

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

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Report No.: EC 285/97-04
Licensee: Omaha Public Power District
Facility: Fort Calhoun Station
Location: Fort Calhoun Station FC-2-4 Adm.
P.O. Box 399, Hwy. 75 - North of Fort Calhoun
Fort Calhoun, Nebraska
Dates: June 2-6, 1997
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ATTACHMENT: Supplemental Information

EXECUTIVE SUMMARY

Fort Calhoun Station
NRC Inspection Report 50-285/97-04

A routine, announced inspection of the licensee's performance and capabilities during the full-scale, biennial exercise of the emergency plan and implementing procedures was performed. The inspection team observed activities in the control room simulator, technical support center, operations support center, and emergency operations facility.

Plant Support

- Overall, the control room staff's performance was good. Scenario emergency events were properly analyzed and classified. Notifications to offsite agencies were timely and accurate. Areas for improvement were identified related to internal and external communications (Section P4.2).
- Overall, the technical support center performance was satisfactory. Activation was timely and efficiently performed. Technical analyses were satisfactory and were well coordinated with the engineering group. Briefings and log-keeping were effective, however, announcements could have been more timely. Habitability, accountability and access control were effectively implemented (Section P4.3).
- Overall, the performance of the operations support center staff was generally good. The operations support center was activated in a timely manner. Teams were dispatched promptly and generally able to perform assigned tasks, however, several areas for improvement were identified related to documentation and briefings. An exercise weakness was identified related to the failure to demonstrate the ability to staff emergency response facilities on a prolonged basis. An exercise weakness was identified related to protective measures (potassium iodide) for onsite personnel (Section P4.4).
- Overall, the performance of the emergency operations facility staff was good. Emergency classifications, state and local notifications, and protective action recommendations were correct and timely. Briefings were frequent and included input from operations, protective measures, and state representatives. Field teams were effectively used to locate the plume and measure offsite consequences. Information control in the emergency operations facility was not always effective. Erroneous information concerning event classification times and radiological release start time was released offsite, and an incorrect protective action recommendation was reviewed and approved. Notifications to the NRC were not properly

documented. An unresolved item was identified related to signatures on notification forms (Section P4.5).

- The inspectors determined that the scenario was sufficiently challenging to test emergency response capabilities and demonstrate onsite exercise objectives. Areas for improvement were identified related to controller/evaluator actions. An exercise strength was identified for use of a mockup in the simulator (Section P4.6).
- Overall, the licensee's self-critique process effectively identified areas for corrective action. The management critique was comprehensive (Section P4.7).

Report Details

IV. Plant Support

P4 Staff Knowledge and Performance in Emergency Preparedness

P4.1 Exercise Conduct and Scenario Description (82302)

The licensee conducted a full-scale, biennial exercise on June 3, 1997. The exercise was conducted to test major portions of the onsite (licensee) and offsite emergency response capabilities. The licensee activated its emergency response organization and all emergency response facilities.

The Federal Emergency Management Agency evaluated the offsite response capabilities of the State of Iowa; State of Nebraska; Harrison County, Iowa; Pottawattamie County, Iowa; and Washington County, Nebraska. The Federal Emergency Management Agency will issue a separate report.

The exercise scenario was run using the control room simulator in a dynamic mode. At the start of the scenario, the plant was operating at 100 percent rated thermal power and Diesel Generator 1 was out of service for maintenance. At 7:30 a.m., security reported a hostage situation in Diesel Generator Room 2. An alert was declared at 7:43 a.m. as a result of a confirmed hostage situation in a vital area.

Subsequent simulated events were as follows:

- A technician working in the area of the safety injection/refueling water tank suffered a head injury. Upon discovery of the injured technician, the licensee's medical team responded.
- Prior to surrendering to security officers on the scene, the hostage taker had used a club and damaged the cooling water system on Diesel Generator 2.
- A large break loss-of-coolant accident occurred when one of the cold legs ruptured, causing a rapid depressurization of the reactor coolant system.
- A safety injection refueling water tank level switch drifted high, causing an inadvertent recirculation actuation signal. This stopped safety injection flow to the core and subsequently caused core uncover and core damage.
- When a recirculation actuation signal occurred, two valves failed to close. This caused water from the containment floor to back into the safety injection/refueling water tank. Area radiation monitors in the vicinity of the safety injection/refueling water tank alarmed due to radioactive gases coming out of the tank vents. This resulted in a release to the auxiliary building that was subsequently released to the environment via the plant stack.

- One of the valves reseated, terminating the flow of water from containment to the safety injection/refueling water tank.

The plume phase of the exercise was secured at approximately 1:30 p.m. The licensee continued providing data to the offsite agencies to support the ingestion pathway portion of the exercise.

The inspectors attended the Federal Emergency Management Agency public meeting held on June 6, 1997. A summary of the NRC inspection findings were presented.

P4.2 Simulator/Control Room

a. Inspection Scope (82301-02.02)

The inspectors observed the control room simulator staff as they performed tasks in response to the exercise scenario conditions. These tasks included event detection and classification, analysis of plant conditions, offsite agency notifications, and adherence to the emergency plan and implementing procedures. The inspectors reviewed applicable emergency plan implementing procedures, logs, checklists, and notification forms generated during the exercise.

b. Observations and Findings

The control room operators correctly diagnosed and classified events through the use of control room annunciators, alarms, and instrumentation. Operators promptly diagnosed the alert condition based upon a hostage situation in a vital area.

During the exercise, the control room staff responded to numerous events including an unisolable reactor coolant system leak from containment back to the safety injection refueling water tank in the auxiliary building. The shift supervisor properly implemented actions outside established procedures to secure one train of emergency core cooling thereby reducing the amount of radiological release to the environment. Notification of offsite authorities was accomplished within the prescribed time requirements.

Although communications were generally good, some internal and external control room communications had the potential to diminish the response effort. The inspectors observed the following as areas for improvement:

- Three-part communications were good during significant evolutions, but were sometimes lax during other periods. Three-part communications involve information communication by the provider, information restatement by receiver, and information conformation by provider.

- The shift technical advisor was limited in providing input to the operating crew concerning operational activities. This appeared to be a result of the shift technical advisor being assigned the responsibility for providing information on the emergency notification system network telephone connection.
- When the decision was made to evacuate the plant protected area, the control room shift supervisor did not consult with the security shift supervisor. This could have jeopardized the safety of personnel depending on the nature of a security event.

c. Conclusions

Overall, the control room staff's performance was good. Scenario emergency events were properly analyzed and classified. Notifications to offsite agencies were timely and accurate. Areas for improvement were identified related to internal and external communications.

P4.3 Technical Support Center

a. Inspection Scope (82301-02.03)

The inspectors observed the technical support center staff as they performed tasks necessary to respond to the exercise scenario conditions. These tasks included staffing and activation, accident assessment and event classification, offsite agency notifications, personnel accountability, facility management and control, onsite protective action decisions and implementation, internal and external communications, assistance and support to the control room, and prioritization of mitigating actions. The inspectors reviewed applicable emergency plan implementing procedures, logs, checklists, and notification forms generated during the exercise.

b. Observations and Findings

The technical support center was activated in a coordinated and efficient manner approximately 20 minutes after the alert declaration. Communications were promptly established with the required onsite and offsite locations. The technical support center assumed the command and control responsibilities within 16 minutes after activation. Command and control responsibility was subsequently turned over to the emergency operations facility within 10 minutes after the technical support center assumed command and control from the control room.

In general, the technical support center director effectively communicated with the other technical support center participants and maintained good command and control of the center. Staff briefings were routinely conducted with technical support center personnel via announcements, however, several announcements of key events were given after-the-fact. The inspectors observed the following examples:

- A 30-minute time delay between report of an injured worker and the technical support center being briefed.
- A 20-minute time delay between the site area emergency, due to reactor coolant system leakage greater than 40 gallons per minute, and the technical support center being briefed of a large break loss of coolant accident.

The technical support center director also conducted effective periodic face-to-face briefings with key lead positions. These briefings discussed current priorities and allowed feedback between the different groups to capture any additional issues of concern.

The electronic priority board was effectively used. However, on two occasions the priority board was updated, but the time of the update was not changed. This led to some confusion in the technical support center and at other locations.

Technical support center habitability was effectively maintained. During activation, eating, drinking and smoking were secured until habitability was verified. Habitability was verified within 15 minutes. The technical support center director permitted eating and drinking at this time. When reactor coolant leakage increased above 40 gallons per minute, eating drinking and smoking were again secured until habitability was confirmed. Habitability was reverified and habitability checks were conducted every 15 minutes thereafter.

Personnel accountability and access control were effectively maintained. The accountability clerk's desk and log sheets were stationed at the entrance to the technical support center. The back door to the technical support center was secured and posted. Personnel were instructed to contact the accountability clerk when they arrived at their destination. On several occasions the accountability clerk had to call and confirm that the individual had arrived at the destination. These actions were performed in a timely manner.

The reactor safety coordinator demonstrated good performance in questioning plant status and anticipating potential failures. The inspectors observed the following examples:

- Recommended that Diesel Generator 2 be considered inoperable due to the hostage situation.

- Recommended steps to be taken to reset the recirculation actuation signal and possible problems if the signal failed to reset.
- Assisted with the evaluation of the source of radioactivity in the auxiliary building.

c. Conclusions

Overall, the technical support center performance was satisfactory. Activation was timely and efficiently performed. Technical analyses were satisfactory and were well coordinated with the engineering group. Briefings and log-keeping were effective, however, announcements could have been more timely. Habitability, accountability and access control were effectively implemented.

P4.4 Operations Support Center

a. Inspection Scope (82301-02.05)

The inspectors observed the operations support center staff as they performed tasks in response to the scenario conditions. These tasks included functional staffing and inplant emergency response team dispatch and coordination in support of control room and technical support center requests. The inspectors reviewed applicable emergency plan implementing procedures, logs, checklists, and forms generated during the exercise.

b. Observations and Findings

The operations support center was activated in a timely manner, however, the ability to adequately staff the operations support center and augment its response on a continuing basis was not fully demonstrated.

Procedure EPIP-RR-21, "Operations Support Center Director Actions," Revision 7, Attachment 6.1, Step 7 states, "Prepare a 24-hour work schedule for the following positions and provide a copy to the Technical Support Center Administrative Logistics Coordinator." A 24-hour work schedule, consisting of two, 12-hour shifts, for the operations support center was prepared, however, this work schedule was not implemented. As a result:

- Multiple personnel were used to staff positions in the operations support center.
- Personnel designated to fill relief shift positions were allowed to remain in the facility to support ongoing activities.

- Based on information provided on the emergency response organization roster dated May 12, 1997, some personnel selected to fill positions had not completed the necessary training or were disqualified for medical reasons.
- Based upon training attendance rosters, some positions on the work schedule had people identified to work the backshift, but were present during the exercise with no day-shift participation. As a result, no personnel were present to relieve these individuals so they could be released.

Radiological Emergency Response Plan, Section B.9.3, stated, in part, "The Technical Support Center Administrative Logistics Coordinator duties are to . . . coordinate scheduling and callout of Emergency Response Organization personnel for 24-hour coverage." The work schedule indicated that the shift turnover would occur at 8 p.m.; less than 8 hours after the exercise was terminated. When the exercise was terminated, coordination of schedules to provide for 24-hour coverage had not been performed.

As a result, individuals designated to fill positions beginning at 8 p.m. continued to participate until the exercise was terminated. The inspectors determined that these individuals would have been required to work in excess of 16 hours in a 24-hour period.

Similar observations were made in the emergency operations facility and are discussed in Section P4.5. The inability to demonstrate appropriate staffing of emergency response facilities on a prolonged basis was identified as an exercise weakness (285/9704-01).

Communications within the operations support center were performed using status boards, computers, phones, and radios. Dispatched emergency teams could continuously communicate with the operations support center using the radios and, if needed, the plant's gaitronics system. No problems were observed by the inspectors concerning the operations support center's ability to effectively communicate.

The operations support center director exercised good command and control. Emergency teams were promptly staffed and deployed, plant status was updated frequently, and three-part communications were routinely employed. Plant status and emergency response priorities were frequently announced by the operations support center director to keep personnel informed of current plant conditions. Habitability checks were conducted on a regular basis.

Operations support center director and radiation protection coordinator logs were reviewed. These logs were adequately maintained.

Prior to the exercise, the inspectors were informed that all actions related to the review, authorization, and issuance of potassium iodide would be performed up to

the point where individuals would be issued potassium iodide. This was to include briefing the worker on the potential side effects and benefits of taking potassium iodide, and completing acknowledgement forms. These activities were not performed during the exercise.

After the authorization to issue potassium iodide, the inspectors made the following observations:

- An entry in the radiation protection coordinator log, made at 11:30 a.m., stated, "Issuance of KI (potassium iodide) is authorized but will not issue at this time based on satisfactory habitability." No announcement was made to the operations support center personnel explaining that potassium iodide was authorized for use.
- The operations support center accountability roster indicated that several employees left the operations support center following the 11:30 log entry made by the radiation protection coordinator concerning issuance of potassium iodide.
- The inspectors reviewed briefing forms for teams dispatched from the operations support center after potassium iodide use was authorized. In instances where there was no documentation to support that teams had been briefed on the use of potassium iodide, inspectors interviewed team members. The interviewed team members confirmed that the use of potassium iodide was discussed as part of the briefing. Therefore, the inspectors did not identify instances where teams dispatched from the operations support center were not properly briefed regarding the use of potassium iodide.
- The accountability process for personnel leaving the operations support center was complicated due to the accountability rosters being located on clipboards on the wall some distance from the accountability clerk's location. Furthermore, tracking of teams was performed as a separate function inside the operations support center. The only method used to document briefings was the team briefing form.

Inspectors observed that some of the people that left the operations support center did not appear to be part of a team. After the use of potassium iodide was authorized, the inspectors did not observe any briefings or find documentation of briefings for individuals who were not members of teams who left the operations support center regarding the use of potassium iodide.

The inspectors determined that there was a potential for individuals to leave the operations support center without being briefed regarding the authorization to use potassium iodide. Since the use of potassium iodide was an authorized onsite

protective measure that was not communicated to all affected personnel, the issue was identified as an exercise weakness (50-285/9704-02).

As a potential contributing factor, the inspectors identified an inconsistency between procedures and the emergency plan regarding the authority to issue potassium iodide. Procedure EPIP-EOF-21, "Potassium Iodide Issuance," Revision 2, stated that the authority to permit the use of potassium iodide was the responsibility of the command and control position. This procedure further stated that this responsibility was non-delegable. Section B.6.2 of the Radiological Emergency Response Plan and Procedure EPIP-OSC-2, "Command and Control Position Actions/Notifications," Revision 32, did not identify this as a non-delegable responsibility.

Radiological emergency team briefing checklists were used to ensure items, such as, task description, radiological conditions, radiological controls, protective equipment, special tools and equipment, and travel route were addressed during the team briefing. However, the documentation contained on the checklists was not always complete. The inspectors identified the following examples:

- One emergency team briefing form contained no special instructions or travel route for a team entering areas with maximum dose rates of 396 Rem/hr. A member of the team interviewed after the exercise stated that the travel route was discussed in the team brief even though it was not documented.
- Two emergency team briefing forms contained no indication of briefings required to be conducted prior to dispatch from the operations support center.
- One emergency team briefing form contained no protective equipment recommendations for a team dispatched to conduct a perimeter survey while a radiological release was in progress.

c. Conclusions

The operations support center was activated in a timely manner; however, an exercise weakness was identified related to the failure to demonstrate the ability to staff the facility on a prolonged basis. Teams were dispatched promptly and were generally able to perform assigned tasks, however, several areas for improvement were identified related to documentation and briefings. An exercise weakness related to providing consistent protective measures (potassium iodide) for onsite personnel was identified.

P4.5 Emergency Operations Facility

a. Inspection Scope (82301-03.04)

The inspectors observed the emergency operations facility's staff as they performed tasks in response to the exercise. These tasks included facility activation, recognition and classification of emergency events, notification of state and local response agencies, development and issuance of protective action recommendations, dose assessment and coordination of field monitoring teams, and direct interactions with offsite agency response teams. The inspectors reviewed applicable emergency plan implementing procedures, logs, checklists, forms, and dose projections generated during the exercise.

b. Observations and Findings

The emergency operations facility was promptly activated following the 7:43 a.m. alert declaration. The administration and logistics manager, who was the first responder, arrived at 8:13 a.m. Upon arrival, the individual readied the facility for operation. The facility was declared activated at 8:35 a.m., and the emergency director assumed command and control responsibilities at 8:40 a.m.

Several positions in the emergency operations facility were double staffed, making it difficult to determine whether a single individual could complete required duties. For example:

- The following positions were double staffed: emergency director, dose assessment coordinator, dose assessment specialist, and field team specialist.
- Additional dose assessment personnel were requested to stay before there were radiological conditions that would warrant dose assessment/field team activities.
- The second dose assessment coordinator was shown as the second shift relief on the 24-hour shift roster. This would have meant the individual would have worked a 17.5-hour shift.
- An assistant emergency director was staffed, but not identified in the emergency plan or procedures. It appeared to be common practice since a badge has been prepared for this position. The assistant emergency director provided critical support to the emergency director, including assumption of the responsibilities to notify the NRC (a task that would have been completed by the emergency response coordinator).

The above observations were similar to those identified in the operations support center related to facility staffing. These observations were considered as additional examples of the exercise weakness discussed in Section P4.4.

Due to the rapid transfer of command and control responsibilities, the emergency operations facility was tasked with detection and classification of the site area and general emergencies. Facility personnel were in the process of downgrading the alert when major reactor coolant system leakage and a reactor trip occurred. The emergency director promptly and correctly declared the site area emergency at 9:37 a.m., based on Emergency Action Level 1.11.

Due to deteriorating plant conditions (core melt sequence), the emergency coordinator, after consultation with the site director in the technical support center, correctly declared a general emergency at 10:15 a.m., based on Emergency Action Level 11.8. Good teamwork was displayed during emergency classifications, both within the emergency operations facility and between the emergency operations facility and technical support center.

The emergency director demonstrated effective command and control techniques. Briefings were frequent and included input from operations, protective measures, and state representatives. Although facility personnel occasionally used three-part communications to ensure that verbally transferred information was accurately received, information control was not always effective in the emergency operations facility. Inspectors observed the following examples:

- There was some confusion regarding the alert classification time (7:54 a.m. versus 7:43 a.m.). As a result, the wrong time was posted on the status board and included in News Media Update 0603-01. The emergency response coordinator noticed the error at 8:49 a.m., but did not immediately inform the emergency director. Questions concerning the time were not raised until 9:10 a.m. (21 minutes later).
- News Media Update 0603-03 contained an incorrect time for the site area emergency declaration (9:54 a.m. versus 9:37 a.m.). The emergency director approved the update prior to its release.
- Conflicting information was provided to the states. An incorrect release start time (8:46 a.m.) was used by dose assessment personnel and communicated to the state representatives who were stationed at the emergency operations facility. Design leakage did not start until about 9:30 a.m. The incorrect time appeared to come from Plume Segment 1, which showed a "calculation time" of 8:46 a.m. The followup notification report, issued at 8:52 a.m., indicated there was no release of radioactive materials.

- Plume Segment 7 contained several important errors, but was reviewed and approved by both the protective measures manager and emergency director. The errors included: (1) reversed protective action recommendations [0-5 mile radius switched with affected sectors 5-10 miles (reverse keyhole)], and (2) Sector E was omitted as an affected sector. This issue was not identified as an exercise weakness because both errors were caught and corrected prior to release.

Offsite agency notifications were completed within required time limits. The inspectors observed that notifications to NRC were not documented in accordance with Step 8.a of Attachment 6.3 to EPIP-OSC-2, "Command and Control Position Actions/Notifications," Revision 32. Step 8.a instructed the user to complete Appendix B of SO-R-11, "Notification of Significant Events," and Appendix C, if time permits. Emergency operations facility personnel made NRC notifications during the exercise, since they had command and control responsibilities, but did not complete the forms.

In response, involved emergency operations facility personnel stated that the forms may have been completed by the control room since it remained on the telephone during the exercise. Upon further investigation, it was determined that the control room had not completed the forms. As a contributing factor, the inspectors noted that the assistant emergency director was tasked to complete the NRC notifications instead of the assigned individual (emergency response coordinator), indicating the potential for training considerations.

With the exception of the protective action recommendation and release start time errors discussed above, dose assessment and field team control activities were good. Numerous dose projections were calculated to determine the offsite impact of the radiological release. Field teams were effectively used to confirm plume location. During the post-exercise critique, state representatives indicated that meteorological information was not shared with the states. This matter will be addressed by the Federal Emergency Management Agency.

During the exercise, the inspectors observed that one of the notification forms did not have an authorization signature, but the notification to offsite agencies had been made. When the forms were reviewed after the exercise, all of the forms had been signed. Upon closer review of the signatures, the inspectors noted that one of the signatures for the emergency director was significantly different from the others. This signature was on the form the inspectors originally observed as being unsigned. When presented with the questionable signature, the emergency director stated that it was not his signature. This issue is being identified as an unresolved item pending further NRC followup (50-285/9704-03).

c. Conclusions

Overall, the performance of the emergency operations facility staff was good. Emergency classifications, state and local notifications, and protective action recommendations were correct and timely. Briefings were frequent and included input from operations, protective measures, and state representatives. Information control was not always effective. Erroneous information concerning event classification times and radiological release start time was released offsite and an incorrect protective action recommendation was reviewed and approved. Notifications to NRC were not properly documented. An unresolved item was identified related to signatures on notification forms. Field teams were effectively used to locate the plume and measure offsite consequences.

P4.6 Scenario and Exercise Control

a. Inspection Scope (82301-03)

The inspectors evaluated the exercise to assess the challenge and realism of the scenario and exercise control.

b. Observations and Findings

The use of a mockup to demonstrate defeating of the safety injection refueling water tank low signal was realistic and effective. The process involved opening the back panel of the control board and cutting wires. The licensee had installed a mockup inside the back panel of the simulator to allow this action to be demonstrated. The process of adding a mockup to the simulator for this function was considered to be unusual and provided a good training opportunity for the operations staff.

The following actions/problems detracted from the realism and training value of the exercise and were considered areas for improvement:

- One simulator fidelity problem was observed. Following proper operator actions to restore emergency core cooling flow, the cooling pumps tripped off and would not reset. The repeated tripping of the pumps confused the control room operators. The simulator had to be backtracked and exercise activities were suspended for approximately 20 minutes. After backtracking the simulator, emergency core cooling flow was established as expected and the exercise continued.
- The site director told the lead controller he was going to simulate the announcement that potassium iodide was authorized on a volunteer basis. This simulation did not exercise the licensee's ability to perform procedures and practice the potassium iodide issuance process. The inspectors

considered this simulation to be a contributing factor for the exercise weakness related to potassium iodide identified in Section P4.4.

- The technical support center engineers were unable to create data trends/graphs from the emergency response facility computer system terminal. The connection to the simulator did not support this function.
- A controller accompanying a team into the plant was not prepared to give accurate radiological conditions to a radiation protection technician. The controller did not have the exercise data and told the technician his radiation meter was pegged high. When this information was passed to the operations support center, the lead controller told the technician that the meter had failed and all readings taken should be disregarded.

During the exercise, inspectors observed numerous inappropriate interactions between controllers/evaluators and participants at the emergency operations facility. For example:

- The lead evaluator asked the emergency director if the media release center had been informed of the site area and general emergency declarations (two separate occasions). The question prompted the emergency director to call the center following the general emergency declaration.
- The lead evaluator asked several participants to determine if a request for the emergency operations facility to provide support for the hostage situation had been followed up on.
- The lead evaluator asked participants about how potassium iodide authorization was documented.
- The lead evaluator discussed the basis of the general emergency declaration with participants (after the declaration).
- The administration logistics/security evaluator asked the emergency response coordinator if certain actions had been completed.
- The protective measures evaluator discussed dose assessment and field team activities with participants.

Inspectors noted that controller/evaluator guidelines contained in the scenario package stated that controllers must not interfere with the flow of events, but that they could ask questions to clarify their understanding of actions taken. The latter was not considered to be a good practice since evaluators could inadvertently prompt participant actions by asking certain questions.

c. Conclusions

The inspectors determined that the scenario was sufficiently challenging to test emergency response capabilities and demonstrate onsite exercise objectives. Areas for improvement were identified related to controller/evaluator actions. An exercise strength was identified related to the use of a mockup in the simulator.

P4.7 Licensee Self Critique

a. Inspection Scope (82301-03.13)

The inspectors observed and evaluated the licensee's post-exercise facility critiques and the formal management critique on June 5, 1997, to determine whether the process would identify and characterize weak or deficient areas in need of corrective action.

b. Observations and Findings

The inspectors determined that the post-exercise critiques were generally thorough, open, and self-critical with input from participants, controllers, and evaluators. During the management critique, the emergency preparedness manager presented a compilation of comments from participants, controllers, and evaluators. The licensee's team identified several strengths and areas for improvement. The issues identified by the licensee's team were generally consistent with those identified by the NRC inspection team.

c. Conclusions

Overall, the licensee's self-critique process effectively identified areas for corrective action. The management critique was comprehensive.

P8 Miscellaneous Emergency Preparedness Issues (92904)

P3.1 (Closed) Inspection Followup Item 50-285/95015-01: Exercise weakness for failure of the reactor engineer to perform core uncover predications.

The inspectors observed the reactor engineer perform Section 5.4, "Estimation of Core Damage Using Containment Radiation Dose Rates," of procedure EPIP-TSC-8, "Core Damage Assessment." The reactor engineer correctly predicted the extent of core damage at that time. When asked to provide an estimate of the percent of cladding damage, the reactor engineer was unable to give an estimate because an isotopic analysis was not available. The decision was made to not draw a post accident sample due to severity of the loss-of-coolant accident and the existing indications of core damage.

The reactor engineer attempted to use another section of the procedure that utilized core exit thermocouples. However, this section of the procedure was designed to be used during a slow core uncover. The resulting estimate of the percentage of cladding damage was conservative.

The severity of the exercise accident, an instantaneous loss-of-coolant accident, precluded the reactor engineer from performing a core uncover prediction. However, a controller provided necessary information to the reactor engineer which allowed a demonstration of the ability to perform this type of calculation. The reactor engineer's prediction of the time to core uncover, based on the available data supplied by the controller, matched the prediction performed by the controller prior to the exercise.

The reactor engineer demonstrated proficiency in the use of the core damage assessment procedure and his ability to perform core uncover predictions. Therefore, this weakness was closed by the inspectors.

P8.2 (Closed) Inspection Followup Item 50-285/95015-02: Exercise weakness related to the degree of simulation of in-plant response team activities.

During the exercise, the inspectors observed proper donning and removal of protective clothing, and self-contained breathing apparatuses by various teams. The amount of simulation observed by the inspectors during the exercise was sufficient to permit the evaluation of in-plant response team activities. Since the level of simulation was significantly reduced, this weakness was closed by the inspectors.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on June 5, 1997. The licensee acknowledged the findings presented. No proprietary information was identified.

On June 24, 1997, the NRC decided to characterize the issue involving the signatures on the notification forms in the emergency operations facility as an unresolved item discussed in Section P4.5. This item was not discussed during the June 5, 1997 exit meeting. The licensee was contacted via telephone on June 25, 1997, and informed of this decision.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Andrews, Division Manager - Nuclear Assessments
J. Chase, Manager - Fort Calhoun Station
M. Christensen, Senior Emergency Planning Representative
O. Clayton, Manager - Emergency Planning
S. Gambhir, Division Manager - Engineering & Operations Support
S. Gebers, Manager - Radiation Protection
R. Short, Manager - Operations
J. Tills, Manager - Licensing

NRC

V. Gaddy, Resident Inspector

INSPECTION PROCEDURES USED

82301 Evaluation of Exercises for Power Reactors
82302 Review of Exercise Objectives and Scenarios for Power Reactors
92904 Followup - Plant Support

ITEMS OPENED AND CLOSED

Opened

50-285/9704-01	IFI	Exercise weakness related to the failure to demonstrate the ability to properly staff emergency response facilities (Sections P4.4 and P4.5).
50-285/9704-02	IFI	Exercise weakness related to the failure to adequately demonstrate implementation of onsite protective measures (issuance of potassium iodide) (Section P4.4).
50-285/9704-03	UI	Unresolved item related to signatures on notification forms (Section P4.5).

Closed

50-285/9515-01	IFI	Exercise weakness related to core uncover calculation training in the technical support center (Section P8.1).
50-285/9515-02	IFI	Exercise weakness related to over-simulation of inplant response team activities (Section P8.2).

DOCUMENTS REVIEWED

Emergency Plan Implementing Procedures

EPIP-OSC-1	Emergency Classification	Revision 27
EPIP-OSC-2	Command and Control Position Action/Notifications	Revision 32
EPIP-OSC-9	Emergency Team Briefings	Revision 6
EPIP-OSC-15	Communicator Actions	Revision 17
EPIP-OSC-21	Activation of the Operations Support Center	Revision 7
EPIP-TSC-1	Activation Of The Technical Support Center	Revision 19
EPIP-TSC-8	Core Damage Assessment	Revision 11
EPIP-EOF-1	Activation of the Emergency Operations Facility	Revision 10
EPIP-EOF-6	Dose Assessment	Revision 27
EPIP-EOF-7	Protective Action Guides	Revision 12
EPIP-EOF-11	Dosimetry Records, Exposure Extensions and Habitability	Revision 17
EPIP-EOF-21	Potassium Iodide Issuance	Revision 2
EPIP-RR-11	Technical Support center Director Actions	Revision 13

EPIP-RR-13	Reactor Safety Coordinator Actions	Revision 13
EPIP-RR-17	TSC Security Coordinator Actions	Revision 12
EPIP-RR-21	Operations Support Center Director Actions	Revision 10
EPIP-RR-23	Chemistry Liaison Actions	Revision 0
EPIP-RR-25	TSC/EOF Dose Assessment Coordinator Actions	Revision 17
EPIP-RR-28	OSC Accountability and Dosimetry Technician Actions	Revision 7

Other Documents

Fort Calhoun Station Radiological Emergency Response Plan