UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

November 7, 2005

Randall K. Edington, Vice
President-Nuclear and CNO
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000298/2005004

Dear Mr. Edington:

On September 23, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Cooper Nuclear Station. The enclosed integrated inspection report documents the inspection findings which were discussed on October 7, 2005, with Mr. S. Minahan, General Manager of Plant Operations, and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the NRC identified two findings which were evaluated under the risk significance determination process as having very low safety significance (Green). The NRC also determined that there were violations associated with these findings. However, because these violations were of very low safety significance and the issues were entered into the licensee's corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC's Enforcement Policy. These noncited violations are described in the subject inspection report. If you contest the violations or significance of the violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Cooper Nuclear Station facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

Kriss M. Kennedy, Chief
Project Branch C
Division of Reactor Projects

Docket: 50-298
License: DPR-46

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NRC Inspection Report 05000298/2005004
w/attachment: Supplemental Information

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RIV:RI:DRP/C	SRI:DRP/C	C:DRS/EB1	C:DRS/OB	C:DRS/PEB2	C:DRS/PSB	C:DRP/C
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket.:	50-298
License:	DPR-46
Report:	05000298/2005004
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	June 24 through September 23, 2005
Inspectors:	S. Schwind, Senior Resident Inspector S. Cochrum, Resident Inspector B. Tharakan, Health Physicist
Approved By:	K. Kennedy, Branch C, Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000298/2005004; 06/24/05 - 09/23/05; Cooper Nuclear Station. ALARA Planning and Controls.

The report covered a 3-month period of inspection by resident inspectors and region-based inspectors. Two Green noncited violations were identified. The significance of the issues is indicated by their color (Green, White, Yellow, or Red) and was determined by the significance determination process in NRC Inspection Manual Chapter 0609. Findings for which the significance determination process does not apply are indicated by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process,” Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Occupational Radiation Safety

- Green. The inspector identified two examples of a noncited violation of Technical Specification 5.7.1 because the licensee failed to conspicuously post two high radiation areas. On August 24, 2005, the inspector identified that a high radiation area in the lab drain tank room and one in the spent resin tank room on the 877-foot elevation of the radwaste building were not conspicuously posted to alert workers of the radiation hazards and aid them in avoiding or minimizing their exposure. General area dose rates were as high as 300 millirem per hour.

  The failure to conspicuously post high radiation areas is a performance deficiency. The finding was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process and affected the cornerstone objective because it decreased awareness of radiological hazards. The finding involved the potential for unintended or unplanned doses from actions contrary to NRC regulations and was processed through the Occupational Radiation Safety Significance Determination Process. The finding was determined to be of very low safety significance because the finding was not associated with ALARA planning or work controls, there was no overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. The finding was entered into the licensee's corrective action program as CR-CNS-2005-06223 (Section 2OS2).

- Green. The inspector reviewed a self-revealing noncited violation of Technical Specification 5.4.1a involving the licensee's failure to follow procedures while moving an irradiated control rod blade in the spent fuel pool. Specifically, on June 29, 2005, a contract worker lifted a control rod blade to approximately 2 feet from the surface of the water, at which time the worker’s electronic dosimeter alarmed. The licensee failed to monitor radiation levels while lifting the control rod blade as required by their procedures. In addition, the licensee failed to ensure that a mechanical stop was positioned such that the control rod blade remained 6 feet under water. The licensee’s immediate corrective action was to place the control rod blade in a safe condition, exit the spent fuel pool area, and begin an investigation into the incident.

The failure to follow procedures while moving an irradiated control rod blade is a performance deficiency. The finding was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process and affected the cornerstone objective because the failure to follow procedures resulted in increased personnel exposure. The finding involved a worker's unplanned or unintended exposure to radiation from actions contrary to licensee procedures and was processed through the Occupational Radiation Safety Significance Determination Process. The finding was determined to be of very low safety significance because the finding was not associated with ALARA planning or work controls, there was no overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. In addition, this finding has crosscutting aspects associated with human performance because the worker's actions directly contributed to the finding. The finding was entered into the licensee's corrective action program as CR-CNS-2005-04700 (Section 2OS2).

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and the corrective action tracking number are listed in Section 40A7 of this report.

REPORT DETAILS

The plant was operating at full power at the beginning of this inspection period. On September 9, 2005, reactor power was reduced to approximately 70 percent for planned maintenance. Full power operation was resumed on September 12. On September 23, operators manually scrammed the reactor due to lowering main condenser vacuum caused by a failed drain line that allowed air inleakage. The plant remained shutdown for the remainder of this inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

.1 Partial Equipment Alignment Inspections

a. Inspection Scope

The inspectors performed two partial equipment alignment inspections (two inspection samples). The walkdown verified that the critical portions of the selected systems were correctly aligned per the system operating procedures. The following systems were included in the scope of this inspection:

- Residual heat removal (RHR) system Loop A while Loop B was out of service for planned maintenance on July 20. The walkdown included portions of the system in the reactor building and the control room.

- Reactor coolant system (RCS) inside primary containment following work during Forced Outage 05-02. The walkdown included accessible portions of the drywell on September 23. The walkdowns concentrated on environmental qualification of equipment, seismic qualification of equipment, cleanliness, and RCS leakage.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors performed six fire zone walkdowns to determine if the licensee was maintaining those areas in accordance with its fire hazards analysis report (six inspection samples). The walkdowns verified that fire suppression and detection equipment was operable, that transient combustibles and ignition sources were appropriately controlled, and that passive fire protection features were in place and operable as required by the fire hazards analysis report. The following areas were included in the scope of this inspection:

- Fire Zone 10B, Control Room and SAS Corridor

- Fire Zone 14A, Emergency Diesel Generator (EDG) 1 Room
- Fire Zone 14B, EDG 2 Room
- Fire Zone 5B, Reactor Building Elevation 976
- Fire Zone 9B, Cable Expansion Room
- Fire Zone 7A, RHR Service Water Booster Pump and Service Air Compressor Room

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors performed an inspection of the internal flood protection features for the service water booster pump room (one sample). The inspection included a walkdown of flood protection features, a review of procedures, the Updated Final Safety Analysis Report, and selected design criteria documents and design calculations including:

- Cooper Nuclear Station Design Criteria Document 38, "Internal Flooding System," Revision 2
- Calculation NEDC 91-069, “Moderate Energy Line Break Flooding”, dated June 12, 1991

The walkdown verified that flood protection features were in place and operable as required by the flooding analysis for the service water pump room.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

.1 Quarterly Inspection

a. Inspection Scope

On August 3, 2005, the inspectors observed operating crew performance in the plant simulator during an emergency preparedness drill (one inspection sample). The drill scenario included a fire in an EDG, an anticipated transient without scram, and a steam

line break with failure of one main steam isolation valve to close. The drill evaluated operator ability to perform recovery actions and appropriately classify the events using the emergency plan. Observations were focused on the following key attributes of operator performance:

- Crew performance in terms of clarity and formality of communications
- Ability to take timely and appropriate actions
- Prioritizing, interpreting, and verifying alarms
- Correct implementation of procedures, including the alarm response procedures
- Timely control board operation and manipulation, including high-risk operator actions
- Oversight and direction provided by the shift supervisor, including the ability to identify and implement appropriate Technical Specification requirements, reporting, emergency plan actions, and notifications
- Group dynamics involved in crew performance

The inspectors also verified that the simulator response during the training scenario closely modeled expected plant response during an actual event.

b. Findings

No findings of significance were identified.

1R12 Maintenance Implementation

a. Inspection Scope

The inspectors reviewed two equipment performance issues (two inspection samples) to assess the licensee's implementation of their maintenance rule program. The inspectors verified that components which experienced performance problems were properly included in the scope of the licensee's maintenance rule program and that the appropriate performance criteria were established. Maintenance rule implementation was determined to be adequate if it met the requirements outlined in 10 CFR 50.65 and Administrative Procedure 0.27, "Maintenance Rule Program," Revision 15. The inspectors reviewed the following equipment performance problems:

- Failure of RHR Pump D torus suction valve (RHR-MO-13D) on July 17 (CR-CNS-2005-05183)
- Failure of the safety relief valves (SRVs) during Refueling Outage 22 (CR-CNS-2005-03751)

b. Findings

It was determined that the failure of the RHR Pump D torus suction valve would be included in the scope of a special inspection regarding the failure of similar valves. The results of this special inspection will be documented in NRC Inspection Report 05000298/2005014.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

The inspectors reviewed five risk assessments (five inspection samples) for planned or emergent maintenance activities to determine if the licensee met the requirements of 10 CFR 50.65(a)(4) for assessing and managing any increase in risk from these activities. Evaluations for the following maintenance activities were included in the scope of this inspection:

- Risk associated with emergent corrective maintenance on the RHR Pump D torus suction valve (RHR-MO-13D) on July 17 (Work Order 4414657)
- Risk associated with planned maintenance on Service Water Discharge Strainers A and B on July 26 through July 28 (Work Order 4453889)
- Risk associated with emergent corrective maintenance on the Digital Electrohydraulic Pump 1A filters on August 15 (Work Order 4456740)
- Risk associated with planned maintenance on EDG 1 on August 30 (Work Order 4449240)
- Risk associated with planned maintenance on the Emergency Station Service Transformer on September 19 (Work Order 4460612)

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Evolutions

a. Inspection Scope

For the nonroutine event described below (one inspection sample), the inspectors reviewed operator logs, plant computer data, and strip charts to determine what occurred, how the operators responded, and whether the response was in accordance with plant procedures.

b. Findings

Introduction. An unresolved item was identified regarding operator response and the control of the reactor feed pumps (RFP) during scram recovery actions on September 23, 2005.

Description. On September 23, 2005, control room operators observed lowering main condenser vacuum immediately after establishing a main condenser backwash line-up. The backwash line-up was secured and reactor power was reduced to approximately 75 percent; however, vacuum continued to lower below 24 inches, at which point operators manually scrammed the reactor. During the scram recovery actions, RFP A was manually tripped and the master level controller setpoint was reduced to 15 inches in accordance with plant procedures, but RFP B was left in automatic. Following the scram, the level in the reactor vessel lowered to -19 inches on the wide-range level scale followed by an increase in level to 58 inches on the narrow range scale due to swell. The increase in reactor vessel level actuated a Level 8 trip of RFP B, resulting in a loss of feed to the reactor. Operators were able to restart RFP B and restore level control prior to receiving any additional level setpoint trips.

In addition to the actions taken by the operators, General Operating Procedure 2.1.5, Reactor Scram," Revision 52, Attachment 3, required that RFP B be placed in manual and its speed reduced so that the pump discharge pressure was less than or equal to reactor pressure. This action was not completed which contributed to the Level 8 trip of RFP B. This error was similar to errors made during scram recovery actions on May 26, 2003 (NRC Integrated Inspection Report 05000298/2003006), and October 16, 2003 (NRC Integrated Inspection Report 05000298/2003007).

The root cause and contributing factors for this error were still under investigation at the end of the report period. The investigation included an attempt to recreate the scram conditions on the plant simulator; however, when the feed system was placed in an identical configuration, reactor vessel level stabilized at approximately 15 inches rather than increasing to the Level 8 setpoint.

Analysis. The failure to implement scram actions in accordance with plant procedures was a performance deficiency. Further inspection is required as discussed below.

Enforcement. This issue remains unresolved pending completion of the licensee's cause determination for failure to perform scram actions in accordance with plant procedures. This information is needed to determine if corrective actions for similar past occurrences were adequate and to determine the extent, if any, that simulator fidelity and the licensed operator training program contributed to the finding. (Unresolved Item (URI) 05000298/2005004-01, Failure to Perform Scram Actions Results in Level 8 Reactor Feed Pump Trip).

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed three operability determinations (three inspection samples) associated with mitigating system capabilities to verify that the licensee properly justified operability and that the component or system remained available so that no unrecognized increase in risk occurred. These reviews considered the technical adequacy of the licensee's evaluation and verified that the licensee considered other degraded conditions and their impact on compensatory measures for the condition being evaluated. The inspectors referenced the Updated Safety Analysis Report, Technical Specifications, and associated system design criteria documents to determine if operability was justified. The inspectors reviewed the following equipment conditions and associated operability evaluations:

- Standby Liquid Control Pump A insulation removal (Work Order 4433227)
- Zulu sump submergence (CR-CNS-2005-05360)
- Service water discharge strainer debris loading (CR-CNS-2005-05987)

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors reviewed one potential operator workaround item (one inspection sample) to evaluate its affect on mitigating systems and the operators' ability to implement abnormal or emergency procedures. In addition, open operability determinations and selected condition reports were reviewed and operators were interviewed to determine if there were additional degraded or nonconforming conditions that could complicate the operation of plant equipment. The following potential operator workaround was reviewed:

- Increased maintenance requirements for service water discharge strainers due to river debris loading (CR-CNS-2005-05987).

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed a plant modification to change tap settings for the Emergency Station Service Transformer (Work Order 4460612) and capacitor bank settings (Work Order 4460613) for the 69 kv offsite power line (one inspection sample). The inspection included a review of the modification package, the 10 CFR 50.59 screening form, and interviews with the cognizant engineers.

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing

a. Inspection Scope

The inspectors reviewed or observed five selected postmaintenance tests (five inspection samples) to verify that the procedures adequately tested the safety function(s) that were affected by maintenance activities on the associated systems. The inspectors also verified that the acceptance criteria were consistent with information in the applicable licensing basis and design basis documents and that the procedures were properly reviewed and approved. Postmaintenance tests for the following maintenance activities were included in the scope of this inspection:

- Corrective maintenance to repair RHR-MO-13D (Work Order 4414657)
- Planned maintenance to re-terminate reactor water cleanup Pump A switch (Work Order 4350972)
- Corrective maintenance to inspect EDG 1 fuel injector pump drain lines (Work Order 4492240)
- Corrective maintenance to replace the reactor water cleanup Pump A switch (Work Order 4452003)
- Corrective maintenance to replace the digital-electric hydraulic Pump 1A filter (Work Order 4456740))

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The inspectors evaluated the licensee's outage activities associated with Forced Outage 05-02 (one inspection sample) to verify that risk was considered in developing the outage schedule, administrative risk reduction methodologies were implemented to control plant configuration, mitigation strategies were developed for losses of key safety functions, and the operating license and Technical Specification requirements were satisfied to ensure defense-in-depth. Specifically, the following activities were included in the scope of this inspection:

- Control room observations of the reactor shutdown and startup
- Drywell inspection tours
- Corrective maintenance for main condenser leakage

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed or reviewed the following five surveillance tests (five inspection samples) to verify that the systems were capable of performing their safety function and to assess their operational readiness. Specifically, the inspectors verified that the following surveillance tests met Technical Specification requirements, the Updated Safety Analysis Report, and licensee procedural requirements:

- 6.2DG.101, "Diesel Generator 31 Day Operability Test (IST)(DIV 2)," Revision 40, performed on July 18

- 6.2RHR.201, "RHR Power Operated Valve Operability Test (IST)(DIV 2)," Revision 18, performed on July 19

- 6.DWLD.302, "Drywell Floor Drain Sump 1F Flow Loop Channel Calibration," Revision 6, performed on July 28

- 6.1CS.201, "CS Motor Operated Valve Operability Test (DIV 12)," Revision 10, performed on August 2

- 6.1SW.101, "Service Water Surveillance Operation (DIV1)(IST)," Revision 18, performed on August 31

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed one temporary plant modification (one inspection sample), Work Order 4381573, implemented on July 18, 2005, which installed a temporary service air compressor to support modification of the existing air compressors. The inspectors verified that the change did not require NRC approval prior to implementation, and adequate controls on the installation existed.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

c. Inspection Scope

The inspectors observed the licensee perform one emergency preparedness drill on August 3 (one inspection sample). Observations were conducted in the control room, technical support center, and emergency operations facility. During the drill, the inspectors assessed the licensee's performance related to classification, notification, and protective action recommendations. Following the drill, the inspectors reviewed the licensee's critique to determine if issues were appropriately identified and documented. The following documents were reviewed during this inspection:

- Emergency Plan for Cooper Nuclear Station
- Emergency plan implementing procedures for Cooper Nuclear Station
- Cooper Nuclear Station emergency preparedness drill scenario for August 8, 2005

d. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS2 ALARA Planning and Controls

a. Inspection Scope

The inspector assessed licensee performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspector used the requirements in 10 CFR Part 20 and the licensee's procedures

required by Technical Specification 5.4.1 as criteria for determining compliance. The inspector interviewed licensee personnel and reviewed the following:

- Current 3-year rolling average collective exposure
- Site specific trends in collective exposures, plant historical data, and source-term measurements
- Site specific ALARA procedures
- Interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling, and engineering groups
- Workers use of the low dose waiting areas
- First-line job supervisors' contribution to ensuring work activities are conducted in a dose efficient manner
- Exposures of individuals from selected work groups
- Source-term control strategy or justifications for not pursuing such exposure reduction initiatives
- Specific sources identified by the licensee for exposure reduction actions, priorities established for these actions, and results achieved against these actions since the last refueling cycle
- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas
- Declared pregnant workers during the current assessment period, monitoring controls, and the exposure results
- Self-assessments, audits, and special reports related to the ALARA program since the last inspection
- Resolution through the corrective action process of problems identified through postjob reviews and postoutage ALARA report critiques
- Corrective action documents related to the ALARA program and follow-up activities such as initial problem identification, characterization, and tracking
- Effectiveness of self-assessment activities with respect to identifying and addressing repetitive deficiencies or significant individual deficiencies

The inspector completed 7 of the required 15 samples and 8 of the optional samples.

This ALARA inspection completes the required number of samples for this biennial inspection period. All 15 of the required samples have been completed along with 12 of the optional samples.

b. Findings

.1 Introduction. The inspector identified two examples of a Green, noncited violation of Technical Specification 5.7.1 regarding the licensee's failure to conspicuously post two high radiation areas.

Description. On August 24, 2005, during a tour of the radwaste basement (877-foot elevation) of the radwaste building, the inspector identified that the lab drain tank room and the spent resin tank room were not conspicuously posted as high radiation areas. The licensee had posted the double door entry into the lab drain tank room as a high radiation area. However, the actual high radiation area was located in a discrete area in the southwest corner of the lab drain tank room. Even though it was possible to conspicuously post the discrete high radiation area in the lab drain tank room, the licensee failed to post it as such. Farther down the hallway, there is a door leading into the spent resin tank room. The spent resin tank room is a separate room and is also much smaller than the lab drain tank room. The entry to this high radiation area was not conspicuously posted as such. The licensee's surveys showed that these areas had dose rates as high as 300 millirem per hour. The licensee's practice of posting the entry to multiple rooms that contain discrete areas of high radiation does not provide the worker with the information needed to aid the worker in avoiding or minimizing radiation exposures and detracts from the intent of the regulations by failing to warn individuals of specific radiological hazards in the immediate vicinity.

Analysis. The failure to conspicuously post high radiation areas is a performance deficiency. The finding was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process and affected the cornerstone objective because it decreased awareness of radiological hazards. The finding involved the potential for unintended or unplanned doses from actions contrary to NRC regulations and was processed through the Occupational Radiation Safety Significance Determination Process. The finding was determined to be of very low safety significance because the finding was not associated with ALARA planning or work controls, there was no overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised.

Enforcement. Technical Specification 5.7.1 requires, in part, that each high radiation area in which the deep dose equivalent is in excess of 100 mrem but less than 1000 mrem in one hour shall be barricaded and conspicuously posted as a high radiation area. On August 24, 2005, the inspector identified that discrete areas of high radiation in the lab drain tank room and the spent resin tank room were not conspicuously posted. Because the failure to post these areas was of very low safety significance and has been entered into the licensee's corrective action program as CR-CNS-2005-06223, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000298/2005004-02, Two examples of a failure to conspicuously post a high radiation area.

.2 Introduction. The inspector reviewed a Green self-revealing noncited violation of Technical Specification 5.4.1a involving the licensee's failure to follow procedures for moving irradiated items within the spent fuel pool. Specifically, on June 29, 2005, the licensee failed to ensure a mechanical stop was correctly positioned or monitor the radiation levels when lifting a control rod blade.

Description. On June 29, 2005, as part of the spent fuel pool cleanup activities, a contract worker was moving a control rod blade using the frame mounted hoist from the west end of the spent fuel pool to the east end of the spent fuel pool. During this movement, the operator lifted the control rod blade up to approximately 2 feet below the pool surface and received an electronic dosimeter alarm. A mechanical stop was supposed to be in place to prevent the control rod blade from moving within 6 feet of the surface. However, this mechanical stop was bypassed during a previous evolution and was not reset for this particular evolution. Upon receiving the dosimeter alarm, the operator immediately lowered the control rod blade, radiation protection performed a survey to ensure no elevated dose rates continued to exist, the control rod blade was placed in a safe condition, and the workers exited the area.

Analysis. The failure to ensure that the mechanical stop was correctly positioned or monitor the radiation levels when lifting the control rod blade is a performance deficiency. The finding was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process and affected the cornerstone objective because the failure to follow procedures resulted in increased personnel exposure. The finding involved a workers's unplanned or unintended exposure to radiation from actions contrary to licensee procedures and was processed through the Occupational Radiation Safety Significance Determination Process. The finding was determined to be of very low safety significance because it was not associated with ALARA planning or work controls, there was no overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. In addition, this finding has crosscutting aspects associated with human performance because the failure to ensure the mechanical stop was properly positioned directly contributed to the failure to comply with procedural requirements.

Enforcement. Technical Specification 5.4.1.a requires that written procedures be established, implemented, and maintained covering the applicable procedures referenced in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A, Section 7, requires procedures for control of radioactivity and limiting personnel exposure. Station Procedure 0.24, Revision 25, entitled "Working over or in reactor vessel or fuel pool requirements," states, in part, in step 2.4 that "when lifting objects in the spent fuel storage pool, radiation protection shall monitor radiation levels to ensure levels do not rise to undesirable values." In addition, step 2.25 of this procedure states, in part, that "prior to moving any highly irradiated hardware (e.g., Control Rod Blades) with the frame mounted hoist, ensure the mechanical stop is positioned such that the item is 6 feet under water." On June 29, 2005, the licensee violated both steps of this procedure while moving a control rod blade in the spent fuel pool. Because the failure to ensure the mechanical stop was correctly positioned and radiation levels were monitored while moving the control rod blade was of very low safety significance and was entered into the corrective action program as CR-CNS-2005-04700, this violation is being treated as a noncited violation, consistent

with Section VI.A of the NRC Enforcement Policy: NCV 05000298/2005004-03, Failure to follow Technical Specification 5.4.1a procedures for moving irradiated items in the spent fuel pool.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

.1 Resident Inspector Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed a selection of condition reports written during the inspection period to verify the licensee was entering conditions adverse to quality into the corrective action program at an appropriate threshold. Additionally, the inspectors verified that condition reports were appropriately categorized and dispositioned in accordance with the licensee's procedures. In the case of significant conditions adverse to quality the inspectors reviewed the adequacy of licensee root cause determinations, extent of condition reviews, and implemented corrective actions. The following condition report was reviewed in depth during this period (one sample):

- CR-CNS-2004-07461 regarding reactor vessel level oscillations on the narrow range instruments during high core flow conditions.

b. Findings

No findings of significance were identified.

.2 ALARA Planning and Controls

Section 2OS2 evaluated the effectiveness of the licensee's problem identification and resolution processes regarding exposure tracking, higher than planned exposure levels, and radiation worker practices. No findings of significance were identified.

4OA3 Event Followup

.1 (Closed) Licensee Event Report (LER) 50-298/2005-002-00, Technical Specification Prohibited Operation Due to SRV Test Failures

On May 19, the licensee received test data on eight SRV pilot valve assemblies from an offsite test facility. Three of the eight pilot valves failed to lift within their Technical Specification required lift setpoints during as-found testing. Specifically, three pilot valves, with a setpoint of 1090 ± 32.7 psig lifted at 1173 psig, 1132 psig, and 1127 psig, respectively. One of the pilot valve assemblies was also sent to an independent test lab for further failure analysis, which confirmed that the increased as-found values were due to corrosion bonding of the valve disc to the seat. The SRV's at Cooper Nuclear Station are two-stage Target Rock safety relief valves. The pilot valve assemblies have Stellite 21 discs and Stellite 6 seats. Several previous test failures at Cooper Nuclear

Station were attributed to corrosion bonding in the pilot valve assembly, which is an industry-wide concern with this type of valve. Although corrective actions for these past test failures did not prevent recurrence of this condition, those actions, such as changing valve disc and seat material as recommended by the vendor, were considered reasonable; therefore, no performance deficiency on the part of the licensee was identified. Because a violation technical specifications occurred, but no performance deficiency was identified, this violation was not suitable for SDP evaluation. This violation has been reviewed by NRC management and was determined to be of very low safety significance because the as-found lift values for these valves were bounded by the assumptions made in the core reload analyses for Cycle 22; therefore, core performance and RCS integrity were not challenged, nor did it result in a total loss of safety function. This licensee-identified violation of Technical Specification 3.4.3 is discussed in Section 4OA7. This LER is closed.

.2 (Closed) LER 50-298/2005-003-00, Both Diesel Generators Inoperable in Mode 4 Leads to Condition Prohibited by Technical Specifications

On June 21, 2005, the licensee determined that both EDGs had been rendered inoperable in Mode 4 during inservice testing of the fuel oil transfer pumps on November 5, 2004. Furthermore, the required action associated with Technical Specification 3.8.2 for two inoperable EDG's in Mode 4 was not implemented. The licensee initially determined that this event was not reportable; however, after questions were raised by the inspectors during the Biennial Problem Identification and Resolution Inspection, the licensee performed additional reviews and determined that the event was reportable. The LER was submitted within the required time frame by the licensee. This event involved a violation of Technical Specification 3.8.2, which was discussed in NRC Inspection Report 05000298/2005009 (NCV 05000298/2005009-01). This LER is closed.

4OA4 Crosscutting Aspects of Findings

Section 2OS2 discusses a finding with crosscutting aspects associated with human performance.

4OA6 Meetings, Including Exit

On August 25, 2005, the inspector presented the results of the ALARA Planning and Controls inspection to Mr. S. Minahan, General Manager of Plant Operations, and other members of his staff who acknowledged the findings. The inspector confirmed that proprietary information was not provided.

On October 7, 2005, the resident inspectors presented the results of the inspection activities to Mr. S. Minahan and other members of his staff who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which met the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- Technical Specification 3.4.3 requires eight SRVs to be operable in Modes 1, 2, and 3. Contrary to this, on May 19, 2005, the licensee determined that three SRVs would not have lifted within the required pressure during Cycle 22. This finding affected the Barrier Integrity and Mitigating Systems Cornerstones; however, the finding was not suitable for Significance Determination Process evaluation, but has been reviewed by NRC management and was determined to be a Green finding of very low safety significance. This was identified in the licensee's corrective action program as CR-CNS-2005-03751.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Bednar, Emergency Preparedness Manager
C. Blair, Engineer, Licensing
D. Cook, Technical Assistant to General Manager
S. Minahan, General Manager of Plant Operations
T. Chard, Radiological Manager
K. Chambliss, Operations Manager
J. Christensen, General Manager of Support
R. Estrada, Corrective Actions Manager
J. Flaherty, Site Regulatory Liaison
P. Fleming, Licensing Manager
W. Macecevic, Work Control Manager
J. Roberts, Director, Nuclear Safety Assurance
R. Shaw, Shift Manager
J. Sumpter, Senior Staff Engineer, Licensing
K. Tanner, Shift Supervisor, Radiation Protection
R. Hayden, Emergency Preparedness Staff
T. Chard, Manager, Radiation Protection
R. Edington, Vice President
S. Blake, Manager, Quality Assurance
K. Fili, Manager, Nuclear Projects
D. Kimbell, Outage Manager
G. Kline, Director, Engineering

NRC Personnel

L. Ricketson, Senior Health Physicist
S. Schwind, Senior Resident Inspector
S. Cochrum, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000298/2005004-01	URI	Failure to Perform Scram Actions Results in Level 8 Reactor Feed Pump Trip (Section 1R14)

Opened and Closed

05000298/2005004-02	NCV	Two examples of a failure to conspicuously post a high radiation area (Section 20S2)

05000298/2005004-03	NCV	Failure to follow Technical Specification 5.4.1a procedures for moving irradiated items in the spent fuel pool (Section 20S2)

Closed

50-298/2005-002-00	LER	Technical Specification Prohibited Operation Due to Safety Relief Valve Test Failures (Section 40A3)
50-298/2005-003-00	LER	Both Diesel Generators Inoperable in Mode 4 Leads to Condition Prohibited by Technical Specifications (Section 40A3)

LIST OF DOCUMENTS REVIEWED

Section 2OS2: ALARA Planning and Controls (71121.02)

Corrective Action Documents
CR-CNS-2005-02920, CR-CNS-2005-02970, CR-CNS-2005-02977, CR-CNS-2005-02985, CR-CNS-2005-03141, CR-CNS-2005-03320, CR-CNS-2005-03903, CR-CNS-2005-03962, CR-CNS-2005-04668, CR-CNS-2005-04817, CR-CNS-2005-04967, CR-CNS-2005-05310, CR-CNS-2005-06193, CR-CNS-2005-06215, CR-CNS-2005-06216, CR-CNS-2005-06217, CR-CNS-2005-06220, CR-CNS-2005-06221, CR-CNS-2005-06223, CR-CNS-2005-06226

Audits and Self-Assessments
Cooper Radiation Protection Program Corporate Assessment, August 22, 2005
Radiation Protection Department On-Going Assessment Report 2Q2005
Quality Assurance Surveillance Report, QAD 20050021, April 18, 2005
Quality Assurance Surveillance Report, QAD 20050051, July 25, 2005
Snapshot Assessment Radiation Dose Reduction - ALARA, LO-CNSLO-2005-00029

Temporary Shielding Requests
04-06
05-77

Radiation Work Permits
20051011 Turbine Deck-General Access/Limited Maintenance
20051122 Fuel Pool Clean-up Project

Procedures

0.24	Working Over or in Reactor Vessel or Fuel Pool Requirements, Revision 25
0.40	Work Control Program, Revision 49
0.40.4	Planning, Revision 0
3.14	Temporary Shielding, Revision 15
0.ALARA.1	ALARA Program, Revision 3
0.ALARA.2	ALARA Organization and Management, Revision 7
0-HP-PJBRIEF	Pre-job Brief, Revision 6

9.ALARA.1	Personnel Dosimetry and Occupational Radiation Exposure Program, Revision 13
9.ALARA.4	Radiation Work Permits, Revision 5
9.ALARA.5	ALARA Planning and Controls, Revision 13
9.ALARA.12	Hot Spot Reduction Program, Revision 1
9.RADOP.3	Area Posting and Access Control, Revision 21
9. RADOP.9	Discrete Radioactive Particle Program, Revision 2

ALARA Committee Minutes
May 3 through July 20, 2005

LIST OF ACRONYMS

ALARA	as low as is reasonably achievable
CFR	*Code of Federal Regulations*
EDG	emergency diesel generator
IST	inservice test
LER	licensee event report
NCV	noncited violation
NRC	U.S. Nuclear Regulatory Commission
RCS	reactor coolant system
RFP	reactor feed pump
RHR	residual heat removal
SRV	safety relief valve
URI	unresolved item