertent opening of the doors, is unintentionally left in place and the Unit is brought into a Mode of Applicability while in that configuration.

Enclosure 1

Response to NRC Staff RAI Related to October 2, 2008 LAR for TS 3.6.13, Ice Condenser Doors,

NRC Staff Question SCVB#1b:

The LAR proposes to reword Condition A to apply to the Lower Inlet Doors only, eliminating the one-hour action statement for any condition discovered involving the Intermediate Deck Doors or the Top Deck Doors. The applicable surveillance requirements are TSSR 3.6.13.2 for the Intermediate Deck Doors and TSSR 3.6.13.3 for the Top Deck Doors. Please explain which part of the surveillance requirements could put the plant in Condition A under the current TS?

DEC Response to NRC Staff Question SCVB#1b:

Revision 3.0 of the STS for Westinghouse Plants (NUREG-1431) is worded such that Condition A of STS TS 3.6.16 applies only to the Inlet Doors ("Inlet Doors" and "Lower Inlet Doors" represent synonymous terms) [1]. However, the current McGuire/Catawba TS 3.6.13 wording does not incorporate the "Inlet" or "Lower Inlet" text into the Condition A description [2]. As a result, Condition A of the current McGuire/Catawba TS 3.6.13 is applicable to all Ice Condenser Doors (Lower Inlet Doors, Intermediate Deck Doors, and the Top Deck Doors). Therefore, if TSSR 3.6.13.2 is not satisfied due to ice, frost or debris physically restraining one or more intermediate deck door(s) from opening and/or TSSR 3.6.13.3 is not satisfied due to condensation, frost, or ice physically restraining one or more top deck door(s) from opening, the current McGuire/Catawba TS 3.6.13 wording would require entry into TS 3.6.13 Condition A.

The proposed revision to the McGuire/Catawba TS 3.6.13 wording adopts the Westinghouse STS clarification in Condition A (i.e., by adding the descriptor "Lower Inlet") so that only the Lower Inlet Doors are affected by Condition A [1]. Therefore, if TSSR 3.6.13.2 and/or TSSR 3.6.13.3 are not satisfied for any reason, the proposed revised McGuire/Catawba TS 3.6.13 wording would only require entry into TS 3.6.13 Condition B. This is appropriate since the Intermediate Deck Doors and Top Deck Doors are primarily thermal/humidity barriers, and their time-dependent behavior during an accident scenario (i.e., allowing the passage of air/non-condensable gases from the lower compartment to the upper compartment during initial blowdown) is not quantified in the containment response analysis [3]. As such, for the case where one or more Intermediate Deck Door(s) or one or more Top Deck Door(s) is/are inoperable, the 14 day Required Action Completion Time of McGuire/Catawba TS 3.6.13 Condition B is appropriate and consistent with the Westinghouse STS.

Enclosure 1

Response to NRC Staff RAI Related to October 2, 2008 LAR for TS 3.6.13, Ice Condenser Doors,

NRC Staff Question SCVB#1c:

The LAR proposes to add a new note to TS Actions indicating entry into Condition B for the Intermediate Deck and Top Deck Doors is not required due to personnel standing on or opening doors for short durations to perform required surveillances, minor maintenance, or routine tasks.

What condition entries are made during the performance of the same activities under the current TS? What is the duration it normally takes to complete these activities? Notes 1 and 2 under Actions in the proposed TS could allow multiple doors to be open at the same time. Please provide a brief description of the activities that will be covered by the proposed Note 2 and if they in fact require multiple doors to be opened simultaneously. The concern staff has with these activities is potential for ice bed sublimation, melting, and ice condenser flow paths. Please address these concerns in your response.

Proposed Note 2 did not indicate a duration for these activities. However, a duration of < 4 hours is mentioned in the Bases section. What is the reason for not including the time of < 4 hours in Note 2? Also, discuss the acceptability of < 4 hours time in your response to the question immediately above.

DEC Response to NRC Staff Question SCVB#1c:

Condition B of the current McGuire/Catawba TS 3.6.13 is entered when personnel open one or more Intermediate Deck Door(s) or Top Deck Door(s) for any duration to perform surveillances, minor maintenance, or routine tasks. All of these evolutions typically require approximately 2 hours or less to complete. Condition entry for these tasks is not required if doors are not opened or if personnel are standing on these doors.

The proposed new Note 2 is intended to relate only to required surveillances, minor maintenance, and routine tasks as defined in the License Amendment package dated October 2, 2008. These activities would include tasks that are necessary to ensure ice condenser operability (e.g., door visual inspection, light housekeeping), require only a minimum amount of time to perform (typically 2 hours or less), and involve a small number of personnel [3]. These tasks would not be expected to require the opening of multiple doors simultaneously. An extended maintenance activity (e.g. ice basket weighing) could require multiple doors to be opened simultaneously. For this situation, Condition B of both the current and proposed McGuire/Catawba TS 3.6.13 would be entered which requires monitoring of the ice bed temperature at least every four hours to ensure maximum ice bed temperatures do not approach the melting point [2]. In addition, the 14 day Required Action Completion Time of Condition B ensures there would not be a significant loss of ice from sublimation [2]. The flow channel clearance through the ice bed is not affected by the opening of doors since the applicable doors are in an area physically distinct from flow channels and these doors function mainly to

open and relieve pressure from the lower compartment of containment during the blowdown phase of a large break Design Basis Accident (DBA). Therefore an open door is already fulfilling this DBA function.

The general intent in adding the proposed Note 2 to the McGuire/Catawba TS 3.6.13 Actions is the adoption of the Westinghouse STS 3.6.16 Bases wording. During the internal review of the LAR submitted October 2, 2008 (prior to submittal to NRC), it was determined that wording included in the STS 3.6.16 Bases that identifies criteria for entering an action statement would be better positioned in the actual technical specification (for Operator expediency), rather than in the Bases document. The STS 3.6.16 Bases wording does not identify a timeframe for "short duration". Therefore, it was determined that the Condition B four hour completion time for ice bed temperature verification would be invoked since it represented a limit already prescribed by the technical specification and easily bounded the expected timeframe for performing routine surveillances and inspections. The four hour timeframe defining a "short duration" entry is considered a technical specification clarification, and as such was determined to be better left in the TS Bases document.

NRC Staff Question SCVB#2

In reference to the attachments containing existing UFSAR pages marked-up to show the proposed changes, please clarify if the changes are same as those referenced in the last paragraph of Section 2.2 of Attachment 1. If they are different, give us a time line of the 10CFR50.59 changes to the McGuire UFSAR, and when it was recognized that the flow proportioning characteristics of the inlet doors is not a design requirement for McGuire and Catawba.

DEC Response to NRC Staff Question SCVB#2:

The marked-up McGuire UFSAR pages included with the LAR package dated October 2, 2008 are different from the revisions that were made to the McGuire UFSAR as a result of the 10CFR50.59 evaluation described in Section 2.2 of Attachment 1 of the same LAR package [3]. Section 2.2 of Attachment 1 of the LAR describes the removal of the description of the "double break" scenario, in which a small break LOCA event occurs first, followed by a large break LOCA event in rapid succession. It was determined in early 2005 that the "double break" scenario was beyond the design basis of the McGuire station (reference detail in Section 3.3.1 of Attachment 1 of the LAR package), and the UFSAR was subsequently revised via a 10CFR50.59 evaluation in February of 2005 [4]. The Catawba UFSAR did not contain outdated references to the "double break" scenario, and therefore did not need revision in 2005 to reflect this determination.

The conservative flow proportioning characteristics of the Lower Inlet Doors was recognized prior to 2005 by the Ice Condenser Utility Group (ICUG). At the ICUG Technical Conference held at the Donald C. Cook plant in 2002, the subject was discussed at length [5]. The relevant pages of a meeting summary from that conference are included as Attachment A to this Enclosure in conjunction with the response to item SCVB#3 below. The proposed UFSAR changes shown in the LAR submitted on October 2, 2008 will be implemented after NRC approval of that LAR.

NRC Staff Question SCVB#3

In reference to the statements in paragraph 3 of Section 2.4 of Attachment 1, please provide copies of relevant pages of ICUG interpretation in 2002 that was discussed in that year's ICUG Technical Conference.

DEC Response to NRC Staff Question SCVB#3:

The RAI question refers to the interpretation of the Lower Inlet Door 40 Degree Torque Test series (TSSR 3.6.13.6) results. Copies of relevant pages of the ICUG Technical Conference meeting summary held at the Donald C. Cook Nuclear Plant in Bridgman, Michigan in 2002 are included in Attachment A to this Enclosure [5].

NRC Staff Question SCVB#4

It was stated in page 11 of Attachment 1 that inlet door movement characteristics (after initially breaking away) are not tied directly to the Containment response analysis and referenced a Westinghouse (OEM) letter. Please provide copies of relevant pages of the letter containing appropriate justification. Staff would also like to be informed if the proposed removal of TSSR 3.6.13.6 was discussed with the OEM, and if so, provide us with a brief description of the OEM's response.

DEC Response to NRC Staff Question SCVB#4:

The RAI question refers to a letter written by the OEM (WEC) in response to a contracted task to formally document the original design basis of the Lower Inlet Doors at McGuire and Catawba as it relates to the Technical Specifications. Copies of the relevant pages of the referenced OEM letter are included as Attachment B to this Enclosure [6].

As discussed in the LAR package dated October 2, 2008, the accidents (LBLOCA and SBLOCA) are separate events and cannot occur concurrently or in rapid succession. A LBLOCA does not require the flow proportioning function of the Lower Inlet Doors to prevent maldistribution of break energy, as under these high energy conditions the ports

in the Crane Wall are designed to distribute the inflow to the ice condenser. The SBLOCA, as an independent low energy event, does not propagate to a LBLOCA and therefore preventing steam bypass from getting to the upper compartment of containment (ostensibly prior to a subsequent LBLOCA high energy event) is not necessary.

The proposed removal of the TSSR 3.6.13.6 Lower Inlet Door Torque test series (and incorporation of a freedom of movement test into SR 3.6.13.5) was not formally discussed with the OEM. As noted in the LAR package dated October 2, 2008, there is an industry precedent (TSTF 429-A) for revising an ice condenser-related technical specification using this approach. TSTF 429-A was approved by NRC in September 2003, and reflects a revision to the Ice Condenser Ice Bed Mass Determination statistical analysis and sampling methodology governed by McGuire/Catawba TSSR 3.6.12.4 and TSSR 3.6.12.5 [7].

Enclosure 1 References

1. Westinghouse STS 3.6.16 and BASES (NUREG-1431, Rev. 3, Volume 1)
2. Current McGuire/Catawba TS 3.6.13 and TS BASES
3. October 2, 2008 LAR package, Attachment 1, page 9 of 27
4. PIP M-04-5115, CA#34
5. ICUG Meeting Summary - July 2002, Pgs 7-10 (see Attachment A of Enclosure 1 in this submittal)
6. Westinghouse Letter LTR-RIDA-06-106, Rev 2, Portion Titled "Scope and Clarifications Number 8" (see Attachment B of Enclosure 1 in this submittal)
7. TSTF-429, Revision 3, dated November 2003

Attachment A To Enclosure 1
Selected Pages From Meeting Summary For July 16-18, 2002 Ice Condenser Utility Group Technical Conference

1. Primary focus of the guide would be to educate/enlighten Work Control and plant management to the significance of the I/C surveillances in an era of ever-shortening outages.
2. The IG would need to be comprehensive; i.e., it would encompass all the I/C TSs and the design principles behind them.
3. Guide would include a reference section that would lead to the public domain, so that the bases in the guide will tie to documents we all share.
4. Operating experience would be included (both plant OE and regulatory history).
5. A description of the TS implementation procedures and associated maintenance practices (such as AIMM methodology) from each plant would be included.
6. This would need to be assembled pretty quickly. Sequoyah NP might be the first to adopt the Ice Mass Determination TS from NUREG-1431, and if so would do it in time for the spring 2003 RFO there. That schedule would mean at least a draft IG would need to be in place by early 2003 to support the implementation of the TS.

From these comments, the following outline of the ICUG Implementation Guide was developed:

- Section I: Operating Experience (Plant and Regulatory)
- Section II: Design Philosophy (link to TSs)
- Section III: Implementation of TS / Maintenance Support
- Section IV: References (linked to public domain)

Paul L. and Russ took **action** to begin assembling information for Section III, with Paul taking the Ice Mass TS and Russ taking the I/C Door TS LID issues. As this develops, assistance will be needed from ICUG members.

The next agenda item involved the recent issues regarding the I/C Door TS, in particular, the surveillance tests surrounding the Lower Inlet Doors. It had been determined that, due to continuing confusion about this subject by the staff and others, documentation of an industry position was needed for supporting not just our response to the issues individually, but for enhancing our credibility as an industry group capable of consistently addressing regulatory issues. Russ gave a synopsis of what brought this item to the ICUG agenda: the NRC Resident at Catawba had raised the issue of LID testing, in particular the fact that there was no process installed at CNS for tracking "failures" of the LID tests after an as-left surveillance. This was deemed a problem since, by 10CFR50.65 guidance (Maintenance Rule), failures of high-risk, safety-significant systems needed to be trended. He issued a non-cited violation (against Criterion XVI) to Catawba the week prior to the ICUG meeting, as a result. He had other issues as well, which turn out to be similar to those surfaced by the Residents at the other Region II plants:

- As-left testing versus as-found testing, why not do both?
- Adequacy of the LID 40° Torque Test to determine operability
- MR trending

The ICUG discussion of this item at the meeting was extensive; what follows is a summary of it that also served as the industry position basis:

In February of 2002, Cook Nuclear Plant Unit 1 entered a planned refueling outage, at which time the Ice Condenser Lower Inlet Doors (LIDs) were tested per the plant's surveillance requirements. At Cook NP, the surveillances on the LIDs are performed in both the as-found and the as-left condition. The remaining ice condenser plants (TVA-Sequoyah, TVA-Watts Bar, Duke-Catawba and Duke-McGuire, all in Region II) conduct the LID surveillances only in the as-left condition. The LID testing performed at Cook NP Unit 1 was witnessed by NRC personnel, and at the time of the tests several issues arose about the methodology being implemented to perform them. Ultimately, Cook NP determined that their test procedure for the LIDs was not adequate. Cook personnel then corrected the test procedure and re-tested the Unit 1 LIDs. Unit 2 LIDs were addressed through approval of an emergency Technical Specification amendment allowing Unit 2 to operate until its next outage without further testing.

As a result of these events, resident NRC inspectors queried personnel at the Region II plants regarding the LID tests, and during the spring 2002 outage season LID testing and associated procedures were reviewed and in some cases witnessed by the staff at those stations. Subsequently, NRC personnel at Sequoyah and Catawba Nuclear Stations requested clarification on the following issues:

- Basis for performing *as-left* LID testing in lieu of *as-found* LID testing. This issue concerns a Licensee's ability to show that the LIDs are still operable at the end of a cycle (or at any other time after the current as-left tests).
- Validity of the methodology for performing the LID 40° "Torque Test." This issue involves the evaluation of free LID movement and friction in the LID hinges (required by the current surveillance requirements).
- Process for trending LID failures for Maintenance Rule. This issue surfaced after it was noted by NRC that the LIDs are included in MR as high-risk, safety significant components, but no process for trending failures exists since the LIDs cannot "fail" the as-left surveillance test (LIDs are not required operable in Mode 5 when the SR tests are performed).

Pursuant to the generic position, the following topics were discussed at length:

1. LID design basis
2. LID surveillance test acceptance criteria basis (e.g., empirical data, analysis, or other)
3. Current surveillance requirement link to 10CFR50.36
4. Current industry procedures for identifying unexpected changes from last as-left LID tests
5. Current industry procedures for performing the LID Opening Force Test
6. Current industry procedures for performing the LID 40° Torque Test
7. Industry experience with the LID 40° Torque Test and associated results
8. LID contribution to functional capability of Ice Condenser (Maintenance Rule)

Representatives from each of the utilities provided plant-specific information and recent experience related to the surveillance testing of LIDs. Salient points from past discussions with resident inspectors were also exchanged, as well as past LID testing issues and plant events.

While each utility has a different approach for addressing the three outlined issues brought by the NRC residents, the bases behind the approaches is essentially the same and adequately represents that the industry is not divergent in its interpretation of the requirements set forth in the current Ice Condenser Door technical specification.

Issue: As-Left LID Surveillance Testing versus As-Found LID Surveillance Testing

All representatives agreed that as-left (post-ice bed maintenance) surveillance testing is sufficient to show the LIDs will be capable of performing their safety function. Combined industry operating experience has verified the absence of any mechanism for LID degradation during normal operation ("innage"). Innage-related anomalies (e.g., a steam leak in containment or excessive AHU drain pan leakage) that could potentially challenge LID performance are addressed in each plant's Corrective Action Program including, as appropriate, operability evaluation per the guidance outlined in Generic Letter 91-18.

Outage-related ice bed maintenance, however, does present conditions that commonly degrade LIDs. These conditions include exposure of the LIDs to ice and water outfall. As a result of these activities and the potential degradation that they impose, LID restoration is a normal activity at the conclusion of each maintenance outage. Final restoration activities include completion of the required surveillance testing. During the course of performing this LID testing, "failures" (when they occur) have typically been attributed to outage maintenance-induced ice build-up on the LIDs, the compressive effect of LID blocking hardware, or the known sensitivity of the test parameters when performed by inexperienced personnel. The satisfactory completion of this as-left LID testing meets the applicable surveillance requirements by assuring the limited condition for operation of the LIDs *will be* met for the duration of the surveillance interval as required by 10CFR50.36 (c) (3).

Noted as well were the existing *as-found* visual inspections of the LID area performed after Unit shut-down. Some utilities visually inspect the LID seal and door surfaces, while others do a general visual inspection to ascertain anomalous conditions that might affect LID operability, such as ice build-up or other degradation. These as-found inspections are formal procedures at some plants. Each plant (as appropriate) should evaluate the need to proceduralize these inspections to verify that as-found LID condition is being evaluated to appropriately identify any Conditions Adverse to Quality (CAQ). If during the as-found inspection a CAQ is discovered, further evaluation of the LID condition would be indicated, up to and including a surveillance test.

It was determined during the discussion that LID "cycling" (i.e., opening and closing) prior to any as-found inspections or as-left surveillance tests was practically unavoidable. This cycling is a result of the very low differential pressure needed to open the LIDs, and is the reason the LID Blocking hardware, used to hold the doors closed during ice bed maintenance, was developed. All plants reported experiencing inadvertent LID cycling during containment ventilation transients, which occur as the Unit changes modes and as personnel air locks and containment equipment hatches are opened in preparation for outage work. In addition, at some plants the only ingress path to the ice condenser Lower Plenum after shutdown is through a LID, which requires at least one LID to be opened just to gain access to the area. There is no failure mechanism being masked by this LID cycling. The seal design is such that the seal does not freeze to the door surface; any freezing condition that restricts LID opening requires a significant build-up of ice or frost, which is identifiable during as-found visual inspections.

As required by 10CFR50, Appendix B, *any* CAQ must be identified and corrected, whether it is discovered via a surveillance test or other means. The as-found visual inspections provide the primary basis for identifying CAQs. LID maintenance performed at the conclusion of the outage is generally defined as those routine activities needed to restore the doors from the effects of outage work. This maintenance, since it is occurring prior to the as-left surveillance tests, must be limited to maintenance that repairs a condition caused by other outage maintenance activities or a condition for which the as-found condition of the door has been evaluated. For example, allowed routine maintenance might include seal/hinge lubrication performed as a standard practice to remove moisture from the hinges introduced during ice bed replenishment. Conversely, hinge/spring adjustments are *not* routine maintenance activities, and would need to be evaluated to determine the cause of the condition/adjustment. After routine maintenance is performed, a "soak time" is conservatively allotted before the surveillance tests are performed, to allow the LID to settle. Each plant (as appropriate) should evaluate the need to establish allowed maintenance practices and "soak times" prior to performing the as-left LID tests.

Issue: Validity of LID 40° "Torque Test" Methodology

The primary focus of this issue centers on the function of the LIDs during the postulated Design Basis Accident. For all ice condenser plants, the Large Break LOCA (LBLOCA) is the bounding analysis. The only other licensing basis analysis is applicable only to Cook NP, which has unique containment design issues that have resulted in a sump inventory analysis (MAAP) that occurs in the SBLOCA event.

ICUG notes that the LIDs are intended (and analytically assumed) to open immediately and evenly upon initiation of the Large Break or Small Break LOCA, and then *recover* their position and *modulate* the longer-term flow of steam into the ice bed until the bed is depleted. This design function forms the basis for the current LID Opening Force Test and the LID Torque Test, and supports the LBLOCA analysis modeled by the TMD/LOTIC codes as well as the SBLOCA MAAP code for the Cook NP sump inventory analysis. The Duke plants are currently licensed to a TMD/GOTHIC code model which does allow cross-flow between elements and has a more detailed nodalization than the original LOTIC work. Analysis runs using the GOTHIC code show that the LIDs *do not* need to open evenly *or* recover and modulate steam flow into the ice bed after the DBA has initiated. While not all ice condenser plants are licensed to this model, it supports the ICUG view that the current Ice Condenser Door technical specification is conservative.

In order to show the functional capability of the LIDs to modulate steam flow after the initiation of either the LBLOCA or SBLOCA, the surveillance test (the LID Torque Test) identifies limits for opening torque, closing torque, and frictional torque with the LID positioned at 40° open (this represents the free opening position of the doors before significant contact against the shock absorbers or foam bags). Generally, the

opening and closing forces are determined by utilizing a hand-held or rig-mounted scale (spring or digital), and the forces converted (as appropriate) to torque at the hinges. Once the opening and closing values are determined by test, the frictional component is derived by taking the difference between them and dividing by 2. Since the LIDs were not originally design-tested empirically or analytically in this capacity, these numbers are representative of a new LID installed to applicable construction tolerances. By definition, deviation from these limits would constitute a degradation process warranting further evaluation.

During the discussion of this, all plants reported limited situations (past and present) where the indicated opening force on the scale (that required to open the LID further from the 40° open position) actually measured *less* than the associated closing force (that required to hold the LID still at the 40° open position). While this situation did not cause any LID tests to exceed the specified limits, it did raise the question of test methodology validity, a concern also raised by the resident inspectors. Several valid points were identified in response to this:

1. The accuracy of the scale used in the LID 40° Torque Test can contribute to misleading indicated opening and closing forces. Both spring and digital scales are used by the industry for these tests.
2. Measurement of the LID opening and closing forces for the surveillance are influenced by "dynamic effects," which are essentially a combination of factors such as "bouncing" (allowing the LID to hit the scale and rebound, even from a short distance) and air outrush during the tests (due to the existence of cold air static head in the ice condenser when the LID is opened).
3. The derived frictional component of the LID 40° Torque Test, whether it is positive or negative, is a sufficient indicator of the LID's freedom to move (i.e., recover and modulate) after a postulated Large Break or Small Break LOCA scenario.

Each plant should evaluate the need to address these factors in the LID Opening Torque Test and the LID 40° Torque Test surveillance procedures. Based on the technical information and operating experience shared by the utilities, ICUG feels that the current LID surveillance requirements continue to be adequate and conservative in determining the functional capability of the LIDs. ICUG consensus is that the generic Ice Condenser Door Technical Specification (STS version) is acceptable and conservative as currently written, and that revisions to it, as necessary, should be handled on a plant-specific basis.

Issue: Trending LID Surveillance Test Failures for Maintenance Rule

All plants indicated similar general scoping of ice condenser components into the Maintenance Rule (MR) program, but the industry differed on the definition of what actually constitutes a functional failure (FF) of the ice condenser. All agreed that individual component "failures" (such as a LID) did not necessarily indicate an I/C FF (particularly when MR scoping is based on safety function rather than an individual component basis), but that it needed linkage to analytical bases such as the TMD/LOTIC or TMD/GOTHIC models via a blockage limit (generally noted as 15% allowable blockage due to ice build-up). Some plants have clearly defined limits in this regard. Since this is a plant-specific determination, the industry agrees that different approaches to MR scoping will exist.

Of more interest to the staff is the requirement to trend failures of high-risk, safety-significant components. As-found inspections of the LIDs provide the primary basis to identify and trend failures of the doors within the plant's Corrective Action Program. It was generally agreed that, even though during an outage the LIDs are not required to be operable, as-left LID surveillance test failures, if they occur, should be documented in a plant's Corrective Action Program, and that that would provide the required trending process to evaluate failures per Maintenance Rule. Each plant should evaluate the need to document LID surveillance test failures in their Corrective Action Programs.

At this stage, Paul L. provided the group with video footage of actual LID 40° torque tests performed at Cook Plant. The video depicted one test run the way Cook initially did it (prior to February 2002) using a test rig mounted to the portal frame, one test run the revised way (post-2/02) that provided for hand-held instrumentation, and then a demonstration of a newly-designed test rig ($150K worth), developed with Framatome ANP, for testing the doors with a minimum of movement. The Framatome rig, which Cook NP has not yet officially brought into action, attaches to a bolt head on the outside of the LID surface, and uses a digital scale for the hinge resistance. Motion in the LID during the torque test is kept at about 0.008", and experience with it shows that friction forces decreased significantly. Cook is still utilizing the air dams to prevent the dynamic effect of rushing air.

Enclosure 2

Request And Affidavit From WEC That Proprietary Information In Attachment B of Enclosure 1 Be Withheld From Public Disclosure In Accordance With The Provisions of 10 CFR 2.390.

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Nuclear Services
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LTR-ICE-09-15, Rev. 1 P-Attachment

Our ref: CAW-09-2643

Date August 14, 2009

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: "Sections of Applicable Text from LTR-RIDA-06-106, Rev. 2" (proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-09-2643 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Duke Energy.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-09-2643, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

cc: G. Bacuta (NRC OWFN 12E-1)

Enclosures

Enclosure 2

Request And Affidavit From WEC That Proprietary Information In Attachment B of Enclosure 1 Be Withheld From Public Disclosure In Accordance With The Provisions of 10 CFR 2.390.

CAW-09-2643

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
This 14th day of August 2009

Joyce A Szepessy
Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Joyce A. Szepessy, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires April 16, 2013
Member, Pennsylvania Association of Notaries

Enclosure 2

Request And Affidavit From WEC That Proprietary Information In Attachment B of Enclosure 1 Be Withheld From Public Disclosure In Accordance With The Provisions of 10 CFR 2.390.

(1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse "Application for Withholding" accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Enclosure 2

Request And Affidavit From WEC That Proprietary Information In Attachment B of Enclosure 1 Be Withheld From Public Disclosure In Accordance With The Provisions of 10 CFR 2.390.

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

Enclosure 2

Request And Affidavit From WEC That Proprietary Information In Attachment B of Enclosure 1 Be Withheld From Public Disclosure In Accordance With The Provisions of 10 CFR 2.390.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

(iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in "Sections of Applicable Text from LTR-RIDA-06-106, Rev. 2" (proprietary) for submittal to the Commission, being transmitted by the Duke Energy letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse for Catawba Units 1 and 2 and McGuire Units 1 and 2 is that associated with testing of the Ice Condenser lower inlet door function.

This information is part of that which will enable Westinghouse to:

(a) Support the utilities effort in determining the need for various ice condenser door testing.

Further this information has substantial commercial value as follows:

(a) Westinghouse plans to sell the use of the information to its customers for the purpose of future manufacturing, repairs, and testing of the ice condenser lower inlet doors.

(b) Westinghouse can sell support and defense of information regarding future manufacturing, repairs, and testing of the ice condenser lower inlet doors.

(c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar details regarding the lower inlet door testing and manufacturing and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

Enclosure 2

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PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

COPYRIGHT NOTICE

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.

Section of Applicable Text from LTR-RIDA-06-106 Rev. 2

Scope and Clarifications Number 8:

A conclusion regarding the existence of an "analytical connection between the Tech Spec SR values and the safety analysis [ ]^{a}, and the resultant implications if the closing torque exceeds the opening torque," will be provided. [

]^{a}

A measured closing torque that is [ ]^{a} than the opening torque is not a concern since this condition is caused by the springs' mechanical behavior [ ]^{a}, which affects the door over a limited range as it approaches the open position. Since the closing force being [greater]^{a} than the opening force is also the source of the calculated [ ]^{a}, it can be concluded that the [ ]^{a} is not indicative of problems with the hinges. The current surveillance test data provided by Duke Energy indicate that the [ ]^{a} limit is considered to be met for the lower inlet doors, [ ]^{a}.

[ ]^{c} is an issue that could challenge containment integrity if not limited. If excessive steam locally enters a section of the ice condenser that section could melt out well before the overall ice bed proper. With that section melted out, the steam entering that section could then bypass the ice condenser (chimney effect) and flow directly to the upper compartment. If the upper containment heat sinks and containment sprays are not sufficient to limit the pressurization due to this increased steam (plus any other steam resulting from bypass through the operating deck) then the containment design pressure could be exceeded.

There was no explicit analytical connection between the Technical Specification Surveillance Requirement limits and the safety analysis [ ]^{a} identified. The only statement that was identified was contained in [

]^{a}

No [ ]^{c} were conducted relative to the [ ]^{a} of the lower inlet door characteristics. However, based upon a review of [ ]^{a} for a similar design, the ice condenser design can tolerate [ ]^{a} For example, if the [ ]^{c} have somewhat [ ]^{a} and would therefore open and close with [ ]^{a} resistance than the other [ ]^{a} then substantial margin between [ ]^{a} was still observed. [ ]^{a} was observed in these sensitivity

studies. Additionally if the [

]^{a} of allowable deck leakage was determined to be acceptable. For these latter cases, the integrated maldistribution based upon [ )]^{a} was greater than [ ]^{a}. Therefore; based upon this generic work, the [ ]^{a} criterion is an acceptable upper limit that ensures that the calculated containment pressure for [ ]^{a} breaks, when the lower inlet doors are in the flow proportioning range, will remain below the containment design pressure for allowable deck leakage areas greater than the design value [ ]^{a}

The information presented [ ]^{a} that for door frictional torques in the range of [ ]^{a}, the pressures required to open and close the doors are consistent with the characteristic curve used in the deck bypass sensitivities. Furthermore, based upon [

]^{a} provided by Duke Energy determined that the surveillance test data fall within the range of the analytical data used for the Catawba and McGuire UFSAR analyses and the generic sensitivities. Therefore it is judged that the [

]^{a}

Of note, the basis for [ ]^{a} is to ensure that [ ]^{a} the sensitivity studies described above. [ ]^{a} torque value range of [ ]^{a} is considered acceptable as long as [

]^{a}

Another qualitative assurance of compliance with the maldistribution requirement can be taken from [ ]^{a} For [ ]^{a} differential pressure, [ ]^{a} Stated another way, [

]^{a}. Friction of this magnitude is considered [

]^{a} The exact friction values needed to [

]^{a}