

March 13, 2002

Mr. M. Warner  
Site Vice President  
Kewaunee and Point Beach Nuclear Plants  
Nuclear Management Company, LLC  
6610 Nuclear Road  
Two Rivers, WI 54241

SUBJECT: POINT BEACH NUCLEAR PLANT  
NRC INSPECTION REPORT 50-266/01-18; 50-301/01-18

Dear Mr. Warner:

On February 19, 2002, the NRC completed an inspection at your Point Beach Nuclear Plant. The enclosed report documents the inspection findings which were discussed on February 25, 2002, with you and other 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, this inspection was a routine review of plant activities by the resident inspectors and regional inspectors who conducted reviews of radiation protection access control to radiologically significant areas, radiation protection as-low-as-is-reasonably-achievable (ALARA) planning and controls, and spent fuel dry cask loading.

No findings of significance were identified.

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M. Warner

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Sincerely,

Original signed by  
Roger D. Lanksbury

Roger D. Lanksbury, Chief  
Branch 5  
Division of Reactor Projects

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

Enclosure: Inspection Report 50-266/01-18;  
50-301/01-18

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 50-266/01-18; 50-301/01-18

Licensee: Nuclear Management Company, LLC

Facility: Point Beach Nuclear Plant, Units 1 & 2

Location: 6610 Nuclear Road  
Two Rivers, WI 54241

Dates: December 30, 2001, through February 19, 2002

Inspectors: P. Krohn, Senior Resident Inspector, Point Beach  
J. Lara, Senior Resident Inspector, Kewaunee  
R. Powell, Resident Inspector, Point Beach  
Z. Dunham, Resident Inspector, Kewaunee  
R. Schmitt, Radiation Specialist  
R. Winter, Reactor Engineer  
R. Landsman, Project Engineer

Approved by: Roger D. Lanksbury, Chief  
Branch 5  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000266-01-18, IR 05000301-01-18, on 12/30/2001-2/19/2002, Nuclear Management Company, LLC, Point Beach Nuclear Plant, Units 1 & 2. Routine Resident, Radiation Protection, and Dry Cask Loading Report.

This report covers a 7-week routine resident inspection, baseline radiation protection inspection and an inspection of the spent fuel dry cask activities. The inspections were conducted by resident and regional specialist inspectors. No findings or violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the Significance Determination Process does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

A. Inspector-Identified Findings

No findings of significance were identified.

B. Licensee-Identified Findings

No findings of significance were identified.

## Report Details

### Summary of Plant Status

Unit 1 began the inspection period at full power and was there until January 22, 2002, when power was reduced to 99.6 percent due to the unreliable performance of a multiplexer associated with the primary plant computer reactor thermal output calculations. Unit 1 was returned to full power operation later the same day following repair of the multiplexer. Unit 1 remained at full power until February 5, when power was briefly reduced to 98 percent for auxiliary feedwater pump (AFWP) testing. With the exception of short periods of 98 percent power operation for further AFWP testing on February 6, 7, 9, and 10, Unit 1 was at full power for the remainder of the inspection period.

Unit 2 began the inspection period at full power and remained there until January 22, 2002, when power was reduced to 99.6 percent due to the unreliable performance of a multiplexer associated with the primary plant computer reactor thermal output calculations. Unit 2 was returned to full power operation later the same day following repair of the multiplexer and remained there until February 1, when power was reduced to 50 percent for condenser waterbox cleaning and inspection. Unit 2 returned to full power operation on February 4 and remained at 100 percent power until February 5, when power was briefly reduced to 98 percent for AFWP testing. With the exception of brief periods of 98 percent power operation for further AFWP testing on February 6, 13, and 14, Unit 2 was at full power for the remainder of the inspection period.

### **1. REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

1R04 Equipment Alignment (71111.04)

.1 Unit 2 Safety Injection (SI) Complete System Walkdown

a. Inspection Scope

The inspectors performed a complete system walkdown of the Unit 2 SI system to verify correct system lineup and configuration for critical reactor operations. The inspectors used licensee checklists during the walkdowns to accomplish the inspection.

The inspectors walked down portions of the Unit 2 SI system, both in the control room and locally, to verify the correct control and breaker switch positions; specific component level, temperature, and pressure parameters; valve positions; and the operability of remote manual valve operators and linkages. During the walkdown, the inspectors also examined seismic pipe supports, motor-operated valves, and manually-operated valve material condition to verify that the system was capable of performing design basis functions. Where evidence of boric acid leaks between body-to-bonnet valve seals were noted, the inspectors interviewed the system engineering staff to determine the susceptibility of the valves to hydraulic-locking. The inspectors also considered the effects of rags and paper debris in the Unit 2 SI/residual heat removal (RHR) valve

gallery to ensure internal flooding design basis analysis assumptions remained valid. Finally, the inspectors evaluated other elements, such as housekeeping and component labeling.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors walked down the following areas to assess the overall readiness of fire protection equipment and barriers:

- Fire Zone 140, Valve Gallery Unit 1
- Fire Zone 155, Valve Gallery - Pipe Way 1
- Fire Zone 308, G-01 - 'A' Train Emergency Diesel Generator (EDG) Room
- Fire Zone 309, G-02 - 'B' Train EDG Room
- Fire Zone 773, G-03 - Switchgear Room

Emphasis was placed on the control of transient combustibles and ignition sources, the material condition of fire protection equipment, and the material condition and operational status of fire barriers used to prevent fire damage or propagation. Area conditions/configurations were evaluated based on information provided in the licensee's "Fire Hazards Analysis Report," dated August 17, 2001.

The inspectors looked at fire hoses, sprinklers, and portable fire extinguishers to verify that they were installed at their designated locations, were in satisfactory physical condition, and were unobstructed. The inspectors also evaluated the physical location and condition of fire detection devices. Additionally, passive features such as fire doors, fire dampers, and mechanical and electrical penetration seals were inspected to verify that they were located per Fire Protection Evaluation Report requirements and were in good physical condition. Where specific 10 CFR Part 50, Appendix R, exemptions had been granted, based on the availability of dedicated spare equipment, the inspectors verified that specific spare equipment existed and was available for use.

b. Findings

No findings of significance were identified.



1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the Maintenance Rule, 10 CFR Part 50.65, for the systems listed below. The inspectors reviewed maintenance rule evaluations to assess: (1) scoping in accordance with 10 CFR 50.65; (2) characterization of systems, structures, and components (SSCs) failures; (3) SSC safety significance classification; (4) 10 CFR 50.65(a)(1) or (a)(2) classification for the SSCs; and (5) performance criteria for SSCs classified as (a)(2) or goals and corrective actions for SSCs classified as (a)(1). The inspectors also reviewed station logs, and reviewed condition reports and maintenance work orders to evaluate the licensee's monitoring and trending of performance data. Specific systems evaluated were:

- Main Turbine Electro-Hydraulic Control
- Heating, Ventilation and Auxiliary Steam and Condensate Systems, Chilled/Hot Water System

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation (71111.13)

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of plant risk, scheduling, configuration control, and performance of maintenance associated with planned and emergent work activities, to verify that scheduled and emergent work activities were adequately managed. In particular, the inspectors reviewed the licensee's program for conducting maintenance risk safety assessments to verify that the licensee's planning, risk management tools, and the assessment and management of on-line risk were adequate. The inspectors also reviewed licensee actions to address increased on-line risk when equipment was out-of-service for maintenance, such as establishing compensatory actions, minimizing the duration of the activity, obtaining appropriate management approval, and informing appropriate plant staff, to verify that the actions were accomplished when on-line risk was increased due to maintenance on risk-significant SSCs. The following specific activities were reviewed:

- The maintenance risk assessment for work planned for the week beginning January 20, 2002. This included work involving risk-significant surveillance testing of the component cooling water (CCW) system and emergent work associated with the G-04 EDG while the G-02 EDG was out-of-service due to an electrical rotor failure.
- The maintenance risk assessment for work planned for the week beginning February 3, 2002. This included work involving risk-significant surveillance testing of the motor-driven AFWPs, a CCW pump, and a service water pump while the G-02 EDG was out-of-service due to an electrical rotor failure.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

.1 Potential Lubricating Oil System Foreign Material Concern for the G-01, G-02, and G-04 EDGs

a. Inspection Scope

The inspectors reviewed the operability determination associated with action request (AR) 001779, "Source of G-02 Crankcase Foreign Material Identified," to understand the impact of underside piston crown casting remnants found in the G-02 EDG lubricating oil sump. The inspectors reviewed the material and maintenance history of selected G-01, G-02, G-03, and G-04 components to verify that no common cause failure mechanisms existed. The inspectors considered the size and transportability of the casting remnants to determine if migration of the remnants to other portions of the EDG lubricating oil system was possible. The inspectors also considered the effects of the remnants on the nearest and most susceptible load bearing surface, the connecting rod wrist pin bearing, to determine EDG operability.

The inspectors reviewed vendor oil analysis recommendations and examined G-01, G-02, and G-04 oil wear metal and particulate trends to ascertain whether any engine degradation was occurring. In particular, the inspectors reviewed wear metal trends concerning chrome, copper, iron, lead, silver, and tin to determine if any early bearing degradation was evident. Lubricating oil particulate trends were reviewed to determine if the lubricating oil system filtering capability, which prevented the casting remnants from entering the EDG lubricating oil system, was functioning effectively. Finally, the inspectors reviewed station blackout and EDG design basis information to verify all intended safety functions could be met.

b. Findings

No findings of significance were identified.

.2 Potential for the Hydraulic Locking of Selected RHR System Valves Used in the Emergency Operating, Critical Safety, and Severe Accident Management Guideline Procedures

a. Inspection Scope

After noting boric acid residues on selected manually-operated RHR valves during a Unit 2 SI system walkdown that indicated body-to-bonnet leaks, the inspectors reviewed the material and modification history of RHR 700 series valves to determine the potential for hydraulically locking these valves in the closed position. The inspectors also considered the hydraulic locking of selected motor-operated valves with the same body-to-bonnet configuration to ensure the extent of the potential problem was understood. In evaluating the history of the RHR 700 series valves, the inspectors reviewed

Nonconformance Report 89-116, "Waste Disposal," and Safety Evaluation 91-002, "Aloyco Valve Leakoffs to be Disconnected" which discussed valve bonnet leakoff connection modifications. The inspectors also reviewed selected emergency operating, critical safety, and severe accident management guideline procedures, each of which included changing the position of manually-operated RHR 700 series valves, to understand the operational impacts of hydraulically locking these valves.

b. Findings

No findings of significance were identified.

.3 Common Mode Failure Evaluation of Emergency Diesel Generators

a. Inspection Scope

The inspectors reviewed the licensee's common mode failure evaluation associated with the G-04 EDG voltage regulator failure which occurred during surveillance testing on January 20, 2002. The inspectors reviewed the evaluation to determine operability of the facility's remaining three EDGs. The inspectors reviewed the facility's Updated Safety Analysis Report, design basis information, a 10 CFR Part 21 report associated with previous similar voltage regulator failures at other facilities, Improved Technical Specification requirements, and interviewed the licensee's diesel generator system engineer to evaluate the technical adequacy of the common mode failure operability evaluation.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (OWAs) (71111.16)

a. Inspection Scope

The inspectors reviewed OWAs to identify any potential effect on the function of mitigating systems or the ability of operators to respond to an event and implement abnormal and emergency operating procedures. The inspectors interviewed selected operations and engineering licensee personnel and evaluated the following OWA:

0-01C-002 CW, "Operators are required to take local pump bay levels when in AOP-13A to determine extent of screen plugging"

This OWA discussed the requirement to manually take pump bay water level readings during events where the circulating water system traveling screens became fouled. The inspectors reviewed the licensee's proposed design change for automatic local and remote pump bay level indication to determine the impact on operator ability to respond to pump bay level transients.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed safety evaluation SCR 2002-0010, "Backup Air Systems for Auxiliary Feedwater Pump Minimum Flow Recirculation Valves," to determine the adequacy of permanent modifications on the motor-driven AFWP recirculation valves. The permanent modifications were performed, in part, to resolve AFWP common mode failure concerns during selected transients involving loss of instrument air. The inspectors observed various portions of the modification installation for both the P-38A and P-38B motor-driven AFWPs including the new instrument air line connections being made to the P38A motor-driven AFWP recirculation valve. The inspectors also observed portions of the post-modification testing activities for both motor-driven AFWPs to verify that the recirculation valves cycled at their intended setpoints when connected to the backup nitrogen source. For both motor-driven AFWPs, the inspectors reviewed completed valve and pump inservice testing documentation to ensure that all acceptance criteria had been met and the equipment remained ready to perform the intended safety function.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Unit 2 2P-11A CCW Pump Oil Change and Coupling Disassembly and Lubrication

a. Inspection Scope

The inspectors observed post-maintenance testing activities conducted in accordance with work orders 9935235 and 9937009 and inservice test procedure IT-13, "Component Cooling Water Pump and Valves Quarterly Unit 2," Revision 29, to verify that the tests were adequate for the scope of the maintenance work which had been performed and that the testing acceptance criteria were clear and demonstrated operational readiness consistent with design and licensing basis documents. The inspectors observed portions of the oil change and pump/motor coupling lubrication activities and reviewed completed maintenance records to verify that foreign material exclusion controls were properly applied, post-maintenance test requirements had been properly performed, and pump and motor vibrations following maintenance activities were at acceptable levels. The inspectors reviewed vibration history trends and frequency analysis data to determine the current condition of the 2P-11A CCW pump. The inspectors also interviewed selected vibration and inservice testing engineers to understand the effects of pump outboard axial and horizontal vibration levels that were found above American Society of Mechanical Engineers, Section XI Code alert levels. Finally, the inspectors reviewed AR 003520, "2P-11A Vibration Levels Increased," which was written as a result

of this inspection effort. The inspectors selected this activity due to the risk-significance of the CCW system.

b. Findings

No findings of significance were identified.

.2 Unit 1 1P-11A CCW Pump Oil Change

a. Inspection Scope

The inspectors observed post-maintenance testing activities conducted in accordance with inservice test procedure IT-13, "Component Cooling Water Pump and Valves (Quarterly) Unit 1," Revision 25, to verify that the tests were adequate for the scope of the maintenance work which had been performed and that the testing acceptance criteria were clear and demonstrated operational readiness consistent with design and licensing basis documents. The inspectors observed portions of the oil change to verify that foreign material exclusion controls were properly applied, post-maintenance test requirements had been properly performed, and pump and motor vibrations following maintenance activities were at acceptable levels. The inspectors selected this activity due to the risk-significance of the CCW system.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 Miscellaneous Equipment Checks (Monthly) Unit 1

a. Inspection Scope

The inspectors reviewed design basis requirements and completed documentation for technical specification procedure TS-32, "Miscellaneous Equipment Checks Monthly - Unit 1," Revision 1, to verify operability and configuration of the sub-cooling margin monitoring system, the post-accident monitoring system, the motor-operated safety injection accumulator outlet valves, and the containment purge supply and exhaust valves. In addition, the inspectors reviewed the impact of AR 001844, "Missed Surveillance for PAM [Post-Accident Monitoring] Core Exit T/Cs [Thermocouples]," to determine the safety significance of a missed core exit thermocouple monthly channel check during December 2001.

b. Findings

No findings of significance were identified.

.2 Cold Start of Unit 2 Turbine-Driven Auxiliary Feedwater Pump

a. Inspection Scope

The inspectors reviewed design basis requirements and observed performance of inservice surveillance test IT 09A, "Cold Start of Turbine-Driven Auxiliary Feedwater Pump and Valve Test (Qtrly) Unit 2," Revision 26, to verify operability of the Unit 2 turbine-driven auxiliary feedwater pump (TDAFWP). Completed surveillance test documentation was reviewed to verify that the TDAFWP satisfied all required acceptance criteria and remained capable of performing the intended safety functions. Additionally, the inspectors reviewed AR 002197, "2AF-4002 [Unit 2 Turbine-Driven Auxiliary Feedwater Pump Mini-Recirculation Valve] Makes Loud Noise Just Prior to Full Open," which addressed an unexpected problem with the Unit 2 TDAFWP mini-recirculation valve limit switch which provided valve position indication to the control room. The inspectors examined similar limit switches on the remaining AFWP mini-recirculation valves to verify that no similar problems existed on the other AFWPs.

b. Findings

No findings of significance were identified.

.3 D-09 Battery Charger Load Capacity Test

a. Inspection Scope

The inspectors reviewed design basis requirements and observed a load capacity test on the swing/spare D-09 battery charger performed in accordance with routine maintenance procedure (RMP) 9359-7, "DC [Direct Current] Station Battery Charger D-07, D-08, and D-09 Maintenance Procedure," Revision 0, to verify that the charger was capable of performing its design and licensing basis functions. The inspectors reviewed the completed test documentation to verify that all acceptance criteria had been met.

b. Findings

No findings of significance were identified.

.4 Unit 1 Safeguards Bus Undervoltage Relay Testing

a. Inspection Scope

The inspectors observed portions of the surveillance test and reviewed the completed documentation for routine maintenance procedure 1RMP 9071-1, "A-06 4160/480 Degraded and Loss of Voltage Monthly Surveillance," Revision 13, to verify operability of safeguards bus undervoltage relays. The inspectors also reviewed design basis requirements to verify that the surveillance test accurately tested the design functions of the safeguards busses.

b. Findings

No findings of significance were identified.

## 2. RADIATION SAFETY

### Cornerstone: Occupational Radiation Safety

#### 2OS1 Access Control to Radiologically Significant Areas (71121.01)

##### .1 Plant Walkdowns, Radiological Boundary Verifications, and Radiation Work Permit (RWP) Reviews

###### a. Inspection Scope

The inspectors conducted walkdowns of the radiologically controlled area to verify the adequacy of radiological boundaries and postings. Specifically, the inspectors walked down several radiologically significant work area boundaries (high and locked high radiation areas (HRAs)) in the Unit 1 and Unit 2 Auxiliary Buildings, Radwaste, and Spent Fuel pool areas. Confirmatory radiation measurements were taken to verify that these areas and other selected radiation areas were properly posted and controlled in accordance with 10 CFR Part 20, licensee procedures, and Technical Specifications. The inspectors reviewed RWPs for routine plant tours and an "At Power" entry into Unit 2 Containment for various engineering, operations, and maintenance activities, to support preparations for the upcoming Refueling Outage, U2R25. The RWPs were evaluated for protective clothing requirements, respiratory protection concerns, electronic dosimetry alarm setpoints, neutron exposure time keeping, radiation protection (RP) hold points, and as low as reasonably achievable (ALARA) considerations, to verify that work instructions and controls had been adequately specified and that electronic dosimeter setpoints were in conformity with survey indications.

###### b. Findings

No findings of significance were identified.

##### .2 Job-In-Progress Reviews, Radiation Worker Performance, and RP Technician Proficiency

###### a. Inspection Scope

The inspectors observed preparations for the following HRA work activity performed during the inspection and evaluated the licensee's use of radiological controls:

- "At power" entry into Unit 2 containment

The inspectors attended the pre-job briefing for the work evolution, reviewed the radiological job requirements for the activity, and assessed the worker's knowledge and expectation of job performance, with respect to those requirements. The inspectors reviewed survey records, including radiation, contamination, and airborne surveys to

verify that appropriate radiological controls would be effectively utilized. The inspectors also reviewed applicable postings and barricades to verify their accuracy. The inspectors observed RP technician and worker interaction during and after the briefing, and in preparations to enter Unit 2 Containment, to verify that the technicians and workers were aware of the significance of the radiological conditions in their workplace, RWP controls/limits, and that they were prepared to perform adequately, given the level of radiological hazards present and the level of their training.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed licensee ARs written since the U1R26 refueling outage (April/May 2001) to the date of the current assessment, which focused on access control to radiologically significant areas (i.e., problems concerning activities in HRAs, RP technicians performance, and radiation worker practices). The inspectors also reviewed the Nuclear Oversight Quarterly Report, 2Q2001. The inspectors reviewed these documents to verify the licensee's ability to identify repetitive problems, contributing causes, the extent of conditions, and then implement other corrective actions in order to achieve lasting results.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

.1 ALARA Planning

a. Inspection Scope

The inspectors reviewed the station's collective exposure histories from 1976 to the present, current exposure trends from ongoing plant operations, and completed radiological work activities for U1R26 to assess current performance and outage exposure challenges. The inspectors reviewed the licensee's processes for estimating job dose and the effectiveness of exposure tracking for the outage to verify that the licensee could identify problems with its collective exposure and take actions to address them. The inspectors selected a number of U1R26 high exposure or HRA work activities, and evaluated the ALARA plans and the licensee's use of ALARA controls for each activity. The inspectors also reviewed individual exposures of selected work groups to determine if there were any significant exposure variations which might exist among workers.

b. Findings



No findings of significance were identified.

.2 Source Term Reduction and Control

a. Inspection Scope

The inspectors evaluated the licensee's source term reduction program in order to verify that the licensee had an effective program in place, was knowledgeable of plant source term reduction opportunities, and that efforts were being taken to address them. Work control mechanisms for U1R26 were evaluated to verify that source term reduction plans had been appropriately implemented. The inspectors reviewed selected aspects of the licensee's source term reduction program, focusing on those initiatives completed for the outage, such as flushing, lancing/desludging, and prioritizing/sequencing of installation of permanent/final temporary shielding packages and complex scaffolding arrangements, to minimize exposure. The inspectors also reviewed the station's overall source term reduction plan, which included improved tracking/mitigation of hot spots, use of submicron filtration, primary chemistry controls, and cobalt reduction initiatives through stellite control. The inspectors reviewed the licensee's continuing source term reduction techniques to verify that source term control strategies were ongoing and future initiatives were being explored.

b. Findings

No findings of significance were identified.

.3 Radiological Work Planning and ALARA Implementation

1. Inspection Scope

The inspectors selected the following U1R26 job activities that exceeded 5 person-rem or were otherwise conducted in the containment, and assessed the adequacy of the radiological controls and work planning:

- Scaffold construction and removal;
- Steam generator platform upgrade modifications;
- Steam generator eddy current and tube plugging; and
- Steam generator handhole cover removal and replacement/sludge lancing operations.

The inspectors reviewed the RWPs and ALARA review packages developed for each of the aforementioned jobs. The inspectors examined the radiological engineering controls and other dose mitigation techniques specified in these documents and job dose history files to verify that licensee and industry lessons learned were adequately integrated into each work package. The inspectors discussed the ALARA planning with station staff to verify that adequate interfaces had been established between operations, chemistry, RP, and maintenance groups during job planning. The inspectors reviewed the exposure results for the selected activities to evaluate the accuracy of exposure estimates in the ALARA plan. The inspectors compared the actual exposure results with the initial exposure estimates, the estimated and actual dose rates, as well as the

estimated and actual person-hours expended. The inspectors reviewed the exposure history for each activity to determine if management had monitored the exposure status of each activity and to determine if in-progress ALARA job reviews were needed, if additional engineering/dose controls had been established, and if required corrective documents had been generated. The inspectors also reviewed the licensee's dosimetry procedures and practices, which included the use of multiple dosimetry for work in HRAs having significant dose gradients, use of extremity monitoring, and alternate dosimetry placement, when necessary. The inspectors examined Total Effective Dose Equivalent ALARA evaluations for planned personnel contamination events and intake evaluations completed by the licensee for radiologically significant high risk work, to verify technical adequacy and that the documentation requirements (including, work in progress/post job reports, radiological survey data, and RP logs) of 10 CFR Part 20.1201 were met.

b. Findings

No findings of significance were identified.

.4 Verification of Exposure Goals and Exposure Tracking System

a. Inspection Scope

The inspectors reviewed the licensee's methodology and assumptions used to develop outage exposure estimates and exposure goals for U1R26. The inspectors compared exposure estimates, exposure goals, job dose rates, and person-hour estimates for consistency to verify that the licensee could project, and thus better control radiological exposure. The inspectors examined job dose history files and dose reductions anticipated through lessons learned to verify that the licensee appropriately forecasted outage doses. The inspectors examined the licensee's pre-outage exposure goal estimate, compared it with the actual post-outage job exposure data, and then evaluated the licensee's final, adjusted (i.e., revised to incorporate expanded work scope) outage dose goal estimates. The inspectors also reviewed the licensee's exposure tracking system to verify that the licensee's level of exposure tracking detail, exposure report timeliness, and exposure report distribution were sufficient to support control of collective exposures. The inspectors evaluated how the licensee had identified problems with its exposure estimates for some jobs, the processes being utilized to revise dose estimates, and methods to improve its dose forecasting procedures to verify that the licensee could adequately track dose.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors examined post-job ALARA reviews (i.e., from the most radiologically risk significant work) and the U1R26 refueling outage ALARA summary report. The inspectors also evaluated the licensee's Nuclear Oversight Quarterly Report (2Q2001) to verify that the licensee could independently identify and characterize problems. The inspectors examined the licensee's lessons learned (i.e., from U1R26 refueling outage dose goal estimation process) for the scheduled U2R25 refueling outage projected dose goal. Additionally, the inspectors evaluated related outage generated ARs to verify that the licensee's staff could adequately identify individual problems/trends, determine contributing causes, extent of conditions, and develop corrective actions to achieve lasting results.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed the licensee's assessment of its performance indicator for Barrier Integrity, Reactor Coolant System (RCS) specific activity. No reportable elements were identified by the licensee for the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> quarters of 2001. The inspectors compared the licensee's data with calendar year 2001 ARs to verify that there were no occurrences concerning the Barrier Integrity, RCS Specific Activity cornerstone. The inspectors also observed staff chemistry technicians collecting RCS samples to verify that the technicians had complied with the applicable procedures during the collection and processing of the samples.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

- .1 (Closed) Licensee Event Report (LER) 301/2001-001-00: Ground fault relay actuation causes generator lockout and reactor trip. On February 6, 2001, Unit 2 tripped from 100 percent power as the result of a turbine generator lockout caused by actuation of a neutral ground fault detection device. System and components required to perform following the reactor trip operated as designed with the exception of the cross-over steam dump system. This system actuated as expected to minimize turbine overspeed, however, main condenser vacuum was lost when the steam dump valves failed to reseal promptly. With loss of the condenser as the normal heat sink, the RCS temperature was maintained via the steam generator atmospheric steam dump valves. Following post-trip testing and information gathering and analysis, the licensee was not

able to substantiate or provide a reason for the ground fault device actuation. The unit trip and the loss of condenser vacuum following the cross-over steam dump actuation were entered into the licensee's corrective action program as Condition Reports 01-0389 and 01-0397.

The inspectors responded to the reactor scram as documented in Section 4OA3.5 of NRC Inspection Report 50-266/01-03(DRP); 50-301/01-03(DRP). Based on direct observations and a review of this LER, the inspectors determined that, with the exception of the cross-over steam dump system, the scram was uncomplicated, all systems responded as expected, no human performance errors complicated the event response, and no emergency core cooling systems were challenged. The inspectors review of this LER did not identify any new issues.

#### 4OA5 Other

##### .1 Loading of the Fourteenth Dry Spent Fuel Storage Cask

###### a. Inspection Scope

The inspectors observed various portions of the loading of the fourteenth dry spent fuel storage cask to verify compliance with the applicable sections of the dry cask loading procedures. The inspectors conducted reviews to verify that the licensees had effectively implemented lessons learned from previous dry cask loadings. The inspectors also observed engineering, operations, and radiation protection personnel control of the loading evolution.

###### b. Findings

No findings of significance were identified.

#### 4OA6 Meetings

##### Exit Meeting

The resident inspectors presented the routine inspection results to Mr. M. Warner and other members of licensee management at the conclusion of the inspection on February 25, 2002. The licensee acknowledged the findings presented. No proprietary information was identified.

##### Interim Exit Meeting

Senior Official at Exit:	S. Thomas
Date:	February 1, 2002
Proprietary:	No
Subject:	Access Control to Radiologically Significant Areas, ALARA Planning and Control, and Performance Indicator Verification for Barrier Integrity, RCS Specific Activity
Change to inspection findings:	No

4OA7 Licensee-Identified Violations

No findings of significance were identified.

## KEY POINTS OF CONTACT

### Licensee

A. Cayia, Site Director  
G. Corell, Chemistry Manager  
F. A. Flentje, Senior Regulatory Compliance Specialist  
D. Gehrke, Nuclear Oversight Supervisor  
D. Hettick, Performance Assessment Manager  
N. L. Hoefert, Engineering Programs Manager  
V. M. Kaminskas, Maintenance Manager  
J. Lindsay, RP General Supervisor  
R. G. Mende, Director of Engineering  
J. Strharsky, Assistant Operations Manager  
C. Onesti, Health Physicist  
T. Carter, System Engineering Manager  
D. Shannon, Radiation Protection Supervisor  
S. J. Thomas, Radiation Protection Manager  
R. Turner, Inservice Inspection Coordinator  
M. Warner, Site Vice President  
T. Webb, Licensing Manager

### NRC

B. A. Wetzel, Point Beach Project Manager, NRR

## ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

None

### Closed

50-301/2001-001-00	LER	Ground fault relay actuation causes generator lockout and reactor trip (Section 4AO3.1)
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### Discussed

None

## LIST OF ACRONYMS USED

AFWP	Auxiliary Feedwater Pump
ALARA	As-Low-As-Is Reasonably Achievable
AR	Action Request
CCW	Component Cooling Water
CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
HRA	High Radiation Area
IT	Inservice Test
LER	Licensee Event Report
NRC	Nuclear Regulatory Commission
OWA	Operator Workaround
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RMP	Routine Maintenance Procedure
RP	Radiation Protection
RWP	Radiation Work Permit
SI	Safety Injection
SSC	System, Structure, and Component
TDAFWP	Turbine-Driven Auxiliary Feedwater Pump
U2R25	Unit 2, Refueling Outage 25
U1R26	Unit 1, Refueling Outage 26

LIST OF DOCUMENTS REVIEWED

1R04 Equipment Alignment

Checklist (CL) 7A	Safety Injection System Checklist Unit 2	Revision 18
CL 7B	Safety Injection System Checklist Unit 2	Revision 16
Drawing 110E035 Sheet 1	P&ID Safety Injection System - Point Beach Nuclear Plant Unit 2	Revision E
Drawing 110E035 Sheet 2	P&ID Safety Injection System - Point Beach Nuclear Plant Unit 2	Revision E
Drawing 110E035 Sheet 3	P&ID Safety Injection System - Point Beach Nuclear Plant Unit 2	Revision E
Report AC-601R-1-2H4	Residual Heat Removal Pipe Support Repair Record, Control Number 80-79	February 5, 1980

1R05 Fire Protection

Fire Hazards Analysis Report	Fire Zone 140, Valve Gallery - Unit 1	August 17, 2001
Fire Hazards Analysis Report	Fire Zone 155, Valve Gallery - Pipe Way 1	August 17, 2001
Fire Protection Evaluation Report, Volume 3	Fire Zone: 308 - 3D-G01-A Train Diesel Generator Room	August 1999
Fire Protection Evaluation Report, Volume 3	Fire Zone: 309 - 4D-G02-B Train Diesel Generator Room	August 1999
Fire Protection Evaluation Report, Volume 3	Fire Zone: 773 - G-03 Switchgear Room	August 1999

1R12 Maintenance Rule Implementation

PBNP Documentation	Maintenance Rule Performance Criteria "EH-Electro-Hydraulic"	November 8, 2001
	Station Logs	January 1, 2000 to January 24, 2002
	2000 Annual Report for Maintenance Rule	March 26, 2001
PBNP Documentation	Maintenance Rule Performance Criteria Heating, Ventilation and Auxiliary Steam and Condensate Systems, Chilled/Hot Water System	November 8, 2001



1R13 Maintenance Risk Assessment and Emergent Work Evaluation

	Work Week Schedule, Units 1 & 2, January 20-25, 2002	
	Station Logs	January 20 to January 25, 2002
	Safety Monitor Operating Status Calculations	January 20 to January 24, 2002
	Work Week Schedule, Units 1 & 2, February 2-9, 2002	
	Station Logs	February 2 to February 8, 2002
	Safety Monitor Operating Status Calculations	February 2 to February 8, 2002
NP 10.3.7	On-Line Safety Assessment	Revision 5

1R15 Operability Evaluations

CR 1779	Source of G-02 Crankcase Foreign Material Identified	January 3, 2002
Operability Determination OPR 000001	G-01, G-03, and G-04 Potential Lube Oil System FME [Foreign Material Exclusion] Concern	January 4, 2002
	Lubricating Oil Wear Metal and Particulate Trend Graphs for G-01, G-03, and G-04, February 2000 to December 2001	
Vendor Maintenance Instruction 1760	Lubricating Oil for EMD [Electro-Motive Diesel] Engines, Marine, Power, and Drilling Rig	Revision G
Emergency Operating Procedure 1.3	Transfer To Containment Sump Recirculation	Revision 27
Critical Safety Procedure Z.1	Response to High Containment Pressure	Revision 16
Severe Accident Management Guidelines (SAMG) SCG-2	Depressurize Containment, Attachment A, "Availability of Equipment to Depressurize Containment," Worksheet #2	Revision 0

SAMG SAG-3	Inject Into the RCS, Attachment A, "Availability of Equipment to Inject into the RCS," Worksheet #2b, "SI Pump Suction Sources"	Revision 0
SAMG SAG-3	Inject Into the RCS, Attachment A, "Availability of Equipment to Inject into the RCS," Worksheet #3b, "RHR Pump A Injection Flowpaths"	Revision 0
SAMG SAG-3	"Inject Into the RCS, Attachment A, "Availability of Equipment to Inject into the RCS," Worksheet #3c, "RHR Pump B Injection Flowpaths"	Revision 0
SAMG SAG-4	Inject Into Containment, Attachment A, "Availability of Equipment to Inject into Containment," Worksheet #3e, "RWST [Refueling Water Storage Tank] Gravity Drain to RCS"	Revision 0
SAMG SAG-4	Inject Into Containment, Attachment A, "Availability of Equipment to Inject into Containment," Worksheet #3f, "RWST Gravity Drain to RCS"	Revision 0
SAMG SAG-4,	Inject Into Containment, Attachment A, "Availability of Equipment to Inject into Containment," Worksheet #3g, "RWST Gravity Drain to RCS"	Revision 0
10CFR21-0073	NEI Peebles (Portec) Voltage Regulators-Voltage Adjust Potentiometer	February 28, 1996
CR 1928	EDG G-04 Fails During TS-84 Monthly EDG Testing, Common Mode Failure Evaluation	January 20, 2002
Technical Specification Test (TS) TS 84	Emergency Diesel Generator G-04 Monthly	Revision 12

1R16 Operator Workarounds

0-01C-002 CW	Operators Are Required to Take Local Pump Bay Levels When in AOP-13A to Determine Extent of Screen Plugging	
Modification Request 92-135	Upgrade Screen Start System, Forebay Level and Add Pump Bay Instrument	Revision 0

### 1R17 Permanent Plant Modifications

Safety Evaluation SCR 2002-0010	Backup Air Systems for Auxiliary Feedwater Pump Minimum Flow Recirculation Valves	
IT 10	Test of Electric Driven Auxiliary Feed Pumps and Valves, Performed on February 6, 2002, for the P-38B Motor-Driven AFWP	Revision 43
Work Order (WO) 9950689	Modify P-38B AFW Mini-Recirculation Control Valve AF-4014	
WO 9930536	Analyze P-38B Motor with MCE Tester	
WO 9950688	Install Instrument Air Jumper	

### 1R19 Post-Maintenance Testing

IT 13	Component Cooling Water Pumps and Valves (Quarterly) Unit 2	Revision 29
WO 9937009	Component Cooling Water Pump, Grease Coupling	January 14, 2002
WO 9935235	Component Cooling Water Pump, Flush Bearings and Clean Air Intake Grills	January 14, 2002
Commitment Change Evaluation 2000-004	Cancel Commitment Concerning Operability Determination and NRC Notification Prior to Returning Equipment to Service with ASME Section XI Vibration Levels Greater Than 0.325 inches per second	June 15, 2000
	Inservice Testing Program Third 10-Year Interval	Revision 9
	Selected Vibration Records of 2P-11A Component Cooling Water Pump, August 1991 to October 2001	
Action Request (AR) 003520	2P-11A Vibration Levels Increased	January 17, 2002
IT-13	Component Cooling Water Pump and Valves (Quarterly) Unit 1	Revision 25

### 1R22 Surveillance Testing

TS 32	Miscellaneous Equipment Checks (Monthly) Unit 1	Revision 1
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AR 001844	Missed Surveillance for PAM [Post-Accident Monitoring] Core Exit T/Cs [Thermocouples]	January 11, 2002
IT 09A	Cold Start of Turbine-Driven Auxiliary Feedwater Pump & Valve Test (QRTLY) Unit 2	Revision 26
AR 002197	2AF-4002 [Unit 2 Turbine-Driven Auxiliary Feedwater Pump Mini-Recirculation Valve] Makes Loud Noise Just Prior to Full Open	February 14, 2002
WO 9944713	Station Battery Charger Inspection and Test	
RMP 9359-7	DC [Direct Current] Station Battery Charger D-07, D-08, and D-09 Maintenance Procedure	Revision 0

## 2OS1 Access Control to Radiologically Significant Areas

### Action Request Items

01-1535	Containment Door Held Open	April 28, 2001
01-2830	HRA Boundary Propped Open	September 13, 2001
CAP001119	Resin Sampling Procedures Result in ED Dose/Dose Rate Alarms	October 12, 2001
CAP001925	Scaffold Platform Moved Without Addressing Radiological Issues	January 18, 2002
CAP002047	Inconsistencies in Release of Work Gloves from the RCA	February 1, 2002

### Procedures

RWP 02-008	NRC Surveillance and Tours	Revision 1
RWP 02-013	Short Duration Access to HRAs <1,000 mRem/hr	Revision 0
RWP 02-015	I&C Calibrations, Testing & Surveillances in HRAs/HCA's	Revision 0
RWP 02-019	General Maintenance in PAB & U1/U2 Facades	Revision 0
RWP 02-027	OP-9C Forced Vent Samples	Revision 0
RWP 02-201	Containment Entries	Revision 0

### Miscellaneous Data

Prejob Briefing Checklist, Unit 2 Containment Entry	January 31, 2002
RP Weekly Schedule	January 21, 2002
Technical Specification, Paragraph 15.6.11, Control of Access to High Radiation Area	March 17, 1998

2OS2 ALARA Planning and Control

Action Request Items

01-1496	Less than Adequate ALARA Pre-job Brief	April 26, 2001
CAP002050	ALARA Post-job Reviews May Not Be Part of the Corrective Action Process	February 1, 2001

Procedures

AM 2-12	Maintaining Exposures to Radiation and Radioactive Material as Low as Reasonably Achievable	Revision 1
NP 4.2.1	Plant ALARA Program	Revision 5
NP 4.2.29	Source Term Reduction Program	Revision 3
RWP 01-117	U1 CTMT High Radiation Area Maintenance	Revision 0
RWP 01-120	Regen Hx Cubicle Maintenance	Revision 0
RWP 01-123	S/G Sludge Lance Activities	Revision 0
RWP 01-124	Steam Generator Eddy Current Testing	Revision 0
RWP 01-136	Steam Generator Platform Upgrades	Revision 0
RWP 01-164	Unit 1 Containment Isolate 1RC-504	Revision 0
RWP 01-165	Repair Tubing for PT-420	Revision 0

Miscellaneous Data

2001-0006	ALARA Review Package, Steam Generator Eddy Current and Tube Plugging	May 2, 2001
2001-0007	ALARA Review Package, S/G Handhold Cover Removal and Replacement/Sludge Lancing Operations	May 4, 2001
2001-0010	ALARA Review Package, Insulation Work	May 10, 2001
2001-0011	ALARA Review Package, Scaffold Construction and Removal	May 9, 2001

2001-0014	ALARA Review Package, "A" & "B" Containment Fan Cooler Modification	May 3, 2001
2001-0015	ALARA Review Package, 1CV-1298 Modification	April 30, 2001
2001-0016	ALARA Review Package, Steam Generator Platform Upgrades	April 30, 2001
2001-0020	ALARA Review Package, 1CV-296 Trim Replacement	April 26, 2001
2001-0023	ALARA Review Package, U1 RWST Anchor Modification/Reinforcement	January 2, 2002
2001-0024	ALARA Review Package, Remove RCP Motor, Inspect/Replace "B" RCP Mechanical Seals, Replace Motor	September 24, 2001
2001-0025	ALARA Review Package, Entry into U1 CTMT at 30% Power to Isolate 1RC-504	December 27, 2001
2001-0027	ALARA Review Package, Erect Scaffold/Repair Leaking Fitting on 1RC-504  Hot Spot Incidence Trend by System, Graphic, 1 <sup>st</sup> Quarter 2000 to 4 <sup>th</sup> Quarter 2001  Plant Dose Data, 1974 Through 2005 (Projected)  Point Beach Nuclear Plant, 3Year Rolling Average Graphic Chart, 1976-2001  Pre-outage, Outage, and Post-outage RWP Review of Exposure Data, Spreadsheet, RWPs #01-100 to 01-167	December 27, 2001
	TEDE ALARA Evaluation, Seal Table Work	March 5, 2001
	TEDE ALARA Evaluation, U1 Refueling Cavity-Upper Decontamination	March 5, 2001
	TEDE ALARA Evaluation, Full and Partial Steam Generator Channel Head Jumps	April 5, 2001
	TEDE ALARA Evaluation, U1 RH-427 Valve Works	April 21, 2001
	Exposure Records for RWP 01-301 Work	November 15 to December 15, 2001
	Exposure Records for RWP 02300 Work	January 1-13, 2001

U2R25 Projected Doses December 18, 2001

Self -Assessments

Lesson Learned from CFCs & AFMCs Project May 3, 2001

U1R26 Refueling Outage ALARA Summary Report May 31, 2001

Nuclear Oversight Quarterly Report, 2<sup>nd</sup> Quarter, 2001 August 1, 2001

4A01 Performance Indicator Verification

Procedures

Chemistry Analytical Methods and Procedures (CAMP) 403 Radio Chemical Analytical Procedure: Preparation of Dissolved Gas Samples for GC and MCA Analysis December 27, 2001

CAMP 408 Radio Chemical Analytical Procedure Preparation of Liquid Sample for MCA Analysis (Filtration Method) March 27, 2001

CAMP 410 Determination of Radioactive Iodine and Iodine 131 Equivalents in Reactor Coolant March 20, 2001

CAMP 600.13 Primary Side Sampling Procedures: Hot Leg Liquid Sampling-Depressurized and Pressurized Liquid December 27, 2001

Miscellaneous Data

WO 9940849 Obtain Sample of RCS for Gamma Scan, Radgas, and Tritium January 28, 2002

Daily RCS Specific Activity Sampling Data January 29, 2002

Technical Specification, Paragraph 15.3.1-9.C, Maximum Coolant Activity July 1, 1997

Technical Specification, Table 15.4.1-2, Minimum Frequencies for Equipment and Sampling Tests January 16, 1997

2001Annual/Quarterly RCS Dose Equivalent Iodine Data

4A03 Event Follow-up

CR 01-0389

Unit 2 Generator Lockout/Reactor Trip

February 7, 2001

CR 01-0397

Loss of Normal Heat Sink

February 7, 2001