November 21, 2006

EA-06-274

Mr. Dennis L. Koehl
Site Vice President
Point Beach Nuclear Plant
Nuclear Management Company, LLC
6590 Nuclear Road
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2, NRC SPECIAL INSPECTION REPORT 05000266/2006011; 05000301/2006011

Dear Mr. Koehl:

This refers to the special inspection completed on October 27, 2006, by the U.S. Nuclear Regulatory Commission (NRC) at your Point Beach Nuclear Plant, Units 1 and 2. The purpose of the special inspection was to review the circumstances concerning the apparent failure to incorporate the results of a 1982 reactor head drop analysis into the Point Beach Final Safety Analysis Report (FSAR), obtain NRC review and approval of the analysis, and to properly evaluate the applicability of this analysis to the replacement of the Unit 2 reactor vessel head in April 2005. The enclosed report presents the results of this inspection, which were discussed on October 30, 2006, with you and members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observation of activities, and interviews with personnel.

Based on the results of this inspection, an apparent violation was identified and is being considered for escalated enforcement action in accordance with the NRC Enforcement Policy, dated April 18, 2005. The current Enforcement Policy is included on the NRC's website at www.nrc.gov; select **What We Do, Enforcement**, then **Enforcement Policy**. As discussed in Section 4OA3.1 of the enclosed inspection report, in April 2005, NRC inspectors identified that, contrary to 10 CFR 50.71(e), the FSAR was not updated in 1983 with results of a vessel head drop analysis conducted in 1982. Evaluation of this analysis in 2005, in response to questions from the NRC, resulted in your determination that amendments to the Point Beach license were necessary prior to the update of the FSAR with this analysis and in the establishment of administrative controls on the movement of the Point Beach Unit 1 and Unit 2 reactor vessel heads. These amendments and administrative controls were not in place for reactor vessel head moves from 1983 to 2005. The circumstances surrounding this apparent violation, the significance of the issue, and the need for lasting and effective corrective action were discussed with you and members of your staff at the inspection exit meeting on October 30, 2006. As a result, it may not be necessary to conduct a predecisional enforcement conference in order to enable the NRC to make an enforcement decision. Corrective actions included, but were not limited to, the update of the FSAR after NRC review of a new head drop analysis, an evaluation to identify other instances where the FSAR had not been updated with regulatory commitments or the results of analyses performed in response to NRC generic communications, and re-emphasis to the appropriate plant staff of the need to maintain an updated FSAR and to take a rigorous, conservative approach in identifying the design and licensing bases when conducting evaluations in accordance with 10 CFR 50.59.

Before the NRC makes its enforcement decision, we are providing you an opportunity to either: (1) respond to the apparent violation addressed in this inspection report within 30 days of the date of this letter; or (2) request a predecisional enforcement conference. If a conference is held, it will be open for public observation. The NRC will also issue a press release to announce the conference. Please contact Mr. Patrick Louden, of my staff, at (630) 829-9627, within 7 days of the date of this letter to notify the NRC of your intended response.

If you choose to provide a written response, it should be clearly marked as “Response to An Apparent Violation in Inspection Report 05000266/2006011; 05000301/2006011; EA-06-274,” and should include: (1) the reason for the apparent violation, or, if contested, the basis for disputing the apparent violation; (2) the corrective steps that have been taken and results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance will be achieved. In addition, in your response, please discuss your corrective actions for the program and process breakdowns that occurred following the original 1983 violation and contributed to the failures to properly evaluate the planned change to the facility during the 2002 - 2005 reactor vessel head replacement project. Your response to these items may reference or include previous docketed correspondence if the correspondence adequately addresses the required response. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a predecisional enforcement conference.

Please be advised that the number and characterization of the apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be informed by separate correspondence of the results of our deliberations on this matter.

In addition, based on the results of this inspection, a finding of very low safety significance involving a violation of NRC requirements was identified. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV), consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector at the Point Beach Nuclear Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide a written response, will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Sincerely,

/RA/

Mark A. Satorius, Director
Division of Reactor Projects

Docket Nos. 50-266; 50-301
License Nos. DPR-24; DPR-27

Enclosure:
Inspection Report 05000266/2006011; 05000301/2006011
w/Attachment: Supplemental Information

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REGION III

Docket Nos:	50-266; 50-301
License Nos:	DPR-24; DPR-27
Report No:	05000266/2006011; 05000301/2006011
Licensee:	Nuclear Management Company, LLC
Facility:	Point Beach Nuclear Plant, Units 1 and 2
Location:	Two Rivers, Wisconsin
Dates:	April 1, 2006, through October 27, 2006
Inspectors:	R. Krsek, Senior Resident Inspector J. Neurauter, Reactor Engineer M. Kunowski, Project Engineer
Approved by:	P. Louden, Chief Branch 5 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000266/2006011; 05000301/2006011; 04/01/06 - 10/27/06; Point Beach Nuclear Plant; Special Inspection to assess the circumstances surrounding the failure to update the Final Safety Analysis Report with the results of a reactor vessel head drop analysis, obtain NRC review and approval of the analysis results, and to properly evaluate the applicability of this analysis to the replacement of the Unit 2 reactor vessel head in 2005.

This report covers a several month period of special inspection by region-based inspectors and the Point Beach senior resident inspector. The inspection identified one apparent violation of regulatory requirements and one Green finding with an associated non-cited violation of regulatory requirements. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- To Be Determined. The inspectors identified an apparent violation for the failure of the licensee in 1983 to incorporate the results of an 1982 analysis of a postulated drop of the reactor vessel head on the vessel into the Final Safety Analysis Report (FSAR). The apparent violation is subject to the NRC's traditional enforcement process because it had the potential for impacting the NRC's ability to perform its regulatory function. After the problem was identified in early 2005, the licensee submitted a revised head drop analysis that the NRC reviewed and subsequently approved; evaluated the Unit 2 replacement vessel head against that analysis; updated its FSAR; and conducted a review to identify other instances where the FSAR may not have been updated.

  This finding is considered greater than minor because the failure to update the FSAR as required by 10 CFR 50.71(e) resulted in the licensee not obtaining the necessary review and approval of the 1982 analysis, and in the removal and reinstallation of the original reactor heads from 1983 to 2004 without administrative controls similar to those established for head moves in 2005 and after. Also, the finding is associated with the design control attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown. Because findings involving 10 CFR 50.71(e) potentially affect the NRC's ability to perform its regulatory function, and reactor vessel head drop analysis issues are not suitable for Significance Determination Process analysis, this finding is being evaluated using the traditional enforcement process. (Section 4OA3.1)

- Green. The inspectors identified a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance (Green) when the licensee failed to assure from October 2002 to April 2005 that deviations in weight, a specific value used in analysis of the effects of a postulated accident, of the Unit 2 replacement reactor vessel head and head assembly upgrade package were controlled in accordance with the original design bases. One result of this failure was that the licensee's 10 CFR 50.59 evaluation completed in February 2005 for the replacement head was inadequate. The licensee entered the finding into its corrective action program, and revised head replacement project documents and the station design bases to account for the differences between the Unit 2 replacement vessel head and the original head. In addition, the licensee completed an adequate 10 CFR 50.59 evaluation. These actions were taken prior to the actual lift of the new head that occurred in June 2005.

  The inspectors concluded that the finding is greater than minor because it was associated with the design control attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown. Consultation with the Region III Senior Reactor Analysts determined that reactor vessel head drop issues were not suitable for the Significance Determination Process analysis. Therefore, this finding has been reviewed by NRC management and is determined to be a Green finding, of very low significance. The inspectors also determined that a primary cause of this finding is related to the cross-cutting area of human performance. (Section 4OA3.2)

B. Licensee-Identified Findings

None.

REPORT DETAILS

Summary of Events

On April 6, 2005, the resident inspectors identified that the licensee (currently Nuclear Management Company (NMC)) had not considered a 1982 reactor vessel head drop analysis of the original head for the replacement of the Unit 2 head scheduled for later in April. This analysis had been completed by Westinghouse and discussed by Wisconsin Electric Power Company (the former licensee) in a November 22, 1982, letter to the NRC. The 1982 analysis indicated that a drop of the current reactor vessel head, on either unit, could result in loads on the reactor vessel supports greater than the critical buckling load of the support columns; therefore, the removal of decay heat from the core could not be assured. Further review by the inspectors revealed that Wisconsin Electric Power Company had not incorporated this analysis into the Final Safety Analysis Report (FSAR) as required by 10 CFR 50.71(e), had not evaluated the analysis in accordance with 10 CFR 50.59, and therefore, may not have taken all the appropriate contingencies and precautions when moving the original Unit 1 and Unit 2 heads during refueling outages since the analysis was completed in 1982. As a consequence, NMC had not considered the 1982 analysis as part of the licensing basis when a 50.59 evaluation for the Unit 2 replacement head was completed in February 2005. Also, NMC had not fully accounted for the design basis weight difference between the original head and the replacement head during the head replacement project from October 2002 to April 2005.

In response to the questions by the NRC on this issue, the licensee postponed removal of the original head from the Unit 2 vessel during its 2005 refueling outage. On April 16, 2005, the licensee made several commitments regarding accident mitigating strategies and contingency actions during a teleconference with the NRC for the movement of the original reactor vessel head. The head was then successfully moved from the vessel on April 17. The licensee's commitments were documented in an April 20 letter to the NRC, and the licensee subsequently submitted a license amendment request to update the FSAR with a new reactor vessel head drop analysis for Unit 2. On June 24, the NRC issued an amendment incorporating into the FSAR a new head drop analysis for Unit 2 and several commitments pertaining to compensatory measures to be taken for future reactor vessel head lifts. On September 23, 2005, a similar amendment was issued for Unit 1.

4. OTHER ACTIVITIES (OA)

4OA3 Special Inspection (93812)

.1 Original Reactor Vessel Head Drop Analysis Issues

a. Inspection Scope

The inspectors reviewed the circumstances surrounding the failure to update the FSAR, in accordance with 10 CFR 50.71(e), with a 1982 reactor vessel head (RVH) drop analysis. The inspectors reviewed selected corrective action program documents (CAPs), and licensee correspondence, and conducted interviews with plant personnel to determine the facts surrounding these issues.

b. Findings and Observations

Introduction: The inspectors identified an apparent violation (AV) of 10 CFR 50.71(e) for the licensee's failure to update the FSAR in 1983 with the results of a 1982 RVH drop analysis. This failure contributed to a design control issue, and a related 10 CFR 50.59 evaluation adequacy issue, from October 2002 to early 2005, during the Unit 2 RVH replacement project. Licensee records indicated that the licensee's next opportunity to update the FSAR after the 1982 analysis results were obtained from Westinghouse was July 18, 1983.

Description: In March 2005, as part of the RVH replacement inspection, the inspectors requested licensee documentation related to the Unit 2 RVH replacement, including any applicable RVH drop analysis. On April 6, the licensee responded that a RVH drop analysis was not part of the facility's licensing basis; however, the inspectors further questioned this interpretation based on a docketed letter dated February 25, 1982, in which the licensee (at that time, Wisconsin Electric Company) committed to provide the NRC with a RVH drop analysis in the fall of 1982.

Further discussion took place with the licensee, the inspectors, and the NRC Office of Nuclear Reactor Regulation (NRR) License Project Manager. The Project Manager and inspectors discussed with the licensee that since the 1982 RVH drop analysis was performed in response to a request from the NRC (NRC Generic Letter (GL) 80-113, "Control of Heavy Loads," dated December 20, 1980), 10 CFR 50.71(e) required that the results of the analysis be incorporated into the FSAR. As a result, the licensee initiated corrective action program document CAP063450, dated April 17, 2005, "NUREG-0612 Information Not Fully Incorporated into FSAR."

On April 8, 2005, the licensee provided the inspectors with a docketed letter to the NRC dated November 22, 1982, from the Point Beach Nuclear Plant (PBNP) which discussed the results of a RVH drop analysis. This letter stated that:

> "The results of this analysis show that upon impact of the head drop the initial reactor vessel nozzle stresses are well within allowables. However, the loads imposed upon the reactor vessel supports caused by the impact of the head are greater than the critical buckling load of the support columns. These supports cannot be relied upon to absorb enough of the energy of impact to prevent severe damage to the safety injection (SI) lines attached to the reactor vessel or to the primary coolant loop piping."

The licensee also provided the inspectors a November 15, 1982, Westinghouse Electric Company letter to Wisconsin Electric Power Company, which contained a summary of the results for the RVH drop analysis. The analysis concluded that a head drop would likely result in the buckling of the reactor support columns and the potential loss of reactor piping connections, preventing removal of decay heat from the core.

As a result of a review of the technical aspects of CAP063450 and the docketed analysis, the licensee initiated CAP063536, "Unable to Meet NUREG-0612 Phase II Requirements for Head Drop Analyses." As an immediate corrective action, the licensee placed an administrative hold on the movement of any RVH over irradiated fuel.

In a letter to the NRC dated April 12, 2005, the licensee discussed its understanding of the licensing basis associated with the 1982 RVH drop analysis. In subsequent discussions with the licensee, the Headquarters NRC staff informed the licensee that the April 12 letter did not properly characterize the PBNP licensing basis related to the 1982 RVH drop analysis. On April 15, the NRC responded to the licensee's letter with a Request for Additional Information. On April 16, the licensee made several commitments during a teleconference with the NRC for the movement of the original RVH. Those commitments included, but were not limited to, the following compensatory measures:

- ensuring both trains of residual heat removal, safety injection, containment spray and charging pumps were available and administratively protected in accordance with licensee shutdown risk procedures;
- allowing only essential personnel in containment and the auxiliary building during reactor vessel head lifts;
- ensuring that the emergency core cooling system containment sump was operable and that no loose materials inside containment could impact the sump; and
- establishing containment integrity prior to the head lift.

On April 17, 2005, the licensee successfully completed the RVH lift and the inspectors verified that the compensatory measures were in place.

Subsequently, in April 2005, the licensee completed a review, in accordance with 10 CFR 50.59, of the proposed incorporation of the 1982 RVH drop analysis into the FSAR. The licensee appropriately concluded that the proposed change to the FSAR required prior NRC approval, per 10 CFR 50.59(c)(2)(v), because the change created the possibility for an accident of a different type than any previously evaluated in the FSAR. On April 29, the licensee submitted an application for a proposed amendment, which was supplemented by letters dated May 13, May 19, June 1, June 4, June 9, June 20, and June 23. On June 24, NRR issued the amendment, incorporating a new Unit 2 RVH drop accident analysis into the FSAR. The new analysis, which considered both inelastic and elastic behavior of the vessel and associated components, superceded the 1982 analysis, which had only considered elastic behavior. On July 24, the licensee requested a similar amendment for Unit 1. NRR issued this amendment on September 23, 2005.

The licensee analyses concluded that the maximum dynamic displacement of the reactor vessel would be 3.364 inches for Unit 1 and 3.204 inches for Unit 2 for a postulated RVH drop. Due to the distance of the vessel displacements, the licensee analyses conservatively assumed that all the Unit 1 and Unit 2 bottom mounted instrument tubes on the reactor vessel would be severed in the unlikely event of a reactor vessel head drop. The reactor vessel water loss rate due to a complete failure of the bottom mounted instrument tubes was approximately 300 gallons per minute, which was well within the makeup capability of a single residual heat removal or safety injection pump. The NRC concluded that the licensee's commitments for compensatory measures provide reasonable assurance of adequate core cooling and would limit the release of radioactive material.

These compensatory measures, which were not implemented for reactor vessel head lifts prior to 2005, included the following:

- ensuring the reactor was shut down for greater than 100 hours prior to the RVH lift;
- stationing a Senior Reactor Operator in containment during RVH lift activities for communication capabilities with the control room;
- installing the containment sump screen and ensuring the flowpath for residual heat removal pump suction to the containment was aligned;
- maintaining a minimum borated water volume of 243,000 gallons for sump recirculation;
- ensuring the containment equipment hatch was installed and bolted, and that both personnel airlock door interlocks were functional to ensure one door in each airlock was closed;
- closing containment purge supply and exhaust valves and associated containment isolation valves;
- closing other containment penetrations that allow containment atmosphere to communicate with the environment or primary auxiliary building atmosphere;
- not exceeding the maximum allowable lift height and having both residual heat removal trains operable;
- ensuring that Technical Specification Limiting Condition for Operation (LCO) 3.7.9, "Control Room Emergency Filtration Systems (CREFS)," and LCO 3.3.5, "CREFS Actuation Instrumentation," were met; and
- ensuring that one standby emergency power source capable of supplying each 4160-Volt and 480-Volt Class 1E Safeguards Busses was operable.

The licensee subsequently created Technical Requirements Manual Section 3.9.4, "Reactor Vessel Head Lift," to implement the compensatory measures for RVH lifts during future Unit 1 and Unit 2 refueling outages.

<u>Analysis</u>: The inspectors determined that the licensee's failure to update the FSAR in 1983, which impacted the licensee staff's ability in 2005 to understand the current Point Beach licensing and design bases, is a performance deficiency.

In accordance with the NRC Enforcement Policy, dated April 18, 2005, this finding is determined to be more than minor because the failure to update the FSAR as required by 10 CFR 50.71(e) resulted in the licensee not obtaining the necessary review and approval of the 1982 analysis, and in the removal and reinstallation of the original reactor heads from 1983 to 2004 without administrative controls similar to those established for head moves in 2005 and after. Also, the inspectors determined that this finding is greater than minor in accordance with IMC 0612, Appendix B, "Issue Screening," dated September 30, 2005, as the finding is associated with the design control attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown. Because findings involving 10 CFR 50.71(e) potentially affect the NRC's ability to perform its regulatory function, this finding was evaluated using the traditional enforcement process. Also, consultation with the Senior Reactor Analysts determined that this RVH drop analysis issue was not suitable for Significance Determination Process analysis.

Enforcement: 10 CFR 50.71(e), states, in part, that each person licensed to operate a nuclear power reactor shall update periodically the FSAR originally submitted as part of the application for the operating license, to assure that the information included in the FSAR contains the latest material developed. This submittal shall contain all the changes necessary to reflect information and analyses submitted to the Commission by the licensee or prepared by the licensee pursuant to Commission requirement since the submission of the original FSAR or, as appropriate, the last updated FSAR. The updated FSAR shall be revised to include the effects of: all changes made in the facility or procedures as described in the FSAR, all safety evaluations performed by the licensee either in support of requested license amendments or in support of conclusions that changes did not involve an unreviewed safety question, and all analyses of new safety issues performed by or on behalf of the licensee at Commission request. The updated information shall be appropriately located within the FSAR.

Contrary to this, on July 18, 1983, the licensee updated the FSAR but did not include all of the latest material developed. Specifically, the licensee did not incorporate the results of the 1982 analysis by Westinghouse of a postulated drop of a reactor vessel head onto the vessel. The analysis had been conducted in response to NRC Generic Letters (GLs) 80-113 and 81-07, pertaining to safety issues involving the control of heavy loads at nuclear power plants. The analysis indicated that a drop of the original head on the vessel could result in severe damage to the safety injection lines attached to the vessel or to the primary coolant loop piping, thereby potentially affecting the licensee's ability to remove decay heat from the core. A summary of the results of the analysis was briefly discussed in a letter to the NRC from the licensee, dated November 22, 1982, as part of a response to the heavy loads GLs.

Had the licensee updated the FSAR, it would have identified, as it eventually did in April 2005, that a license amendment was necessary. Without the license amendment, the Unit 1 and Unit 2 vessel heads were moved during refueling outages from 1983 to 2005 without administrative controls in place similar to those established as part of the license amendments in June and September 2005. The failure to update the FSAR also contributed to a design control issue for the replacement vessel heads, discussed in the next section of this report.

As discussed in Section IV.A.3, "Impacting the Regulatory Process," of the NRC Enforcement Policy, a failure to update the FSAR can be significant because it represents a challenge to the regulatory envelope upon which certain activities were licensed. Pending a determination of the safety significance, this finding is considered an Apparent Violation (AV 05000266/2006011-01; 05000301/2006011-01).

The licensee entered the problems associated with this issue into the corrective action program as CAP063450, CAP063536, CAP063687, and as other CAPs. The licensee concurred with the inspectors determination that 10 CFR 50.71(e) had been violated.

The immediate corrective actions to this issue were the establishment of additional controls for movement of the original RVH, the performance of a 10 CFR 50.59 evaluation to add the 1982 analyses to the FSAR, and obtaining the appropriate license amendments to incorporate head drop analyses into the FSAR for the replacement Unit 1 and Unit 2 RVHs installed in 2005. The licensee also conducted root cause evaluation RCE000277 ("Unit 2 Reactor Vessel Head Drop Analysis," dated February 14, 2006) to evaluate the head drop analysis issue and RCE000300 that included an extent of cause to determine if there were other instances where the FSAR had not been appropriately updated with regulatory commitments and the results of analyses conducted in response to NRC generic communications. RCE 000300, "Personnel Awareness & Understanding of Licensing Bases," dated April 27, 2006, has been reviewed by the inspectors and discussed in Section 4OA2.1 of NRC Inspection Report 05000266/2006004; 05000301/2006004. The Unresolved Item (URI 05000266/2005004-01; 05000301/2005004-01) opened by the inspectors in the 2nd quarter of 2005 to track completion of NRC's review of the 1982 head drop analysis is closed.

.2 Replacement Reactor Vessel Head Project

a. Inspection Scope

The inspectors reviewed the circumstances surrounding the failure to assure that the correct design and licensing bases were identified for the Unit 2 replacement RVH. The inspectors reviewed selected corrective action program documents and licensee correspondence, and conducted interviews with plant personnel to determine the facts surrounding these issues.

b. Findings

Introduction: The inspectors identified a Green finding and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," when the licensee failed to translate pertinent physical parameters of the Unit 2 replacement RVH into specifications, drawings, procedures, and instructions to assure that deviations from the original head were controlled.

Description: As discussed earlier, in Section 4OA3.1, the inspectors were reviewing the licensee's RVH replacement project when they identified that the licensee had not updated the FSAR in 1983 with the results of a 1982 head drop analysis. As part of the inspectors' further review, they noted that the Unit 2 replacement head and its head assembly upgrade package (HAUP) weighed approximately 27,000 pounds more than the original RVH weighed in 1982 (when the head drop analysis was performed) and 17,000 pounds more than the head currently weighed (lead shielding was added to the head sometime after 1982). The inspectors identified that during the licensee's preparations for the head replacement - from October 2002, when corporate and site project teams were formed, until April 2005, when a quality assurance audit was completed of site project activities - the design changes associated with the increased weight of the replacement RVH were not addressed by the licensee in the replacement RVH project design. This failure resulted in the licensee's February 2005 10 CFR 50.59 evaluation for the Unit 2 replacement head to be inadequate. An adequate

10 CFR 50.59 was subsequently performed and the appropriate licensee amendment was obtained from the NRC by the licensee after the issues with the FSAR update and design control deficiencies were identified by the inspectors.

The licensee determined in RCE000277, which addressed the FSAR update issue and the design control issue, that although project plans were established, action item tracking or detailed engineering standards were not used in the project as part of the design phase and the project plan lacked sufficient detail to ensure design quality. The design specification developed included references to comply with licensee specific commitments regarding NUREG-0612 and the control of heavy loads; however, the design specification did not describe the specific commitments, nor where the licensee commitments were located.

The licensee also identified that the licensee's RVH replacement project coordinator vendor discussed at a project review meeting held on August 6, 2003, the need for the licensee to provide the existing PBNP head drop analysis. The vendor followed up with a September 10, 2003, letter to the licensee requesting the existing head drop analysis to "facilitate reconciliation of the new head weight." However, the licensee never responded to the vendor's request.

Subsequently, in an August 31, 2004, letter titled, "Documents, Input Required for Point Beach Design Change Packages," the vendor again formally requested information from the licensee, which included the licensee's existing head drop analysis; however, the licensee's root cause team found no response providing the requested information. During the root cause evaluation, the licensee determined that, in the fall of 2004, the vendor's engineers and licensee project engineering staff discussed the head drop analysis. However, licensee staff incorrectly concluded that the analysis was not part of the design and licensing bases, even though licensee procedure NP 5.1.8, "10 CFR 50.59/72.48 Applicability, Screening and Evaluation (New Rule)," stated that all correspondence on the docket were to be considered part of the licensing and design basis of the facility.

The licensee entered the problems associated with this issue into the corrective action program as CAP063450, CAP063536, CAP063687 and other CAPs. The immediate corrective actions to this issue were the establishment of additional controls for movement of the replacement head, reanalysis of the RVH drop analysis for the increased weight, and performance of a 10 CFR 50.59 evaluation to address the increased weight of the replacement RVH. From the 10 CFR 50.59 evaluation, the licensee identified the need to obtain a license amendment, which was subsequently issued by NRR. As previously mentioned, the licensee also conducted a root cause evaluation and developed numerous additional corrective actions.

<u>Analysis</u>: The inspectors determined that the licensee's failure to appropriately evaluate the effects of the increase in weight of the replacement RVH and HAUP is a licensee performance deficiency. The inspectors determined that this finding is greater than minor in accordance with IMC 0612, Appendix B, issued on September 30, 2005, because it is associated with the design control attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown.

Consultation with the Region III Senior Reactor Analysts determined that the reactor vessel head drop issues were not suitable for the Significance Determination Process analysis. Therefore, this finding has been reviewed by NRC management and is determined to be a Green finding, of very low significance.

The inspectors also determined that a primary cause of this finding is related to the cross-cutting area of human performance. The failure to appropriately evaluate the effects of the increase in weight of the replacement RVH and HAUP involved the cross-cutting component of resources for the failure to ensure that personnel, procedures, and supervisory resources were adequate to assure nuclear safety, and the cross-cutting aspect of maintaining long-term plant safety by maintenance of design margins specified in calculations supporting the design basis.

Enforcement: 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in Section 50.2, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions to assure that deviations from quality standards are controlled. 10 CFR 50.2 states, in part, that design bases means that information which identifies the specific functions to be performed by a structure, system, or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be requirements derived from analysis (based on calculation and/or experiments) of the effects of a postulated accident for which a structure, system, or component must meet its functional goals. In addition, 10 CFR 50.59(c) states, in part, that licensees may make changes in the facility as described in the FSAR without obtaining a license amendment if the change does not create the possibility for an accident of a different type than any previously evaluated in the FSAR (as updated).

Contrary to this, from October 2002 through April 5, 2005, the licensee failed to establish measures to assure that the design basis for the Unit 2 reactor vessel head was correctly translated into specifications, drawings, procedures, and instructions to assure that deviations from quality standards are controlled. Specifically, the licensee failed to assure that the deviations in weight, a specific value used in analysis of the effects of a postulated accident, of the replacement reactor vessel head and head assembly upgrade package were controlled in accordance with the original design bases. This failure contributed to an inadequate 50.59 evaluation of the Unit 2 replacement vessel head in February 2005. Because this violation was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000266/2006011-02; 05000301/2006011-02).

4OA6 Meetings

Exit Meeting

On October 30, 2006, the inspectors presented the preliminary inspection results to Mr. D. Koehl and other members of Point Beach plant management and staff. The licensee acknowledged the information presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Nuclear Management Company, Inc. (NMC)

D. Koehl, Site Vice-President
J. McCarthy, Director of Site Operations
M. Lorek, Plant Manager
A. Capristo, Business Manager
N. Stuart, Maintenance Manager
J. Schweitzer, Site Projects Manager
G. Packard, Operations Manager
G. Sherwood, Engineering Programs Manager
T. Kendall, Engineering Senior Technical Advisor
F. Flentje, Senior Regulatory Compliance Engineer
M. Ray, Regulatory Affairs Manager
L. Peterson, Design Engineer Manager
W. Smith, Production Planning Manager
S. Pfaff, Site Assessment Manager
D. Schuelke, Radiation Protection Manager
P. Wild, Design Engineering Projects Supervisor
L. Hawki, Engineering Supervisor
J. McNamara, Engineering Supervisor
J. Tabat, Responsible Engineer, Reactor Vessel Head Project
S. Forsha, Engineer, Nuclear Oversight

Nuclear Regulatory Commission

P. Louden, Chief, Reactor Projects Branch 5
H. Chernoff, Office of Nuclear Reactor Regulation
C. Lyon, Office of Nuclear Reactor Regulation

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000266/2006011-01; 05000301/2006011-01	AV	Apparent Failure to Update FSAR With Reactor Head Drop Analysis and Obtain NRC Approval (Section 4OA3.1)
05000266/2006011-02; 05000301/2006011-02	NCV	Replacement Reactor Vessel Head Design Deficiencies (Section 4OA3.2)

Closed

05000266/2005004-01; 05000301/2005004-01	URI	Reactor Vessel Head Drop Analysis (Section 4OA3.1)

LIST OF DOCUMENTS REVIEWED

RCE 000277; Unit 2 Reactor Vessel Head Drop Analysis; Revisions dated October 11, 2005 and February 14, 2006

NRC Letter to NMC; PBNP, Unit 2 - Issuance of Amendment Re: Incorporation of Reactor Vessel Head Drop Accident Analysis Into the Final Safety Analysis Report (TAC No. MC6729); June 24, 2005 (ADAMS Accession No. ML051750678)

NRC Letter to NMC; PBNP, Units 1 and 2 - Issuance of Amendment Re: Incorporation of Reactor Vessel Head Drop Accident Analysis Into the Final Safety Analysis Report (TAC Nos. MC7650 and MC7651); September 23, 2005 (ADAMS Accession No. ML052560089)

10 CFR 50.59/72.48 Screening; SCR 2005-0125; Revision 10 to SLP 8 Synthetic Webbing Sling Sizing

Derived Licensing Basis for Control of Heavy Loads Literature

Work Order 0415356; 2R-1 NDE BMI Penetrations - U2R27

RCE Charter; CAP63088; RCE 276

NMC Letter to NRC Dated June 9, 2005; Supplement 3 to Request for Exigent Review of Heavy Load Analysis and Response to Request for Addition Information

Westinghouse Nuclear Safety Advisory Letter; RVH Drop Analysis; November 15, 2004

NMC Letter to NRC Dated June 1, 2005; Response to Request for Additional Information Regarding Request for Exigent Review of Heavy Load Analysis

NMC Letter to NRC Dated June 3, 2005; Submittal of Supporting Analyses Regarding Control of Heavy Loads

NMC Letter to NRC Dated June 4, 2005; Response to Request for Additional Information Regarding Request for Exigent Review of Heavy Load Analysis

NRC Letter Dated May 10, 2005; PBNP, Units 1 and 2 - Control of Heavy Loads - RVH Drop Analysis

NRC Letter Dated May 27, 2005; Point Beach Nuclear Power Plant, Unit 2 - Request for Additional Information Regarding Proposed License Amendment for RVH Handling

NMC Letter to NRC Dated May 10, 2005; Changes to Resolution of Safety-Related Questions Regarding Unit 2 RVH Lift

NMC's D-15 Briefs of May 27, 2005

Calculation 2005-0018; Offsite Doses Due to Postulated Heavy Load Drop on the Reactor Vessel; April 27, 2005

FP-R-LIC-02; Revision 2; Attachment 3; Validation Package Documentation

NRC Letter Dated April 2, 2004; PBNP, Units 1 and 2 - Issuance of Amendments Re: TS 3.9.3, Containment Penetrations, Associated with Handling of Irradiated Fuel Assemblies and Use of Selective Implementation of the Alternative Source Term for Fuel Handling Accident

RP 1B; Recovery From Refueling; Revision 54 Draft; March 31, 2005

RP 1B; Recovery From Refueling; Revision 54; May 9, 2005

Westinghouse Letter; May 11, 2005; NMC Point Beach Units 1 and 2, Assessment of RVH Drop

2RMP 9096; RVH Removal and Installation; Revision 25 - Draft A; April 25, 2005

CN-RCDA-05-46; Comparison of Original and Replacement Head Drops for Point Beach Unit 1 and Unit 2; Revision 2; April 28, 2005

NRC Letter Dated April 15, 2005; Point Beach Nuclear Power Plant, Unit 2 - Request for Additional Information Regarding Licensing Basis for Control of Heavy Loads
NMC Letter to NRC Dated May 19, 2005; Supplement 2 to Request for Exigent Review of Heavy Load Analysis and Response to Request for Additional Information
TRM 3.9.4; RVH Lift; Revision 0; May, 2005
NRC Regulatory Issue Summary 01-022; Attributes of a Proposed No Significant Hazards Consideration Determination
CL 2A; Defueled to Mode 6 CL; Revision 8; May 3, 2005
REACPLAN; Level 0; SWR 2003-032; Revision 0; August 18, 2003
PBNP U2R27 Remote Visual Examination Record; RVH, Bottom Mounted Instrumentation Nozzles; April 5, 2005
NP 10.3.9 Requirements; PBNP Evaluation of Mode Change Acceptability; April 18, 2005
PBNP U2R27 As-Found Indication Disposition Summary; April 4, 2005
Drawing WEST 499B466 SH.283B; Unit 2; Elementary Wiring Diagram 4160V Switchgear 2A04 - CUB 47 STA AUX Trans Brkr 2A52-47
SEP 2.3; Unit 2; Cold Shutdown LOCA; Revision 11; September 2, 2004
ECA 1.1; Unit 2; Loss of Containment Sump Recirculation; Figure 1 - Minimum Injection Flow Versus Time After Shutdown; Revision 30; November 15, 2004
ECA 1.1; Unit 2; Loss of Containment Sump Recirculation; Attachment A - RWST Refill; Revision 30; November 15, 2004
New PBNP RVH 50.59/Potential License Change; April 24, 2005
Westinghouse WCAP-9198; RVH Drop Analyses; Revision 1; October, 2004
NMC Letter to NRC Dated April 29, 2005; PBNP Units 1 and 2; Request for Review of Heavy Load Analysis
NMC Letter to NRC Dated May 8, 2005; PBNP Resolution of Safety-Related Questions Regarding Unit 2 RVH Lift
NMC Letter to NRC Dated April 20, 2005; PBNP Units 1 and 2; Response to Request for Additional Information, Revision 1 NUREG 0612, Control of Heavy Loads RVH Drop Analysis
NMC Letter to NRC Dated April 12, 2005; PBNP Units 1 and 2; Generic Letters 81-07 and 85-11, Clarification of Licensing Basis for Control of Heavy Loads
NMC Letter to NRC Dated May 13, 2005; PBNP Units 1 and 2; Supplement 1 to Request for Exigent Review of Heavy Load Analysis
JIT Briefing of Control Room Staff Personnel Concerning Mitigating Strategies for a Potential RVH Drop
NMC Letter to NRC Dated April 15, 2005; PBNP Units 1 and 2; Response to Request for Additional Information NUREG 0612, Control of Heavy Loads RVH Drop Analysis
NRC Letter to WEPC; NUREG-0612, Control of Heavy Loads at Nuclear Power Plants; March 27, 1984
NRC Letter to WEPC; Completion of Licensing Action for NRC Bulletin 96-02; April 16, 1998
WE Letter to NRC; Outstanding Response Items - NUREG 0612 - Control of Heavy Loads; February 25, 1982
Westinghouse Electric Letter to Wisconsin Electric; RVH Drop Analysis; November 15, 1982
NRC Bulletin 96-02; Movement of Heavy Loads over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment; April 11, 1996
NUREG-0612; Control of Heavy Loads at Nuclear Power Plants Resolution of Phase II
Westinghouse Drawing C-2325; Structural Steel - Containment Structure Biological Shield Liner Plate Penetrations; Unit 2
Westinghouse Drawing C-2322; Steel - Location Plans Major Component Support Structures; Unit 2

Westinghouse Drawing C-2320; Steel - Reactor Steel Supports
WE Letter to NRC; Response to NRC Bulletin 96-02; May 9, 1996
WESTEC Services, Inc.; Evaluation of Procedural and Hardware Alternatives for RVH Handling; September 1983

LIST OF ACRONYMS USED

AR	Action Request
AV	Apparent Violation
CAP	Corrective Action Program Document
CFR	Code of Federal Regulations
CREFS	Control Room Emergency Filtration System
DRS	Division of Reactor Safety
FSAR	Final Safety Analysis Report
GL	Generic Letter
HAUP	Head Assembly Upgrade Project
IMC	Inspection Manual Chapter
IR	Inspection Report
NMC	Nuclear Management Company, Inc.
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OA	Other Activities
PBNP	Point Beach Nuclear Plant
RCE	Root Cause Evaluation
RVH	Reactor Vessel Head
SDP	Significance Determination Process
URI	Unresolved Item