



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
Region III  
LISLE, ILLINOIS 60532

*SUCCEEDED*

MEMORANDUM TO: Patrick Loudon, Chief  
Projects Branch 7  
Division of Reactor Projects

FROM: Kenneth Riemer, Chief  
Plant Support Branch  
Division of Reactor Safety

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 & 2  
DRS INPUT TO INTEGRATED REPORT 50-266/04-03;  
50-301/04-03

*Kenneth Riemer*

Attached is the report input for Point Beach Nuclear Plant, Units 1 and 2, Inspection Report 50-266/04-03; 50-301/04-03. Specifically, this report focused on occupational radiation safety during the recent U1R28 refueling outage as related to the licensee's radiological access control and ALARA programs. I have reviewed this input and have determined it is ready for distribution to the licensee and dissemination to the public.

Attachment: Input to Inspection Report 50-266/04-03;  
50-301/04-03

CONTACT: Ryan D. Alexander, DRS  
(630) 829-9853

DOCUMENT NAME: G:\DRS\Point Beach Input to Report 04-03 RDA.wpd

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| DATE   | 05/05/04      |                                     | 05/16/04 |                                     |  |  |  |

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## Cover Letter

- No input, no significant findings.  
 Input below, no color or green findings were identified.

## Title Page

Inspector: R. D. Alexander, Radiation Specialist

### SUMMARY OF FINDINGS

ADAMS boilerplate - Inspectable area: Radiation Protection

Modify second paragraph as follows:

The baseline inspection was conducted by a regional radiation specialist inspector.

A. **Inspector-Identified and Self-Revealed Findings**

**Cornerstones: Occupational and Public Radiation Safety (OS)**

None

B. **Licensee-Identified Violations**

None

### REPORT DETAILS

2. **RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety (OS)**

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

.1 **Plant Walkdowns and Radiation Work Permit Reviews**

a. **Inspection Scope**

The inspectors reviewed licensee controls and surveys for selected radiation areas, high radiation areas and airborne radioactivity areas, as available, in the following radiologically significant work areas within the plant and reviewed work packages which included associated licensee controls and surveys for these areas to determine if radiological controls (including postings and barricades) were acceptable:

- Primary Auxiliary Building; and
- Unit 1 Containment (all levels).

The inspectors reviewed the radiation work permits (RWP) and work packages used to control work in these areas and other high radiation work areas to identify the work control instructions and control barriers that had been specified. Electronic dosimeter

alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. Workers were interviewed to assess their knowledge of the actions required when their electronic dosimeters noticeably malfunctioned or alarmed.

The inspectors walked down these areas to verify that the prescribed RWPs, procedures, and engineering controls were in place, that licensee surveys and postings were complete and accurate, and that air samplers (if necessary) were properly located.

The inspectors reviewed the RWPs and surveys for the steam generator nozzle dam installation and eddy current testing activities which had the potential for creating an airborne radioactivity area. The inspectors reviewed the RWPs to verify barrier integrity and engineering control contingency plans were in place and to determine if there was a potential for individual worker internal exposures of greater than 50 millirem committed effective dose equivalent. This and other work activities/areas having a history of, or the potential for, airborne transuranic isotopes were evaluated to verify that the licensee had considered the potential for transuranic isotopes and provided appropriate worker protection.

The inspectors assessed the adequacy of the licensee's internal dose assessment process by reviewing personnel contamination event logs (and associated dose assessments) for the refueling outage. As of April 21, 2004, no personnel contamination events had resulted in dose assignments of greater than 10 millirem committed effective dose equivalent.

These reviews represented four inspection samples.

b. Findings

No findings of significance were identified.

.2 Job-In-Progress Reviews

a. Inspection Scope

The inspectors observed the following four activities that were being performed in radiation areas, airborne radioactivity areas, or high radiation areas for observation of work activities that presented the greatest radiological risk to workers:

- 1B Reactor Coolant Pump Motor Lift;
- Steam Generator Eddy Current Testing;
- Reactor Vessel Head Lift; and
- Cono-Seal Bullet Replacement.

The inspectors reviewed radiological job requirements for these four activities, including RWP and work procedure requirements, and attended ALARA pre-job briefings.

Job performance was observed with respect to these requirements to verify that radiological conditions in the work areas were adequately communicated to workers through pre-job briefings and postings. The inspectors also verified the adequacy of radiological controls (including required radiation, contamination, and airborne surveys); radiation protection job coverage (including audio/visual surveillance for remote job coverage); and contamination controls.

Radiological work in high radiation work areas having significant dose rate gradients was reviewed to evaluate the application of dosimetry to effectively monitor exposure to personnel and to verify that licensee controls were adequate. In particular, the steam generator eddy current activities and cono-seal bullet replacement involved evolutions where the dose rate gradients were severe which increased the necessity of providing multiple or repositioned dosimetry and/or enhanced job controls.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.4 Radiation Worker Performance

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation worker performance with respect to stated radiation protection work requirements and evaluated whether workers were aware of the significant radiological conditions in their workplace, the RWP controls and limits in place, and that their performance accounted for the level of radiological hazards present.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.5 Radiation Protection Technician Proficiency

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation protection (RP) technician performance with respect to radiation protection work requirements and evaluated whether they were aware of the radiological conditions in their workplace, the RWP controls and limits in place, and if their oversight of radiological activities was consistent with their training and qualifications with respect to the radiological hazards and work activities.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

2OS2 As Low As Is Reasonably Achievable Planning And Controls (ALARA) (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the U1R28 refueling outage work scheduled during the inspection period and associated work activity exposure estimates for the following four work activities which were likely to result in the highest personnel collective exposures:

- U1R28 RP Coverage [RWP No. 04-104];
- Bottom Mounted Instrumentation Inspection [RWP No. 04-133];
- Nozzle Dam Installation/Removal [RWP No. 04-141]; and
- Steam Generator Eddy Current Testing [RWP No. 04-142].

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning

a. Inspection Scope

For those activities identified in Section 2OS2.1, the inspectors reviewed the ALARA evaluations, exposure estimates, and exposure mitigation requirements in order to verify that the licensee had established procedures, and engineering and work controls that were based on sound radiation protection principles in order to achieve occupational exposures that were ALARA.

The interfaces between radiation protection, operations, maintenance, planning, scheduling, and engineering groups were evaluated by the inspectors to identify interface problems or missing program elements. The inspectors evaluated if work activity planning included consideration of the benefits of dose rate reduction activities such as shielding provided by water filled components/piping, job scheduling, and shielding and scaffolding installation/removal activities. Finally, the inspectors evaluated the integration of radiological job planning activities (pre-job ALARA reviews) into work procedure and RWP documents.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.3 Verification of Dose Estimates and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the licensee's process for adjusting exposure estimates or re-planning work, when unexpected changes in scope, emergent work or higher than anticipated radiation levels were encountered. This review included a determination if adjustments to estimated exposures (intended dose) were based on sound radiation protection and ALARA principles, rather than adjustments to account for failures to adequately control the work. The frequency of these adjustments was reviewed to evaluate the adequacy of the original ALARA planning process. In particular, the inspectors reviewed and discussed with the RP staff the In-Progress ALARA reviews conducted for the bottom mounted instrumentation inspection and steam generator nozzle dam installation/removal RWPs.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.4 Job Site Inspections and ALARA Control

a. Inspection Scope

The inspectors observed the four activities identified in Section 2OS1.2 that were being performed in radiation areas, airborne radioactivity areas, or high radiation areas for observation of work activities that presented the greatest radiological risk to workers. The licensee's use of engineering controls to achieve dose reductions was evaluated to verify that procedures and controls were consistent with the licensee's ALARA reviews, that sufficient shielding of radiation sources was provided for and that the dose expended to install/remove the shielding did not exceed the dose reduction benefits afforded by the shielding.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance

a. Inspection Scope

Radiation worker and RP technician performance was observed during work activities performed in radiological areas that presented the greatest radiological risk to workers. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice by being familiar with the work activity scope and tools to be used, by utilizing ALARA low dose waiting areas, and that work activity controls were being complied with. Also, radiation worker performance was observed to determine whether individual training/skill level was sufficient with respect to the radiological hazards and the work involved.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES (OA)**

4OA6 Meetings

.2 Interim Exit Meetings

Interim exit meeting was conducted for:

- Occupational Radiation Safety ALARA and access control programs inspection with Mr. G. VanMiddlesworth on April 23, 2004.

## KEY POINTS OF CONTACT

### Licensee

G. VanMiddlesworth, Site Vice President  
S. Thomas, Radiation Protection Manager  
B. Carberry, Radiation Protection - ALARA

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened, Closed, and Discussed

None

## LIST OF DOCUMENTS REVIEWED

### 2OS1 Access Control to Radiologically Significant Areas

CAP 055366; Worker Received Electronic Dosimeter Dose Alarm; dated April 5, 2004

CAP 055587; S/G Nozzle Dam Installation Dose Exceeded Estimate; dated April 11, 2004

CAP 055951; Incore Thermocouple Guide ("Bullet Nose") Inadvertently Lifted with Reactor Head; dated April 22, 2004

CAP 055986; Evaluate Use of RP Greeter at Containment Hatches During Outage Periods; dated April 23, 2004 [NRC-Identified Issue]

HP 3.2; Radiological Labeling, Posting, and Barricading Requirements; Revision 39 (January 23, 2004)

HPIP 3.52; Airborne Radioactivity Surveys; Revision 30 (June 20, 2003)

PCE No. 04-02-018; Personnel Contamination Event (PCE) Report; dated April 8, 2004

PCE No. 04-02-019; Personnel Contamination Event (PCE) Report; dated April 9, 2004

PCE No. 04-02-020; Personnel Contamination Event (PCE) Report; dated April 8, 2004

RWP No. 04-104; RP Coverage; Revision 0

RWP No. 04-113; Reactor Head Lift; Revision 0

RWP No. 04-122; Reactor Coolant Pump Maintenance; Revision 0

RWP No. 04-133; BMI Inspection; Revision 0

RWP No. 04-141; Nozzle Dam Install/Remove; Revision 0

RWP No. 04-142; Steam Generator Eddy Current Testing; Revision 1

RWP No. 04-171; NRC Walkdowns for U1R28; Revision 0

RWP No. 04-182; Replace Cono-Seal Bullet; Revision 0

2OS2 As Low As Is Reasonably Achievable Planning And Controls (ALARA)

ALARA Review No. 2004-0012; Level 3 Pre-Job ALARA Review for BMI Inspection (RWP No. 04-133); dated April 6, 2004

ALARA Review No. 2004-0017; Level 3 Pre-Job and In-Progress ALARA Reviews for Nozzle Dam Install/Remove (RWP No. 04-141); dated April 2 and 11, 2004

ALARA Review No. 2004-0018; Level 3 Pre-Job ALARA Reviews (Revisions 0 and 1) for Steam Generator Eddy Current Testing (RWP No. 04-142); dated March 16 and April 12, 2004

ALARA Review No. 2004-0027; Level 3 Pre-Job ALARA Review for Replace Cono-Seal Bullet (RWP No. 04-182); dated April 22, 2004

JIT Briefing Activity MM-8480D3; Just In Time Briefing for Reactor Vessel Head Lift; dated April 21, 2004

HPIP 4.40; TEDE ALARA Evaluation; Revision 0 (February 6, 2002)

NP 4.2.1; ALARA Program; Revision 11 (November 19, 2003)

Point Beach Nuclear Plant U1R28 Estimated RWP Dose Spreadsheet; dated April 6, 2004

TEDE ALARA Evaluation for RWP 04-141; dated April 3, 2004

TEDE ALARA Evaluation for RWP 04-182; dated April 22, 2004

**LIST OF ACRONYMS USED**

|       |  |
|-------|--|
| ALARA | As Low As Is Reasonably Achievable                     |
| U1R28 | Point Beach Unit 1's 28 <sup>th</sup> Refueling Outage |
| RP    | Radiation Protection                                   |
| RWP   | Radiation Work Permit                                  |