

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-266/92003(DRSS); 50-301/92003(DRSS)

Docket Nos. 50-266; 50-301

License Nos. DPR-24; DPR-27

Licensee: Wisconsin Electric Power Company  
231 West Michigan  
Milwaukee, WI 53201

Facility Name: Point Beach Nuclear Power Plant, Units 1 and 2

Inspection At: Point Beach site, Two Creeks, WI

Inspection Conducted: March 16-20, 1992

Inspectors: *J. McCormick-Barger*  
Thomas Ploski *for*

4/2/92  
Date

*Heather Simons*  
Heather Simons

3/31/92  
Date

*Charles Cox*  
Charles Cox

3/31/92  
Date

Accompanying Personnel: Jack Gadzaia  
Keith Jury  
James Kniceley  
Timothy Chapman

Approved By: *James McCormick-Barger*  
James McCormick-Barger, Chief  
Emergency Preparedness Section

4/2/92  
Date

Inspection Summary

Inspection on March 16-20, 1992 (Report Nos. 50-266/92003(DRSS);  
50-301/92003(DRSS))

Areas Inspected: Routine, announced inspection of the Point Beach Plant's annual emergency preparedness exercise involving: review of the exercise scenario (IP 82302); observations by seven NRC representatives of key functions and locations during the exercise (IP 82301); and review of licensee actions on previously identified items (IP 82301).

Results: No violations, deficiencies, or deviations were identified.

The licensee's overall response to scenario events was good. Challenging aspects of the exercise included: the first use of the control room simulator in an NRC-evaluated exercise; evacuation of the Technical Support Center (TSC) and the Operational Support Center (OSC); and responses to unrelated degradations in plant equipment which resulted in separate, simulated releases of radioactivity to the environment.

Although offsite protective action recommendations were appropriate, the licensee's protective measures and reactor safety staffs should have better interfaced on two occasions regarding: the priorities for inplant teams to restore degraded plant equipment to avoid potentially significant offsite safety impacts; determining best estimates of release duration; and assessing source term composition. While the evacuation of TSC and OSC staffs was successful, procedural guidance is weak regarding: possible onsite destinations for all evacuees from these facilities; identifying all organizations which should be promptly notified of such an evacuation; and contamination control provisions for evacuees at their destinations and upon return to these response facilities.

Two concerns tracked as Open Items, which were identified during previous exercises, were closed.

## DETAILS

### 1. NRC Observers and Areas Observed

T. Ploski, Control Room Simulator (CRS), Technical Support Center (TSC),  
Operational Support Center (OSC), Emergency Operations Facility (EOF)  
H. Simons, Offsite Radiological Survey Teams, EOF  
C. Cox, TSC  
J. Kniceley, CRS, TSC, OSC, EOF  
K. Jury, CRS, TSC, EOF  
J. Gadzala, CRS, OSC, inplant teams  
T. Chapman, OSC, inplant teams

### 2. Licensee Representatives

R. Seizert, Manager - Regulatory Services  
W. Herrman, Manager - Technical Services  
J. Riesenwechler, Manager - Operations and Technical Support  
D. Johnson, Manager - Regulatory Affairs  
R. Chojnacki, Emergency Planning Coordinator  
R. LaViolette, Quality Specialist - Emergency Planning  
M. Koudelka, Quality Specialist - Emergency Planning  
T. Malanowski, Project Engineer - Licensing  
F. Flentje, Administrative Specialist - Regulatory Services  
W. Harris, Technical Services Specialist

The above licensee personnel attended the NRC exit interview on March 19, 1992.

The inspectors also contacted other licensee personnel during the inspection.

### 3. Licensee Actions on Previously Identified Items (IP 82301)

(Closed) Open Item No. 50-266/90006-01: During the 1990 exercise, the licensee was slow in obtaining analysis results of air samples taken by offsite radiological survey teams.

As indicated in Section 6.e of this report, the licensee deployed two offsite radiation survey teams during the exercise. The teams collected a number of air samples which were brought to the Offsite Health Physics Facility for analysis. Sample analyses were efficiently performed using a portable high purity germanium detector and its associated multi-channel analyzer and computer equipment. This portable system was brought from the plant to a laboratory facility, located within the Site Boundary Control Center (SBCC) building, while the facility was being activated.

Records indicated that 16 technicians received training on the use of this portable system during January and February 1992. The approved lesson plan addressed: equipment set up and operation; proper detector geometries; safety precautions; and interpretation of analysis results. This item is closed.

(Closed) Open Item No. 50-266/91004-01: During the 1991 exercise, decisionmakers in the Technical Support Center (TSC) exhibited confusion regarding the proper event classification, based on the current status of each of the three fission product barriers.

As indicated in Section 6.b of this report, key staff in the TSC maintained a correct understanding of the status of each fission product barrier as emergency classification decisions were made. The current status of each barrier was also posted on a status board within the TSC. This item is closed.

#### 4. General

An announced, daytime exercise of the Point Beach Nuclear Power Plant's emergency plan was conducted at the Point Beach Plant site on March 17-18, 1992. The exercise tested the capabilities of licensee, State and local governments' emergency organizations to respond to an accident scenario resulting in a simulated major release of radioactive effluent. The State of Wisconsin, as well as Manitowoc and Kewaunee Counties, fully participated in the plume phase of the exercise on March 17, 1992. State personnel conducted a partial scale, ingestion pathway exercise on the following date. The attachments to this inspection report summarize the licensee's scope of participation, exercise objectives and the exercise scenario.

#### 5. General Observations

##### a. Procedures

This exercise was conducted in accordance with 10 CFR Part 50, Appendix E requirements, using the Point Beach Plant's Emergency Plan and related implementing procedures.

##### b. Coordination

The licensee's response was coordinated, orderly and timely. If the scenario events had been real, the actions taken by the licensee would have been sufficient to mitigate the accident and permit State and local authorities to take appropriate actions to protect the public's health and safety.

##### c. Observers

The licensee's controllers and evaluators monitored and critiqued this exercise, as was independently done by seven NRC observers. The performances of State and local governments' responders were evaluated by representatives of the Federal Emergency Management Agency (FEMA), who will document their findings in a separate report to be issued by FEMA.

##### d. Exercise Critique

The licensee held critiques in each facility with the participants immediately following the exercise. The licensee conducted a

summary critique on March 19, 1992, in order to further discuss observed strengths and weaknesses. The summary critique was attended by about 50 controllers and participants. The inspectors presented the NRC's preliminary findings, which were developed independently, during a separate exit interview with the licensee on March 19, 1992. On March 20, 1992, an inspector was prepared to summarize the NRC's preliminary inspection findings at a Public Critique hosted by FEMA in Manitowoc, Wisconsin. The senior FEMA representative cancelled the Public Critique since no media or other members of the public were in attendance.

6. Specific Observations (IP 82301)

a. Control Room Simulator (CRS)

The CRS was successfully utilized for the first time in an emergency preparedness exercise evaluated by NRC. Use of the simulator provided a very realistic challenge to exercise participants and minimized the impact of exercise activities on personnel in the plant's actual control room.

At the beginning of the exercise, the Duty Shift Supervisor (DSS) prudently verified the status of ongoing inplant activities that had been postulated in the scenario's initial conditions. He was also well aware of which Limiting Conditions for Operations (LCOs) were in effect at the beginning of the exercise.

At 7:46 a.m., the DSS was informed that a spent fuel assembly had been dropped while being moved under water in the Spent Fuel Pool (SFP). The appropriate Abnormal Operating Procedure was promptly implemented. Public Address (PA) announcements directed personnel to evacuate the primary auxiliary building. CRS personnel overcame operability problems with the CRS's plant PA system by repeating this and subsequent announcements as necessary.

At 7:55 a.m., the DSS correctly declared an Alert due to the fuel handling accident. A Duty and Call Superintendent (DCS) drafted the initial notification message to State and county officials, which was then carried to the Technical Support Center (TSC) by a security officer. In accordance with procedures, this notification was made using the National Alert and Warning System (NAWAS) telephone, which was only installed in the TSC. State and county officials were initially informed of the Alert declaration in an adequately detailed and timely manner.

Meanwhile, a PA announcement was made regarding activation of the onsite emergency response facilities. The DSS was informed when these facilities became operational. He informed his operating crew of this and other major onsite response activities.

The DSS was soon informed that radiation monitors in the plant's southern gatehouse were alarming. This was an indication that an atmospheric release of radioactivity from the SFP had begun. A correct decision was made to simulate the evacuation of this gatehouse.

At 8:25 a.m., a simulated NRC duty officer was initially notified of the Alert declaration. The initial notification message was very well detailed and included the facts that a release had begun and certain onsite areas had been evacuated.

By 8:50 a.m., the DSS began voicing his concerns that water may have frozen in a suction line to the Unit 1 Refuel Water Storage Tank (RWST). He communicated his concerns to TSC staff, including several detailed equipment checks that he wanted an inplant team to perform. The DSS later repeated his concerns when he concluded that he had not received the detailed answers he had sought.

At 10:19 a.m., a Loss of Coolant Accident (LOCA) occurred on Unit 1. The CRS crew's overall response to the associated automatic reactor shutdown was very good. Their actions were well coordinated, calm and deliberate. The DSS quickly recognized that flow was not available from the RWST due to the postulated ice blockage in the suction line. He ensured that appropriate pumps were secured before they were damaged due to the unavailability of flow from the RWST.

As the exercise progressed, the DSS was observed to be assisting the Unit 1 control operator on the control boards, rather than assigning the available Duty Operations Supervisor to assist. He later requested assistance from TSC staff in interpreting several apparently contradictory steps in Core Status Procedure C.1.

No violations or deviations were identified.

b. Technical Support Center (TSC)

The TSC staff began arriving two minutes after the PA announcement of the Alert declaration. The Technical Services Manager (TSM) and the Site Manager (SM) immediately focused on the fuel handling accident while facility activation continued. The TSC activation was completed in a timely, though noisy manner. The 30 minute activation time was considered very good, since many of the TSC staff were also developing onsite protective actions due to the fuel handling accident.

At 8:09 a.m., a security officer arrived in the TSC to make the initial notifications regarding the Alert declaration to State and county officials using the NAWAS. The notifications were completed in a timely manner. Initial notifications and periodic updates issued from the TSC contained accurate information.

Some problems in offsite notifications became apparent after the TSC turned over that responsibility to Emergency Operations Facility (EOF) staff shortly before 11:00 a.m. Since the EOF did not have a NAWAS extension, certain types of message verification callbacks by offsite officials should have been made to the TSC; however, all offsite verification callbacks were made to the EOF. This caused some confusion to TSC and EOF communications staffs. The confusion did not, however, result in any failures to accomplish message verifications.

The initial onsite protective action was a limited evacuation of the Primary Auxiliary Building due to the fuel handling accident. Personnel accountability for this limited evacuation was completed in a timely manner.

By 8:17 a.m., radiation protection staff made an offsite dose projection for the fuel handling accident. The high thyroid doses predicted by this projection led the TSM and SM to a decision for a full evacuation of the Protected Area. A thorough discussion followed regarding the best route for the evacuation. The north gatehouse route was correctly chosen instead of the south gatehouse route, since the south gatehouse was in the path of the plume.

A decision to declare a Site Area Emergency (SAE) was made at the same time due to the increasing radioiodine doses projected and the fact that a Protected Area evacuation was an automatic action following any SAE declaration. The evacuation decision and SAE declaration were postponed until the TSC became fully operational at 8:21 a.m. At that point, the TSC's lead controller stopped the SAE declaration due to constraints imposed by State and county exercise participation.

The PA announcement for the Protected Area evacuation was made at 8:37 a.m. The announcement incorrectly directed evacuees to assemble at the Site Boundary Control Center (SBCC). This building was in the plume's path, as had been recognized by the TSM and SM. The SM immediately directed the Security Manager to have security officers positioned to prevent personnel from going towards the downwind, south gatehouse and the SBCC. Evacuees were correctly directed to proceed to the north (upwind) gatehouse and to remain there pending further instructions. All onsite personnel were accounted for within the emergency response facilities and at the north gatehouse within 30 minutes.

At 8:50 a.m., the first meeting of key TSC staff was held. These staff meetings were held periodically to obtain a consensus on priorities and to share information. During the first staff meeting, the highest priority was mitigating the effects of the fuel handling accident. An acceptable evacuation route from the north gatehouse was also determined. An extensive discussion about the release from the SFP took place. Initially, the TSM stated that the release duration was unknown. A great deal of emphasis was placed on the high thyroid doses projected offsite. This led to decisions to place a high priority on sending a team into the SFP area to spray the pool with hydrazine and to activate the backup EOF, located in Milwaukee, Wisconsin. (The lead controller blocked the decision to activate the backup EOF in order to adhere to the scenario.) The plan to spray the SFP with hydrazine persisted even after key staff were informed that the offsite release from the SFP was apparently over.

While the key staff meeting was in progress, the Duty Shift Supervisor (DSS) requested that the TSC's operations support group investigate the possibility of frozen water in the RWST pipe that





system data were somewhat uncertain. The HP Supervisor suggested process monitoring line sampling to determine if the abnormally high readings were due to containment shine or to another release path resulting from the containment pressure spike.

The RHR system was placed in recirculation mode at 2:04 p.m. The primary concern at the subsequent key staff meeting was that the RHR system was apparently losing water while on recirculation. An increase in CET data was also noted. The root cause of these apparent problems was later determined to be a erroneous data from the simulator; however, concerns regarding a leak from the RHR system and increased CET data may have contributed to the conservative decision not to state with certainty that the release had ended.

At 2:40 p.m., a simulated nitrogen gas leak led to a proper decision to evacuate the adjacent TSC and OSC. Personnel appeared uncertain as to what to do when a controller announced the nitrogen leak from laboratory equipment. The SM initially directed everyone to go the administrative area in the south service building housing the TSC and OSC. After determining that that space was too small for all evacuees, the SM directed them to the lunchroom of the north service building. The Duty Operations Manager and the Duty Technical Advisor reported to the control room (simulator) in accordance with the plant evacuation procedure. Once relocated in the lunchroom, the remainder of the evacuees determined which functions they could still perform. They also formed a team to go back to the TSC to determine its habitability. Upon receiving a report that the TSC was habitable, the SM directed a return to the TSC and OSC.

The only procedural guidance for TSC/OSC evacuation was in the plant evacuation procedure. That procedure only directed the Duty Operations Manager and Duty Technical Advisor to the control room, with no further guidance regarding others assigned to the TSC and OSC. While the TSC/OSC evacuation was successful during the exercise, procedural guidance was lacking with respect to the following: possible relocation sites for all TSC and OSC personnel; which organizations should be notified of such an evacuation; maintaining accountability of all evacuees; and, as indicated in Section 6.c of this report, contamination control for the evacuees. The lack of procedural guidance regarding the evacuation of the TSC and OSC is an Open Item (50-266/92003-01; 50-301/92003-01).

Upon return to the TSC, the exercise was concluded and a facility critique immediately followed.

During the course of the exercise, the TSC staff pursued technical problems and developed good solutions to individual problems. The operations support group developed two innovative plans to restore water to the reactor. One method was to use the unaffected unit's RWST to backfill the other unit's Boric Acid Storage Tanks, thereby allowing SI and RHR flow to Unit 1. The HP Supervisor proposed an innovative idea to spray the suspected release point with water from outside Containment to reduce the radioiodine component of the release.



No violations or deviations were identified; however, two Open Items were identified.

c. Operational Support Center (OSC) and Inplant Teams

The OSC became fully operational about 30 minutes after the Alert declaration. Communications between the OSC Director and key TSC staff remained good throughout the exercise regarding the priorities assigned to specific inplant teams and the teams' accomplishments. A status board was effectively used to track the status and mission of each inplant team. Teams were identified by a color code word or by a one word description of their mission. The use of these several methods to identify teams caused no apparent confusion to the teams or to those directing their activities.

A set of plant layout drawings were mounted on a wall of the OSC and were used during some teams' briefings. Inplant radiological survey data were posted on some of these drawings. However, the value of these data was questionable, since the times that the measurements were taken were not posted by the data and abnormal radiation levels varied during the exercise. Posted inplant radiological information should include the times that the radiological measurements were made.

Inplant teams were formed and dispatched in a timely manner, with the exception of the team sent to eliminate the ice blockage in the suction line pipe from the Unit 1 RWST. Team members were provided with appropriate personal dosimetry and protective clothing prior to their dispatch. Teams were accompanied by HP technicians equipped with survey instruments whenever appropriate. OSC staff maintained good control of dispatched inplant teams through frequent radio communications. Simulated radioactive exposures were adequately tracked. Good concern was also demonstrated for monitoring the air supplies of teams equipped with self-contained breathing apparatuses.

Inspectors accompanied several teams. These teams were adequately briefed on their assigned tasks and adequately demonstrated their capabilities to efficiently perform these tasks. The teams received good radiation protection support while performing their missions.

At about 2:30 p.m., an evacuation of TSC and OSC personnel occurred due to a simulated release of nitrogen gas from a laboratory within the TSC/OSC area. Several examples of inadequate contamination control were demonstrated by some evacuees. The OSC Director and the OSC Team Coordinator proceeded to the CRS in accordance with procedures. They did not adequately survey themselves for contamination before entering the CRS. Instead, they picked up the survey instrument's probe without first surveying their hands for contamination. Evacuees reporting to the north service building's lunchroom were not surveyed for contamination upon reaching this location or before reentering the TSC/OSC area. The overall need to upgrade procedural guidance regarding the evacuation and relocation of TSC and OSC staffs, including contamination control provisions, is summarized in Section 6.b of this inspection report.

No violations or deviations were identified.

d. Emergency Operations Facility (EOF)

A conservative decision was made shortly after 9:00 a.m. to activate the nearsite EOF located in the Site Boundary Control Center (SBCC) building. The majority of personnel staffing this facility came from the plant. They were later augmented by four persons dispatched from the licensee's corporate office in Milwaukee, Wisconsin.

By 10:00 a.m., plant personnel were on standby in the EOF and were ready to perform their duties if onsite conditions worsened. The interim Emergency Support Manager (ESM) provided a good initial briefing and updates to his EOF staff.

At 10:20 a.m., the interim Radiological Controls Waste Manager (RCWM) informed the ESM that data available on a PPCS terminal indicated that a LOCA had just occurred on Unit 1. The interim RCWM promptly telephoned his TSC counterpart in order to assure that TSC personnel were aware of this degrade in plant conditions. Several EOF staff correctly speculated that an open purge line valve constituted a potential release path for radioactivity in the containment to reach the environment.

The interim ESM soon informed his staff that the TSC's SM had declared a GE. The interim RCWM telephoned his TSC counterparts to verify that they were formulating the required offsite PAR. The interim ESM and RCWM satisfied themselves that the initial PAR was adequate, based on their current understanding of onsite conditions.

Corporate staff replaced the interim ESM and RCWM between 10:40 and 11:00 a.m. The interim ESM and RCWM became their corporate replacements' deputies for the duration of the exercise. Corporate staff effectively utilized cellular telephones to obtain updated information on plant conditions while enroute to the EOF, as evidenced by their abilities to assume their duties within a few minutes of their arrivals in the facility.

By 11:00 a.m., key EOF staff determined that the initial offsite PAR should be revised, based on the latest dose projections incorporating the current release rate, current meteorological conditions and a default release duration of eight hours. The revised recommendation was to evacuate persons in a five mile radius of the plant site and in five downwind sectors to a distance of 10 miles from the site. In view of the uncertain extent of core degradation and possible damage to other containment penetrations following the rapid increase in containment pressure, this revised PAR was conservative and appropriate.

Only the TSC was equipped with a NAWAS telephone line, which was the primary means of informing State and county officials of any emergency reclassification or PAR revision. Even though the EOF staff included dedicated communicators to the State Emergency



survey team reported that the plume had been detected on land near the southern border of Manitowoc County. The RCWM and his State counterpart then formulated a reasonable plan to have State teams collect samples of Lake Michigan water near Two Rivers and Manitowoc, Wisconsin, while a licensed survey team would collect similar samples within several miles of the plant. Such samples would give initial indications of any radioactive contamination of the water, so that the desirability of continued use of lake water could be evaluated by offsite officials.

Pending further inspections of the Unit 1 containment penetrations, key EOF staff conservatively and correctly made no effort to relax the offsite PAR or to consider revising the emergency classification. However, key EOF staff made no apparent effort to discuss the appropriateness of the default release duration (eight hours) used in offsite dose projections with TSC counterparts.

In general, periodic update messages transmitted by EOF communicators to State and county officials were adequately detailed and timely. Messages were reviewed for accuracy and completeness before transmittal.

With several minor exceptions, the EOF's status boards were well maintained with accurate information. Although key EOF staff knew the reason for the General Emergency declaration, this information was not posted on a space provided on a status board for the benefit of other personnel in the facility. Although current meteorological data were frequently updated on a status board, conflicting information was posted regarding the atmospheric stability value, which is one input to offsite dose calculations. The value can be expressed as an alphabetic stability class or as a number. The stability class letter was correctly posted as it varied from extremely stable (stability class G) to slightly unstable (class C). However, the corresponding numerical value of atmospheric stability posted on the status board remained zero during the exercise. Fortunately, the correct alphabetic stability class values were used by EOF staff in their offsite dose calculations.

After 1:00 p.m., the ESM instructed his staff to prepare a recovery action item list relative to their areas of responsibility, as was being done by TSC staff. These lists were briefly reviewed and forwarded to the Corporate Emergency Center for further consideration. The ESM also became involved in the designation of key members of the licensee's long-term recovery organization and in the planning for a relief shift of EOF staff.

Late in the exercise, the ESM informed his staff that the TSC and OSC were being evacuated, following reports of smoke due to a simulated fire or a chemical spill. This announcement had little apparent impact on EOF personnel, who were later informed when personnel had safely returned to these response facilities.

No violations or deviations were identified.

e. Offsite Radiological Survey Teams

When the PA announcement was made that the primary auxiliary building was being evacuated, HP personnel assembled at the access station to the plant's radiologically controlled area. They were being given an initial briefing when the PA announcement regarding the Alert declaration was heard. The HP Supervisor then assigned available personnel either to the OSC or to the Offsite HP Facility located at the SBCC.

At the SBCC, persons assigned to offsite radiological survey teams inventoried their equipment while others set up the portable sample analysis equipment that had been brought from the TSC's laboratory. When the Offsite HP Director was informed that a minor release had been detected from the SFP, efforts were made to dispatch a survey team to a downwind location. However, this team did not leave the SBCC for almost 30 minutes, since personnel were performing operability checks on survey equipment and assessing the SBCC's habitability. Contamination control points were adequately established and maintained at the SBCC.

Since the simulated plume was being blown offshore, the survey team was unable to obtain many measurements to characterize it. Several air samples were taken and quickly analyzed in the Offsite HP Facility. All but one of the samples were properly collected. The filter cartridge on one of the early samples was improperly mounted on the air sampler's head. No presence of radiiodines was indicated from the analyses of air samples associated with the release from the SFP.

An inspector accompanied both of the licensee's offsite survey teams during the exercise. Both teams received adequate initial briefings and were adequately updated on changing plant conditions. Overall communications between the teams and those in the SBCC controlling their movements were good. Operability problems with both teams' radios were largely overcome through the use of backup cellular telephones. At the exit interview, the licensee indicated that the radio operability problems were being investigated.

The teams demonstrated good contamination control practices and periodically checked their personal dosimetry. Following the simulated release from the Unit 1 containment, a conservative decision was implemented to have the teams simulate the taking of potassium iodide.

A survey team encountered a guard within the Owner Controlled Area who was downwind of the plant after the simulated major release had begun. Since the guard was within the simulated plume's high radiation field, the team assured that the guard promptly moved to a safer position.

EOF decisionmakers were uncertain whether the release from containment had been fully terminated following the closure of a purge line valve. By that time, the wind had shifted and was from

the northeast. As a result, any release from containment was likely to be over land rather than over Lake Michigan. One offsite survey team was appropriately instructed to search for a plume along a road near and downwind from the plant. The other team was instructed to search for the plume along a roadway roughly four to eight miles downwind, which was relatively inappropriate in view of the postulated wind speeds. No further releases from containment were detected by either team.

As the exercise progressed, some persons in the SBCC's Offsite HP Facility exhibited frustration over the inability of the teams to identify a plume which was almost immediately moving offshore. Some persons became inattentive to PA announcements made by key ECF staff. When informed that State survey teams had detected the major plume well beyond the EPZ's border, some laboratory staff voiced opinions that the scenario's data must be erroneous, rather than accepting the RCWM's correct conclusion that the plume was being blown back onshore and adjusting their actions accordingly.

No violations or deviations were identified.

f. Joint Public Information Center (JPIC)

The JPIC's location has been changed to the Holiday Inn in Manitowoc, Wisconsin. The performance of licensee staff in this facility was not observed during the exercise.

No violations or deviations were identified.

7. Exercise Objectives and Scenario Review (IP 82302)

The licensee submitted its proposed scope of exercise participation, objectives and copies of the scenario within the established deadlines. The licensee was responsive to several concerns identified during NRC staff's review of the objectives and the scenario.

Challenging aspects of the exercise included: the first use of the Control Room Simulator during an NRC-evaluated exercise; response to two simulated radioactive releases resulting from unrelated accidents involving the plant's spent fuel and one operating reactor; evacuation of TSC and OSC personnel to alternate locations following a simulated release of nitrogen gas from nearby laboratory equipment; significant changes in the postulated wind direction warranting several revisions to the offsite protective action recommendation; the assembly and accounting of all onsite personnel; deployment of several offsite radiation survey teams; and activation of the JPIC.

No violations or deviations were identified.

8. Exercise Control (IP 82301)

The overall performance of exercise controllers was good. Several minor instances of improper controller performance were noted; however, these did not result in participants taking actions which they might not otherwise have initiated.



While accompanying two inplant repair teams, inspectors observed each team's controller to be showing a relevant plant layout map, depicting simulated radiation level data, to the team's HP technician. Such maps displayed simulated radiation level information at a team's current location as well as simulated radiation level data at numerous locations in the surrounding area. Each controller should have verbalized the simulated radiation level data only at the team's current location, rather than letting an exercise participant see survey data from surrounding locations.

On several occasions, a controller accompanying an offsite survey team provided radiation measurement information which was greater than the instrument's scale would have allowed the technician to read. For example, the technician's survey instrument may have been set on the zero to 5 millirem scale while he encountered a simulated radiation field of several hundred millirem per hour. In such instances, the controller should have informed the technician that the survey instrument's reading was offscale, rather than providing a numerical value that was beyond the instrument's current scale setting.

No violations or deviations were identified.

9. Licensee Critiques (IP 82301)

The licensee's controllers held critiques in each facility with the participants, immediately following the exercise. On March 19, 1992, lead controllers conducted a detailed and objective critique with an audience of about 50 controllers and exercise participants. The licensee indicated that its self-identified findings would be documented in an internal report, which will be available for review during a future inspection.

No violations or deviations were identified.

10. Open Items

Open Items are matters that have been discussed with the licensee and which will be reviewed by the NRC following some corrective actions by the licensee. Open Items identified during this inspection are described in Section 6.b of this report.

11. Exit Interview

On March 19, 1992, the inspectors met with those licensee representatives identified in Section 2 of this report in order to present and discuss the preliminary inspection findings. The licensee indicated that none of the matters discussed were proprietary in nature.

The licensee was informed that its overall response was good. Challenging aspects of the scenario included: the first use of the control room simulator in an NRC-evaluated exercise; evacuation of the TSC and OSC; and responses to unrelated degradations in plant conditions that resulted in separate, simulated releases to the environment.

Two performance concerns were identified, which will be tracked as Open Items. Although offsite PARs were conservative, the licensee's protective measures and reactor safety staffs should have better interfaced regarding: the priorities for inplant teams to restore degraded plant equipment, based on the potential offsite safety significance of these degradations; determining best estimates of release duration for offsite dose projections; and assessing source term composition. While the evacuation of the TSC and OSC was successful, procedural guidance is lacking regarding: possible onsite destinations for all evacuees; identifying organizations which should be notified of such an evacuation; and contamination control provisions for evacuees at their destinations and upon their return to the response facilities.

Two concerns from previous exercises, which were tracked as Open Items, were closed.

Attachments:

1. Licensee's Scope of Participation and Exercise Objectives
2. Exercise Scenario Outline

## 1.0 SCOPE AND OBJECTIVES

The scope of the exercise is defined in Section 1.1. Wisconsin Electric Power Company (WE) Point Beach Nuclear Plant exercise objectives are provided in Section 1.2. State and county objectives are listed in Section 1.3.

### 1.1 Scope

The 1992 Point Beach Nuclear Plant (PBNP) emergency exercise to be conducted on March 17 and 18 will be a full-scale, partial ingestion pathway exercise. The scenario will test the capabilities of the plant emergency response organization to respond to an emergency and test the effectiveness of the PBNP Emergency Preparedness Program. State and county participation will also be tested; the exercise will require the mobilization of significant portions of their resources.

### 1.2 Wisconsin Electric Power Company Objectives

The major WE objective of this exercise is to demonstrate the effectiveness of the organization, plan and procedures in dealing with the emergency events postulated in this scenario. Within this overall objective, individual objectives are specified in this section.

The objectives are divided into subsections as follows:

- 1.2.1 Assessment and Classification
- 1.2.2 Notification and Communications
- 1.2.3 Radiological Assessment and Protective Actions
- 1.2.4 Emergency Facilities
- 1.2.5 Emergency Direction and Control
- 1.2.6 Public Information
- 1.2.7 Reentry and Recovery
- 1.2.8 Offsite Agency Coordination

### 1.2.1 Assessment and Classification

- a. Demonstrate the ability to assess plant conditions which warrant an emergency classification.
- b. Demonstrate the ability of the Emergency Response Organization (ERO) staff to correctly classify an emergency event using the EPIPs.

### 1.2.2 Notification and Communication

- a. Demonstrate the ability to notify on-site personnel of emergency classification(s) using the plant Gai-tronics system.
- b. Demonstrate the ability to make notification to offsite state and county emergency governments, using EPIP 2.1, within fifteen (15) minutes of declaring an emergency.
- c. Demonstrate the ability to make notifications to the NRC within one (1) hour of the emergency classification using EPIP 2.2.
- d. Demonstrate the ability of Emergency Response Facility (ERF) management to provide briefings and updates concerning plant status, event classification, activities, and assumption of responsibilities approximately every hour.
- e. Demonstrate the ability to direct a plant evacuation, utilizing the Gai-tronics system, in accordance with EPIP 6.2.
- f. Demonstrate the ability to provide information updates to the state and counties at least hourly and within thirty (30) minutes of changes in monitored conditions using the appropriate EPIP forms.
- g. Demonstrate the ability to provide information updates to the NRC at least hourly and within thirty (30) minutes of changes in monitored conditions using the appropriate EPIP forms.
- h. Demonstrate the ability to provide the state with frequent, periodic dose projection updates.
- i. Demonstrate the ability to notify and keep corporate officers and organizations informed of the status of the emergency.
- j. Demonstrate the ability to communicate effectively with near and on-site emergency facilities.

### 1.2.3 Radiological Assessment and Protective Actions

- a. Demonstrate the ability to make appropriate protective action recommendations (PARs) promptly after completing an offsite dose projection or completion of a PAR determination segment of any EPIP.
- b. Demonstrate the ability to monitor and control exposure of all response personnel.
- c. Demonstrate the ability to establish radiological monitoring and controls of assembly areas in accordance with established policies and plant procedures.
- d. Demonstrate the ability to align, or verify alignment of the ventilation systems in accordance with the EPIP ERF activation procedures.
- e. Demonstrate the ability to start up, or verify alignment of, the ERF radiological monitoring systems in accordance with the ERF activation procedures.
- f. Demonstrate the ability to compare estimated doses to the appropriate Protective Action Guidelines (PAGs) to determine Protective Action Recommendations (PARs).
- g. Demonstrate the ability to calculate offsite dose projections in accordance with appropriate procedures, programs, and guidance.
- h. Demonstrate the ability to issue respiratory protection equipment to emergency personnel.
- i. Demonstrate the ability to properly use respiratory equipment.
- j. Demonstrate the ability to employ protective clothing as part of emergency response.
- k. Demonstrate the ability of the onsite monitoring team to accurately provide survey information.
- l. Demonstrate the ability to periodically monitor personnel dose levels to promote ALARA.
- m. If exercise response dictates, demonstrate the ability to brief personnel for entry into a high radiation area in accordance with plant policies and EPIP 10.1.

- n. Demonstrate the ability of OSC personnel to obtain previous exposure records for team personnel and to integrate them into current records.
- o. Demonstrate the ability to monitor, track, and document radiation exposure to in-plant teams in accordance with established policies and plant procedures.
- p. Demonstrate the ability to set up a dosimeter control point to ensure all personnel have been issued proper dosimetry.
- q. Demonstrate the ability to issue dosimetry in accordance with EPIP 7.7.2 and PBNP Health Physics procedures.
- r. Demonstrate the ability to collect and document all in-plant radiological surveys taken in accordance with EPIP 4.2.
- s. Demonstrate the ability to make the decision, based on EPIP 5.2 and EP 6.0, Section 6.5 criteria, whether to issue KI to emergency workers.
- t. Demonstrate the ability to supply and administer KI within its window of effectiveness, if a decision is made to do so.
- u. Demonstrate the ability to obtain an air sample, analyze it, and provide the results for a dose projection calculation within a one (1) hour time period, using the appropriate HP procedures and EIPs.
- v. Demonstrate the ability to perform radiological monitoring of site evacuees in accordance with EPIP 6.7 and PBNP Health Physics procedures.
- w. Demonstrate the ability to authorize personnel exposure beyond 10 CFR 20 limits if scenario events and decisions call for this action.
- x. Demonstrate the ability to determine and evaluate vital plant parameters and evaluate safety system function, core status, and fission product barriers.

#### 1.2.4 Emergency Facilities

- a. Demonstrate the ability to fully alert, mobilize, and activate personnel for both facility and field-based emergency functions based upon specified emergency classifications.

- b. Demonstrate the ability to augment the TSC within 30 minutes of the Alert classification and activate within one hour of the Alert classification or direction to activate by competent authority, in accordance with the EPIPs.
- c. Demonstrate the ability to staff and activate the OSC within one hour of the Alert classification or direction to activate by competent authority, in accordance with the EPIPs.
- d. Demonstrate the ability to maintain plant parameters and fission product barrier status boards with current data (e.g., not more than 30 minutes old).
- e. Demonstrate the ability to set up and maintain reentry status boards.
- f. Demonstrate the ability to maintain meteorological status boards with recent data (e.g., not more than 30 minutes old).
- g. Demonstrate the ability to staff and activate the EOF with site personnel within one hour of the Site Emergency classification or direction to activate by competent authority, and within two hours with corporate personnel in accordance with the EPIPs.
- h. Demonstrate the ability to evacuate an emergency response facility and relocate emergency response personnel to a backup facility.

#### 1.2.5 Emergency Direction and Control

- a. Demonstrate the ability to augment the control room staff within 30 minutes of an appropriate emergency classification in accordance with the Emergency Plan.
- b. Demonstrate the ability to contact and secure assistance from offsite emergency response resources.
- c. Demonstrate the ability to operate the OSC in accordance with applicable EPIPs.
- d. Demonstrate the ability of TSC personnel to maintain the personnel status board up to date.
- e. Demonstrate the ability to prioritize Operations and Maintenance activities during abnormal and emergency situations.

- f. Demonstrate the ability to determine if site evacuation of non-essential personnel is required in accordance with EPIP 6.2 or EPIP 6.7.
- g. Demonstrate the ability to evacuate contractor personnel to the Site Boundary Control Center (SBCC) in accordance with EPIP 6.2.
- h. Demonstrate the ability to accomplish personnel accountability within 30 minutes of announcement of plant evacuation.
- i. Demonstrate the ability to assess in-plant radiological conditions using available information.
- j. Demonstrate the ability to develop reentry routes to ensure that reentry doses are consistent with ALARA principles.
- k. Demonstrate the ability to organize, dispatch, and manage reentry teams in accordance with applicable EPIPs.
- l. Demonstrate the ability of the ERF staff to develop and maintain 24-hour staffing.
- m. Demonstrate the ability to provide a liaison to the corporate emergency response public information center and/or the state EOC if requested.

#### 1.2.6 Public Information

- a. Demonstrate the ability to staff the Corporate Emergency Response Public Information Center (CERPIC) within one (1) hour of notification of the classification.
- b. Demonstrate the ability to brief the media in a clear, accurate, and timely manner.
- c. Demonstrate the ability to staff the JPIC with site personnel within one hour of the Site Emergency classification or direction to activate by competent authority, and activate within two hours with corporate personnel in accordance with the EPIPs. (Limitation: WE JPIC personnel will be pre-staged.)
- d. Demonstrate the ability to establish and effectively operate a utility rumor control program at the JPIC.
- e. Demonstrate the ability to coordinate and share information among federal, state, county, and utility spokespersons.



### 1.2.7 Reentry and Recovery

- a. Demonstrate the ability for staff to provide technical support for planning and recovery/reentry operations.
- b. Demonstrate the ability to analyze conditions for entering the recovery mode.
- c. Demonstrate the ability to utilize the appropriate recovery/reentry procedures to allow reentry and recovery of an evacuated area.
- d. Demonstrate the ability to perform core damage assessment when necessary.

### 1.2.8 Offsite Agency Coordination

- a. Demonstrate the ability to augment the staff to provide management level interface with government authorities.
- b. Demonstrate the ability to support federal, state, and county agencies with ingestion pathway activities.

## 1.3 Offsite Objectives

There will be full offsite (state and local) participation for the 1992 PBNP evaluated exercise. Federal participation is voluntary, consequently, there are no federal objectives.

The objectives for the state of Wisconsin, Kewaunee County, Manitowoc County, and the ingestion counties are included in the state objectives letter sent to the Federal Emergency Management Agency (FEMA). A copy of that letter follows.

POINT BEACH NUCLEAR PLANT  
1992 INGESTION PATHWAY EXERCISE

4.1 Initial Conditions

Unit 1

1. Unit 1 is operating at full power; the unit has been operating continuously since returning from its refueling outage last May.
2. Charging pump 1P-2A is out of service for Vari-Drive repairs.
3. In-Service Inspection (ISI) work on the Refueling Water Storage Tank (RWST) line penetration area continues. *[Unknown to participants: the facade heat tracing fails overnight; cold outside air continues to be sucked into the Auxiliary building due to poor thermal protection. As a result, the RWST water is frozen at that point in the pipe; flow is blocked].*
4. Outer containment purge supply valve 1VNPSE-3244 cleaning is underway. The removable inspection port on the intake line is off and the valve is blocked open. This action puts the unit into a ~~24~~<sup>18</sup>-hour Limiting Condition for Operation (LCO).
5. Travelling screen 1Z 27-2 is out of service for lower shaft replacement. The stop logs are in place. The mechanism has been out for repairs since Dec. 19.
6. Fuel oil transfer pump P70A developed a small gasket leak and was removed from service at 0637. A Maintenance Work Request (MWR) will be written and entered into CHAMPS this morning.
7. Containment Recirculation Fan 1W-1A1 was declared out of service at 0413 due to a failed overload calibration surveillance. A ~~24~~<sup>18</sup>-hour LCO is in effect. Containment Cooling Fan 1W-1A2, which shares a cubicle with 1W-1A1, was also tagged out of service.
8. All other unit conditions and systems are normal.

(Continued)

POINT BEACH NUCLEAR PLANT  
1992 INGESTION PATHWAY EXERCISE

Initial Conditions (Continued)

Unit 2

1. Unit 2 is in Hot Shutdown. The unit had just returned from a refuelling outage. During startup, a packing gland steam leak on the bonnet of steam line non-return valve developed, causing the unit to remain in hot shutdown.
2. Both reactor coolant pumps are running; operators are still blowing down the steam generators.
3. Repairs on several security doors will continue today.
4. Technical Services will be doing Ultrasonic Testing (UT) inspections of spent fuel assemblies today.
5. All other unit conditions and systems are normal.

Common:

1. Fuel handling will be done today in preparation for discharge fuel Ultrasonic Testing (UT) inspections.
2. The area is in its third straight day of 15°F weather; lake temperature is 33°F. Full Unit 1 ice melt mode is in operation.
3. Plans for a summer "Safety Celebration" to recognize individuals and departments are underway. An organizational meeting is scheduled for today at 1400 in the Front Office Conference Room.
4. Refueling water circulating pump P33 is out of service for suction line modification. Valve 804A is out of service for diaphragm replacement.

POINT BEACH NUCLEAR PLANT  
1992 INGESTION PATHWAY EXERCISE

4.2 Sequence of Events Summary

Approximate Time	Day 1 Key Event
0700	Commence Exercise; initial conditions are established
0744	While handling fuel in the Spent Fuel Pool, operators accidentally drop a recently discharged fuel bundle; a minor release of radiation occurs. Operators should implement RMSASRB CI RE-105 and AOP-8C. A limited plant evacuation of the Primary Auxiliary Building may be initiated.
0800	An ALERT should be declared in accordance with EPIP 1.2, Category 11 "Fuel Handling Accident." The TSC and OSC should be directed to be activated. Offsite radiation monitoring teams should be dispatched.
0900	Auxiliary Building radiation levels are at background.
0955	The internal linkage on Unit 1 charging system butterfly valve CV-268 fails, causing the valve to close. Several Control Room alarms indicate no charging flow. Operators may secure B and C charging pumps and send Auxiliary Operators to investigate. Operators may begin a power reduction.
1020	A cold leg Loss of Coolant Accident occurs when the cover of Accumulator 1-T34B check valve 1-867B blows off.
1020+	The reactor trips. Steam driven auxiliary feedwater pump 1P-29 fails when it trips on overspeed. Electrical auxiliary feedwater pumps operate properly.
1021	Reactor vessel pressure decreases as reactor coolant is released into the containment. Accumulator 1-T34A does not inject into the reactor vessel because check valve 1-867A sticks closed. At 1735 psig pressurizer pressure, Safety Injection (SI) pumps start and inject the contents of the Boric Acid Storage Tank into the Reactor Coolant System (RCS).
	Containment temperature, pressure and radiation levels begin to increase.

Approximate  
Time

Day 1 Key Event

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- 1021+      Containment Accident Recirculation Fan 1W-1C1 trips due to a misadjusted overcurrent trip device.
- 1023      When Safety Injection (SI) automatically switches to suction from the Boric Acid Storage Tank to the RWST, both SI pump breakers trip on overcurrent because the pumps seize for lack of water due to the frozen RWST line.
- 1025      Containment pressure is approximately 30 psig; containment radiation levels are about 10,000 R/hr and core exit thermocouples are reading over 1800°F.
- 1030      A release to the environment from the Unit 1 containment is initiated when the inner containment purge valve 1VNPSE-3245 opens. The plume heads south east, over the lake
- A GENERAL EMERGENCY should be declared per EPIP 1.2, Category 1 "Abnormal Primary Leak Rate" or Category 3 "Core Fuel Damage." A plant evacuation will be initiated.
- 1031      If not secured, containment spray pump A seizes due to lack of suction flow.
- 1036      If not secured, containment spray pump B seizes due to lack of suction flow.
- 1100      Containment pressure decreases below 14.7 psia (i.e., a vacuum develops in the containment); the inner containment purge valve closes; the release to the environment is terminated. Note: Containment pressure becomes negative due to the condensation of steam.
- 1130 to  
1600      Participant options to restore cooling water to core include:
- repairing charging pump butterfly valve CV-268 to restore charging flow;
  - establishing flow from the RWST via manual valve CV-358 through the charging system;
  - establishing flow via the reactor make-up water system or the emergency boration system;
  - repairing charging pump A;
  - tracking down the frozen RWST line and re-establishing SI or RHR flow.
- Operators may establish core cooling via containment sump recirculation.
- 1235      A failure of the security computer occurs.

Approximate  
Time

Day 1 Key Event

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- 1310 Lakeshore Technical College reports to Manitowoc County that it is detecting radiation. Due to changing meteorological conditions, the plume direction shifted and heads to Sheboygan County.
- 1330 Meteorological conditions cause rain out of the plume remnants in Sheboygan County.
- 1435 Liquid nitrogen leaks from a storage tank located in the TSC chemistry lab. This causes an evacuation of the Technical Support Center and the Operations Support Center.
- 1510 The nitrogen clears and technicians evaluate ambient TSC and OSC conditions. The TSC and OSC may be re-inhabited.
- 1600 Exercise Day 1 may be terminated.