



June 23, 2006

LMT-06-050  
10 CFR 54

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Monticello Nuclear Generating Plant  
Docket 50-263  
License No. DPR-22

Supplemental Information Regarding the Monticello Nuclear Generating Plant License  
Renewal Application (TAC No. MC6440)

- References: 1) NMC letter to NRC, "Application for Renewed Operating License," dated March 16, 2005 (ADAMS Accession No. ML050880241)
- 2) NRC Federal Register Notices / Volume 71, Number 89 / Tuesday, May 9, 2006, Page 27010

Pursuant to 10 CFR Part 54, the Nuclear Management Company, (NMC) LLC submitted a License Renewal Application (LRA) (Reference 1) to renew the operating license for the Monticello Nuclear Generating Plant (MNGP).

The purpose of this letter is to provide supplemental information regarding the NRC review of the MNGP LRA.

Enclosure 1 to this submittal provides an excerpt from the Federal Register Notice dated May 9, 2006 (Reference 2).

Enclosure 2 provides the NMC's clarification to the MNGP LRA, Sections 2.1.4.3.2 and B2.1.26. These clarifications are being provided in response to the proposed actions from the License Renewal (LR)- Interim Staff Guidance (ISG)- 2006-01, included in Enclosure 1.

This letter contains no new regulatory commitments.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 23, 2006.



John T. Conway  
Site Vice President, Monticello Nuclear Generating Plant  
Nuclear Management Company, LLC

Enclosures (2)

cc: Administrator, Region III, USNRC  
Project Manager, Monticello, USNRC  
License Renewal Project Manager, Monticello, USNRC  
Resident Inspector, Monticello, USNRC  
Minnesota Department of Commerce  
Pillsbury, Winthrop, Shaw, Pittman; LLP (David Lewis)

## ENCLOSURE 1

### Excerpt from the NRC Proposed License Renewal Interim Staff Guidance LR-ISG-2006-01: Plant-Specific Aging Management Program for Inaccessible Areas of Boiling Water Reactor Mark I Steel Containment Drywell Shell

In Attachment 2 to the Proposed License Renewal Interim Staff Guidance LR-ISG-2006-01 the NRC provided the following proposed actions:

In addressing Line Item II.B1.1-2 of NUREG-1801, Volume 2, Revision 1, applicants for license renewal for plants with a Mark I steel containment need to provide a plant-specific AMP that addresses the potential loss of material due to corrosion in the inaccessible areas of the Mark I steel containment drywell shell for the period of extended operation.

In conducting the aging management review of the drywell shell, the applicant should consider the following:

- (1) Develop a corrosion rate that can be reasonably inferred from past UT examinations or establish a corrosion rate using representative samples in similar operating conditions, materials, and environments. If degradation has occurred, provide a technical basis using the developed or established corrosion rate to demonstrate that the drywell shell will have sufficient wall thickness to perform its intended function through the period of extended operation.
- (2) Demonstrate that UT measurements performed in response to GL 87-05 did not show degradation inconsistent with the developed or established corrosion rate.
- (3) Where degradation has been identified in the accessible areas of the drywell, provide an evaluation that addresses the condition of the inaccessible areas for similar conditions.
- (4) To assure that there are no circumstances that would result in degradation of the drywell, demonstrate that moisture levels associated with accelerated corrosion rates do not exist in the exterior portion of the drywell shell, i.e., (1) the sand pocket area drains and/or the refueling seal drains are monitored periodically; (2) the top of the sand pocket area is sealed to exclude water accumulation in the sand pocket area; and/or alarms are used to monitor regions for moisture/leakage.
- (5) If moisture has been detected or suspected in the inaccessible area on the exterior of the drywell shell:
  - (a) Include in the scope of license renewal any components that are identified as a source of moisture, such as the refueling seal, and perform an aging management review.

## ENCLOSURE 1

- (b) Identify surface areas requiring examination by implementing augmented inspections for the period of extended operation in accordance with the American Society of Mechanical Engineers (ASME) Section XI IWE-1240 as identified in Table IWE-2500-1, Examination Category E-C.
  - (c) Use examination methods that are in accordance with ASME Section XI IWE-2500, which specifies:
    - (i) Surface areas accessible from both sides shall be visually examined using a VT-1 visual examination method,
    - (ii) Surface areas accessible from one side only shall be examined for wall thinning using an ultrasonic thickness measurement method,
    - (iii) When ultrasonic thickness measurements are performed, one-foot square grids shall be used, and
    - (iv) Ultrasonic measurements shall be used to determine the minimum wall thickness within each grid. The location of the minimum wall thickness shall be marked such that periodic reexamination of that location can be performed.
  - (d) Demonstrate through use of augmented inspections performed in accordance with ASME Section XI IWE that corrosion is not occurring or that corrosion is progressing so slowly that the age-related degradation will not jeopardize the intended function of the drywell shell through the period of extended operation.
- (6) If the intended function of the drywell shell cannot be demonstrated for the period of extended operation (i.e., wall thickness is less than the minimum required thickness), identify actions that will be taken as part of the aging management program to ensure that the integrity of the drywell shell will be maintained through the period of extended operation.

## ENCLOSURE 2

In response to the proposed actions detailed in Enclosure 1, Nuclear Management Company, LLC (NMC) is submitting the following update to the Monticello Nuclear Generating Plant (MNGP) License Renewal Application (LRA). The following clarifying changes are being made to the MNGP LRA:

### CLARIFYING CHANGES TO THE LRA

#### LRA Section 2.1 – SCOPING AND SCREENING METHODOLOGY

##### 2.1.4 Scoping Methodology

##### 2.1.4.3.2 Unresolved ISGs

#### BACKGROUND

NMC is providing this additional change to the MNGP LRA to respond to the NRC's License Renewal (LR) Interim Staff Guidance (ISG) – 2006-01.

#### DESCRIPTION OF CHANGES TO LICENSE RENEWAL APPLICATION (additions are bold in brackets; deletions are strikethrough)

##### 2.1.4.3.2 Unresolved ISGs

The ~~16~~**[17]** issues which are currently the subject of discussion between the industry and the NRC Staff are:

- Housing for Active Components
- Scoping Guidance
- The ISG Process
- Scoping Criteria 54.4(a)(2)
- License Renewal Application Format
- Environmental Fatigue for Carbon/Low-alloy Steel
- Cracking of Class 1 Small-Bore Piping
- The Loose Parts Monitoring System
- Cracking in Bolting
- Revision to GALL (XI.E2)
- License Renewal Applications (TLAAs)
- Bus Ducts
- Inaccessible Cable (GALL XI.E3)
- Revision to GALL (XI.M11)
- Revision to GALL (XI.M19)
- Reactor Vessel Internals (GALL XI.M9 and XI.M.16)
- **[Corrosion of the Mark I Steel Containment Drywell Shell]**

## ENCLOSURE 2

Following is a discussion of each of these open ISGs and their applicability to the MNGP:

### **[Corrosion of the Mark I Steel Containment Drywell Shell**

**The MNGP applicable proposed actions associated with this ISG are addressed in Section B2.1.26, Primary Containment In-Service Inspection Program, of the MNGP LRA.]**

## **B2.1.26 Primary Containment In-Service Inspection Program**

### **Program Description**

The MNGP Primary Containment In-Service Inspection Program requires visual examinations of the accessible surfaces (base metal and welds) of the drywell, torus, vent lines, internal vent system, penetration assemblies [,] ~~[and]~~ associated integral attachments [,] ~~[-The program also requires examination of]~~ pressure retaining bolting and the drywell interior slab moisture barrier. **[ The program also addresses LR-ISG-2006-01, "Plant-Specific Aging Management Program for Inaccessible Areas of Boiling Water Reactor Mark I Steel Containment Drywell Shell."]**

Surface and / or volumetric examination augments visual examination as required to define the extent of observed conditions or to identify deterioration at inaccessible locations [(e.g., exterior drywell surface)].

### **NUREG-1801 Consistency**

The Primary Containment In-Service Inspection Program is an existing program. It is consistent with NUREG-1801, Chapter XI, Program XI.S01 and ASME Section XI, Subsection IWE ~~[and LR-ISG-2006-01]~~.

### **Aging Management Program Elements**

The elements, which are part of the Primary Containment In-Service Inspection Program, are described below. The results of an evaluation of each element against NUREG-1801, Chapter XI, Program XI.S1 ~~[-and]~~ ASME Section XI, Subsection IWE ~~[- and LR-ISG-2006-01]~~ are also provided.

### **Scope of Program**

The MNGP Primary Containment In-Service Inspection Program requires visual examinations of the accessible surfaces (base metal and welds) of the drywell, torus, vent lines, internal vent system, penetration assemblies [, and] associated integral attachments ~~[-The program also requires examination of]~~ pressure retaining bolting and the drywell interior slab moisture barrier. **[The program also addresses LR-ISG-2006-01.]**

## ENCLOSURE 2

### Parameters Monitored or Inspected

The program requires thickness and other measurements if these are determined necessary to assess the significance of observed surface conditions.

**[A comparison of 1987 UT examination results of the drywell shell with original material specifications shows no measurable degradation (loss of material due to corrosion); therefore, the corrosion rate is not detectable.]**

**Water or moisture in the air gap or sand pocket regions has never been identified at MNGP. However, if inspections or observations were to indicate the presence of water or moisture in the air gap or sand pocket regions, UT examinations would be performed at the same 1987 UT locations to determine acceptability. These examinations and evaluations would be performed in accordance with item (5) of the proposed actions in LR-ISG-2006-01.]**

The moisture barrier sealing the interface between the drywell shell and interior slab is examined for signs of damage, deterioration, loss of bond and other conditions that could result in water penetration.

### Detection of Aging Effects

The MNGP Primary Containment In-Service Inspection Program specifies visual examination of accessible surface areas as the primary tool for detecting aging effects. Visual examinations conform to the requirements of Sub-Section IWE and referenced paragraphs of Sub-Section IWA except that direct examination distances and lighting may be determined by resolution requirements as allowed by 10CFR50.55a(b)(2)(ix)(B).

**[During reactor well filling for refueling outages and after the bellows are submerged, the drywell air gap drains and sand pocket drains are inspected for signs of leakage. These inspections are required by procedure. There have been no indications of leakage into the drywell air gap or sand pocket regions.]**

**A flow switch is provided on the drywell to Reactor Building bellows leakage drain line to detect leakage from the bellows. This switch actuates an alarm to alert operators of a bellows leak.]**

Surface or volumetric NDE may be required to evaluate the extent of damage or deterioration found by visual examination. Also, augmented (more frequent and / or more detailed) examination may be required to ensure effective detection of aging effects in such damaged or deteriorated areas. The need for NDE and augmented examination is determined by evaluation of visual examination findings.

## ENCLOSURE 2

### Operating Experience

The Primary Containment In-Service Inspection Program, when implemented in conjunction with the 10 CFR 50, Appendix J Program and special examinations conducted to address specific industry issues, has demonstrated that aging of the primary containment, the internal vent system and steel components within the torus is managed in an effective manner. Special examinations have verified the absence of significant corrosion in the drywell sand pocket region and on the normally submerged surfaces of the torus. Leakage testing has been effective in early detection of passive isolation barrier (active barriers are outside the scope of the aging management program) deterioration. In-service inspection program examinations have shown that there is no significant corrosion on, or other deterioration of, accessible containment shell, vent system and penetration assembly surfaces.

**[In 1987, minor surface corrosion was detected on the interior drywell shell at the joint between the concrete floor and the shell. This corrosion was attributed to the interaction between the joint sealant material and leakage (water) from components in the drywell. The concrete floor was excavated at several locations, and UT examinations were performed. No degradation of the drywell shell was identified. One location examined by UT measurements included the full depth of the sand pocket region. The interior shell surface was cleaned and recoated. The original joint sealant was replaced with a new sealant that will not promote corrosion. This work was performed under the modification process. Since the environment on the exterior surface of the drywell shell does not contain water, this type of corrosion event should not occur in this region.**

**No water or moisture has been detected or suspected in the inaccessible regions on the exterior of the drywell shell. This conclusion is based on inspections and results of UT examinations.]**

Considering plant experience in implementing the Primary Containment In-Service Inspection Program, it may be concluded that this program, when complemented by the 10 CFR 50, Appendix J Program, will provide reasonable assurance that primary containment, internal vent system and steel components within the torus aging effects are effectively managed throughout the period of extended operation.