

October 28, 2005

EA 03-058

Mr. M. Nazar
Senior Vice President and
Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2
NRC INTEGRATED INSPECTION REPORT 05000315/2005005;
05000316/2005005

Dear Mr. Nazar:

On September 30, 2005, the U. S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your D. C. Cook Nuclear Power Plant, Units 1 and 2. The enclosed report documents the inspection findings that were discussed on October 6, 2005, with Mr. J. Jensen 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, three findings of very low safety significance (Green) were identified, all of which involved violations of NRC requirements. However, because of their very low safety significance and because the issues were entered into your corrective action program, the NRC is treating the violations as Non-Cited Violations in accordance with Section VI.A.1 of the NRC Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, 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, D.C. 20555-0001; with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the D. C. Cook Nuclear Power Plant.

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Sincerely,

/RA/

Christine A. Lipa, Chief
Branch 4
Division of Reactor Projects

Docket Nos. 50-315; 50-316
License Nos. DPR-58; DPR-74

Enclosure: Inspection Report 05000315/2005005; 05000316/2005005
w/Attachment: Supplemental Information

cc w/encl: J. Jensen, Site Vice President
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos.: 50-315; 50-316

License Nos.: DPR-58; DPR-74

Report No.: 05000315/2005005 and 05000316/2005005

Licensee: Indiana Michigan Power Company

Facility: D. C. Cook Nuclear Power Plant, Units 1 and 2

Location: Bridgman, MI 49106

Dates: July 1, 2005, through September 30, 2005

Inspectors: J. Lennartz, Acting Senior Resident Inspector
F. Ramirez, Resident Inspector
T. Steadham, Resident Inspector
R. Ruiz, Reactor Engineer
M. Parker, Consultant
W. Slawinski, Senior Radiation Specialist
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Approved by: C. Lipa, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000315/2005-005, IR 05000316/2005-005; 07/01/2005-09/30/2005; D. C. Cook Nuclear Power Plant, Units 1 and 2; Post Maintenance Testing, Access Control to Radiologically Significant Areas, and Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems.

The report covered a 13-week period of inspection by resident inspectors and announced inspections by regional inspectors. Three Green findings, all of which were non-cited violations (NCV) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. 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-Revealed Findings

Cornerstone: Mitigating Systems

- C Green. A self-revealing NCV was identified on July 6, 2005, while preparing for a post maintenance test. Foreign material, a 33-foot steel-tape dipstick, was unexpectedly drawn into the 1CD emergency diesel generator before/after lube oil pump while operators were measuring the lube oil sump level. The primary cause of this finding was related to the cross-cutting area of human performance (resources) because the procedure that was used was not complete. A NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was associated with this finding. Corrective actions included retrieving the foreign material, revising emergency diesel generator operating procedures to eliminate the option of using a steel-tape dipstick to measure the lube oil sump level, and increased training for operators regarding foreign material hazards.

This finding was more than minor because it was related to the procedure adequacy attribute of the mitigating systems cornerstone, and adversely affected the cornerstone objective to ensure the availability of systems that will respond to initiating events to prevent undesirable consequences. However, because the finding (1) was not a design or qualification deficiency that had been confirmed to result in a loss of function per Generic Letter 91-18; (2) did not represent an actual loss of a safety function; and (3) did not screen as potentially risk significant due to a seismic, flooding, or severe weather event, the finding was of very low safety significance. (Section 1R19)

Cornerstone: Occupational Radiation Safety

- C Green. A self-revealing NCV was identified for the failure to follow plant procedures for ensuring workers are adequately briefed on radiological conditions and are equipped with required dosimetry, prior to entering a high radiation area. As a result of this failure, two workers entered a high radiation area without knowledge of the radiological

conditions. The electronic dosimetry worn by one of the workers alarmed when elevated dose rates were encountered. A NCV of Technical Specification 6.8.1 was identified for the failure to comply with the radiation protection procedure that governs the control of access into high radiation areas. Corrective actions taken by the licensee included performance management (coaching) of the involved personnel. The licensee was also considering enhanced administrative measures to ensure workers understand high radiation area access controls and additional physical controls to reduce the potential for future unauthorized high radiation area entries.

The issue was more than minor because it was associated with the Program/Process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. The issue represents a finding of very low safety significance because it did not involve ALARA planning or work controls, there was no overexposure or substantial potential for an overexposure given the radiological conditions in the area, nor was the licensee's ability to assess worker dose compromised. (Section 2OS1)

Cornerstone: Public Radiation Safety

- C Green. The inspectors identified a NCV for the failure to establish adequate written procedure(s) for Offsite Dose Calculation Manual (ODCM) implementation to ensure that the radiological impact from venting the Volume Control Tank (VCT) to the environment was properly assessed prior to the release, and that the release was properly quantified and reported. A NCV of Technical Specification 6.8.1 was identified for the failure to establish adequate procedures for implementation of the ODCM for venting the VCT to the atmosphere. Corrective actions planned by the licensee include the derivation of an offsite dose based bounding condition for determining that the reactor coolant system has been adequately degassed, along with procedural enhancements and instructions. Since a similar VCT venting issue was identified by the licensee in 2003 but not fully evaluated to allow all aspects of the issue to be corrected, the finding also relates to the cross-cutting area of problem identification and resolution (corrective actions).

The issue was more than minor because it was associated with the Program/Process attribute of the Public Radiation Safety Cornerstone and potentially affected the cornerstone objective to ensure adequate protection of the public from exposure to radioactive materials from the release of gaseous effluents. The issue represents a finding of very low safety significance because a dose assessment performed by the licensee subsequent to the VCT venting determined that 10 CFR 50, Appendix I guidelines and ODCM limits were met and therefore there was minimal actual risk to the public. (Sections 2PS1 and 4OA4)

B. Licensee Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 was operated at or near full power during the inspection period with the following one exception:

On September 24, 2005, an unexpected low level alarm on the lower bearing oil reservoir for Number 13 reactor coolant pump motor annunciated. Licensee personnel added oil to the reservoir and approximately one hour later the low level alarm annunciated again. The symptoms for this issue were similar to those noted on Number 21 reactor coolant pump in Unit 2 several days prior to this. Therefore, a power reduction was commenced and Unit 1 was shut down on September 25. Later that same day, the necessary repairs were completed and the reactor was taken critical. On September 26 the main generator was synchronized to the electrical grid and the plant returned to full power.

Unit 2 was operated at or near full power during the inspection period with the following one exception:

On September 12, 2005, an unexpected low level alarm on the lower bearing oil reservoir for Number 21 reactor coolant pump motor annunciated. All other reactor coolant motor and pump parameters were normal and stable. Licensee engineering personnel evaluated motor operating data and consulted with the vendor. On September 16, before any actions had been taken, an unexpected high temperature alarm on the lower bearing momentarily annunciated and then cleared immediately. Operations personnel also noted that Number 1 reactor coolant pump motor vibrations, while within allowed operating parameters, had increased from 6 mils to 11 mils after the lower bearing temperature spiked. Therefore, licensee personnel planned and subsequently made a containment entry to add oil to the reservoir on September 19. Approximately four hours later, the low oil level alarm annunciated again. On September 20, a second containment entry was made to add oil again. During the second entry, licensee personnel identified a leak from a fitting for a vent line coming off the top of the oil reservoir, which required the plant to be shutdown to complete the necessary repairs. A power reduction was commenced on September 21, and Unit 2 was shut down on September 22 to replace the leaking fitting. On September 23 the reactor was taken critical and the main generator was synchronized to the electrical grid. The plant subsequently returned to full power on September 24.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors reviewed the actions taken in response to a severe thunderstorm warning with forecasted local high wind gusts that was received by control room

personnel on July 20, 2005. The inspectors verified that the required actions were taken in accordance with procedure 12-OHP-4022-001-010, "Severe Weather."

The inspectors also reviewed selected condition reports (CRs) associated with adverse weather preparation activities. The inspectors verified that identified problems were entered into the licensee's corrective action program with the appropriate significance characterization, and that corrective actions were appropriate and implemented in a timely manner commensurate with the significance.

This activity was considered one inspection sample regarding site wide preparations for adverse weather.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors completed three partial equipment alignment inspection samples by conducting walkdowns of the following risk significant systems:

- C Unit 2 west essential service water system while Unit 2 east essential service water pump was removed from service for planned maintenance;
- C Unit 1 east containment spray to verify standby readiness; and
- C Unit 1 south safety injection pump while Unit 1 north safety injection pump was removed from service for planned maintenance.

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones. The inspectors reviewed operating procedures, system diagrams, Technical Specification (TS) requirements, Administrative TS, and the impact of ongoing work activities on redundant trains of equipment. The inspectors verified that conditions did not exist that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components were aligned correctly.

In addition, the inspectors verified that equipment alignment problems were entered into the licensee's corrective action program with the appropriate characterization and significance.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors completed one equipment alignment inspection sample regarding complete system walkdowns on the following risk significant system:

- Unit 2 containment spray system

The inspectors reviewed operating procedures, system diagrams, TS requirements, and applicable sections of the Updated Final Safety Analysis Report (UFSAR). The inspectors walked down accessible portions of the system to verify that the system was properly aligned. The inspectors verified acceptable material condition of system components, availability of electrical power to system components, and that ancillary equipment or debris did not interfere with system performance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours

a. Inspection Scope

The inspectors completed ten fire protection inspection samples by conducting walkdowns in the following risk significant plant areas:

- C Unit 1 control rod drive room (fire zone 42B)
- C Unit 2 control rod drive room (fire zone 46B)
- C Unit 1 engineering safety system and motor control center room (fire zone 41)
- C Unit 2 engineering safety system and motor control center room (fire zone 45)
- C Unit 1 containment spray heat exchanger room 18E, auxiliary building (fire zone 44A)
- C Unit 1 containment spray heat exchanger room 18W, auxiliary building (fire zone 44B)
- C Unit 2 containment spray heat exchanger room 18E, auxiliary building (fire zone 44E)
- C Unit 2 containment spray heat exchanger room 18W, auxiliary building (fire zone 44F)
- C Unit 12 screenhouse (fire zone 142)
- C Unit 2 transformer room (fire zone 20)

The inspectors verified that fire zone conditions were consistent with assumptions in the licensee's Fire Hazards Analysis. The inspectors walked down fire detection and suppression equipment, assessed the material condition of fire fighting equipment, and evaluated the control of transient combustible materials. In addition, the inspectors

verified that fire protection related problems were entered into the licensee's corrective action program with the appropriate characterization and significance.

b. Findings

No findings of significance were identified.

.2 Routine Fire Drill

a. Inspection Scope

The inspectors completed one annual inspection sample by observing an announced fire drill for the Unit 2 pressurizer heater transformer room. The drill consisted of an employee working inside supply transformer cabinet 2-TR21CMC in the Unit 2 heater transformer room causing an arch, injuring the employee and causing a fire.

The inspectors verified that drill objectives were met: hose line established; attack team verifies backup team is prepared before making entry; communications between attack team and brigade leader when ready to make entry; attack team identifies and communicates to brigade leader "victim had been located" and removes victim; attack team should feel way along until source of fire is located and then apply suppressant agent; communications should be ongoing between attack team and brigade leader with information on interior conditions; and, when fire is extinguished attack team should search for other fire in the area. In addition, the inspectors verified that fire drill related problems were entered into the licensee's corrective action program with the appropriate characterization and significance.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

The inspectors completed one inspection sample of licensed operator requalification training by observing a crew of licensed operators during simulator training on August 16, 2005. The inspectors assessed the operator's response to the simulated events that included a plant air compressor trip, a large break loss of coolant accident, a residual heat removal pump trip and a containment spray pump trip.

The inspectors verified that the operators were able to effectively mitigate the events through accurate and timely implementation of applicable plant procedures including Abnormal Operating Procedure OHP-4022-064-001, "Control Air Malfunction," and Emergency Operating Procedures E-0, "Reactor Trip or Safety Injection," E-1, "Loss of Reactor or Secondary Coolant," and ES1-3, "Transfer to Cold Leg Recirculation." The inspectors also observed the post-training critique to assess the licensee evaluators' and the operating crew's ability to self-identify performance deficiencies.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Resident Inspector Quarterly Review

a. Inspection Scope

The inspectors completed two inspection samples regarding maintenance effectiveness by reviewing the licensee's evaluation of selected degraded performance issues involving the following risk-significant systems:

- C Unit 1 and 2 essential service water system
- C Unit 1 and 2 residual heat removal system

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the systems. Specifically, the inspectors independently verified the licensee's evaluation of the systems' performance and condition problems with respect to:

- C appropriate work practices;
- C identifying and addressing common cause failures;
- C scoping in accordance with 10 CFR 50.65(b);
- C characterizing reliability issues;
- C tracking unavailability;
- C trending key parameters (condition monitoring);
- C 10 CFR 50.65(a)(1) or (a)(2) classification and reclassification; and,
- C appropriateness of performance criteria for systems classified (a)(2), and/or appropriateness and adequacy of goals and corrective actions for systems classified (a)(1).

In addition, the inspectors verified that problems associated with the effectiveness of plant maintenance were entered into the licensee's corrective action program with the appropriate characterization and significance.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors completed seven inspection samples regarding plant risk assessments for planned and emergent maintenance activities.

The inspectors reviewed documented risk evaluations to verify that plant risk assessments were completed as required by 10 CFR 50.65(a)(4) prior to commencing maintenance activities; reviewed the Operations Log and daily maintenance schedules to verify that equipment necessary to minimize plant risk was operable or available as required during the planned and emergent maintenance activities; and conducted plant walkdowns to verify that redundant safety-related plant equipment necessary to minimize risk was available for use. The inspection samples included the following activities:

- C planned maintenance on Unit 1 east motor driven auxiliary pump concurrent with emergent maintenance on Unit 1 CD emergency diesel generator during the week of July 4, 2005;
- C planned maintenance activities on Train "A" equipment during the week of August 1, 2005, which included Unit 1 emergency diesel generator surveillance testing, Unit 1 containment spray system valve maintenance and Unit 2 safety injection pump surveillance testing;
- C planned maintenance on Unit 1 east essential service water pump discharge strainer and planned surveillance testing on Unit 2 CD emergency diesel generator during the week of August 8, 2005;
- C planned and emergent maintenance on Unit 1 CD emergency diesel generator, and planned maintenance on Unit 1 east component cooling water pump on August 30 through September 1, 2005;
- C planned maintenance on Unit 2 turbine driven auxiliary feedwater pump, east containment spray pump, and reactor trip breaker during the week of September 4, 2005;
- C emergent maintenance on Unit 1 essential service water system that required the east component cooling water heat exchanger to be removed from service on September 11, 2005; and,
- C planned work to remove the 69 Kilovolt emergency power line from service on September 12 through September 24, 2005, to support installation of supplemental emergency diesel generators.

In addition, the inspectors verified that maintenance risk-related problems were entered into the licensee's corrective action program with the appropriate significance characterization. Select CRs were reviewed to verify that corrective actions were appropriate and implemented as scheduled.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-Routine Plant Evolutions (71111.14)

a. Inspection Scope

On August 2, 2005, the Unit 1 control room operators transferred power to the safety-related 4 Kilovolt electrical bus 1CD from auxiliary transformer 1-TR1CD, the normal supply, to reserve auxiliary transformer 1-TR101CD. The power transfer was needed to conduct planned maintenance to the cooling fans for the auxiliary transformer. Later that same day, the control room operators transferred the power supply to the 4 Kilovolt bus 1CD back to the auxiliary transformer, from the reserve auxiliary transformer. The inspectors observed the planned non-routine evolution to verify that the power transfer was completed in accordance with plant procedures.

On August 31, 2005, the Unit 2 moisture separator reheater north tube bundle unexpectedly isolated causing a loss of approximately 55 megawatts of electrical generation. The inspectors responded to the control room to observe control room operator recovery actions, and reviewed control room logs and plant procedures to verify that operator response was in accordance with procedural requirements.

These activities were considered two inspection samples regarding personnel performance during non-routine plant evolutions.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors completed seven inspection samples regarding operability evaluations by reviewing the following CRs:

- C CR 05121006, "2-NRV-153 Pressurizer Power Operated Relief Valve Is Leaking By"
- C CR 05210172, "During the Performance of 01-EHP-4030-166-010, Damper, 1-HV-ACR-DA-2A, did not Remain Closed as Expected"
- C CR 04365058, "Cell 48 of 2-BATT-CD (Unit 2 CD Battery) has a 2 Inch Crack on the Top of the Battery Cell"; and CR 04365059, "Cell 54 of 2-BATT-CD (Unit 2 CD Battery) has a 1.5 Inch Crack in the Top of the Cell"
- C CR 05227008, "The Level Trend from the 24 Safety Injection Accumulator has Shown a Persistent Rise over the Recent Months"
- C CR 0519810, "Elevated Lake Temperatures"
- C CR 05235024, "Unit 2 "B" Reactor Trip Breaker"
- C CR 05236003, "Unit 2 AB Emergency Diesel Generator Upper Valve Gear Lube Oil Supply Circuit Failure"

The inspectors verified that the condition did not render the associated equipment inoperable or result in an unrecognized increase in plant risk. When applicable, the

inspectors verified that the licensee appropriately applied limitations and appropriately returned the affected equipment to an operable status.

In addition, the inspectors verified that problems related to the operability of safety-related plant equipment were entered into the licensee's corrective action program with the appropriate characterization and significance.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors completed one inspection sample by evaluating the following identified equipment deficiencies as a potential operator workaround:

- C Float Valve, 1-QT-518-AB, for Makeup to Jacket Water Surge Tank, 1-QT-133-AB is Leaking By and Diluting the Chemical Additives in the Jacket Water System
- C Float Valve, 1-QT-518-CD, for Makeup to Jacket Water Surge Tank, 1-QT-133-CD is Leaking By and Diluting the Chemical Additives in the Jacket Water System

The inspectors verified that the equipment deficiencies did not adversely affect the functional capability of mitigating systems or the operators ability to implement off-normal and emergency operating procedures.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors completed six inspection samples pertaining to post maintenance testing by assessing testing activities that were conducted on the following plant equipment:

- C Unit 1 CD emergency diesel generator
- C Unit 1 600 volt switchgear room fire damper, 1-HV-SGR-FD-1
- C Unit 12 turbine room sump emergency overflow valve, 12-DR-129
- C Unit 1 east essential service water pump strainer
- C Unit 2 reactor trip breaker, 2-52-RTB
- C Unit 2 AB emergency diesel generator

The inspectors reviewed the scope of the work performed and evaluated the adequacy of the specified post maintenance testing. The inspectors verified that the post

maintenance testing was performed in accordance with approved procedures, that the procedures clearly stated the acceptance criteria, and that the acceptance criteria were met. The inspectors interviewed operations, maintenance, and engineering department personnel and reviewed the completed post maintenance testing documentation.

b. Findings

Introduction

A finding of very low safety significance (Green) was self-revealed on July 6, 2005, while preparing for a post maintenance test. Foreign material, a 33 foot steel-tape dipstick, was unexpectedly drawn into the 1CD Emergency Diesel Generator (EDG) before/after lube oil pump while operators were measuring the lube oil sump level. As a result, the 1CD EDG was rendered unavailable for approximately 43 hours longer than had been planned. A Non-Cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," was associated with this finding.

Description

On July 6, 2005, during preparations for a post maintenance test, a 33 foot steel-tape dipstick was used to measure the 1CD EDG lube oil sump level, in accordance with procedure 01-OHP-4021-032-001CD, "DG1CD Operation." While measuring level in the sump, the steel-tape dipstick was unexpectedly entrained in the suction of the before/after pump, passed through, and entered the before/after pump discharge piping. Consequently, the 1CD EDG was rendered unavailable for an additional 43 hours to retrieve the steel tape. Upon passing through the before/after pump the steel-tape was chopped into many pieces of varying size. The licensee located and removed all but approximately 13 centimeters of the steel tape, which was unable to be accounted for.

The pump vendor indicated to licensee personnel that the before/after pump would not generate any debris smaller than 400 microns. Downstream of the before/after pump is a lube oil strainer rated at 140 microns and therefore, the licensee determined that the strainer would trap any remaining steel tape pieces that remained in the lube oil piping. The licensee inspected the strainers and found them to be in satisfactory condition to catch any remaining pieces. Additionally, the licensee took a lube oil sample on the dirty side of the lube oil strainer and did not find any evidence of steel pieces smaller than 140 microns. Based on this information, the licensee determined that the 1CD EDG would be operable without retrieving the remaining 13 centimeters of steel tape, pending the required full-load operability test run. This issue was entered into the licensee's Corrective Action Program as CR 05187007.

The inspectors noted that the 1CD EDG operating procedure, 01-OHP-4021-032-001CD, "DG1CD Operation," allowed the steel-tape dipstick to be used to determine the lube oil sump level. However, the procedure did not provide adequate precautionary guidance on using the steel tape to measure sump level while the before/after pump was running and taking a suction on the lube oil sump.

Analysis

The inspectors determined that allowing foreign material to enter the 1CD EDG lube oil system, which rendered the 1CD EDG unavailable for approximately 43 hours longer than planned was a performance deficiency that warranted a significance evaluation in accordance with the Significance Determination Process. The inspectors determined that the finding was more than minor in accordance with Inspection Manual Chapter (IMC) 0612, Appendix B, "Issue Disposition Screening." The finding was associated with the procedure quality attribute of the Mitigating Systems Cornerstone, and adversely impacted the Cornerstone objective to ensure the availability, reliability, and capability of mitigating systems to respond to initiating events to prevent undesirable consequences.

Using IMC 0609, Appendix A, "SDP Phase 1 Screening Worksheet for IE [Initiating Events], MS [Mitigating Systems], and B [Barrier Integrity] Cornerstones," the inspectors determined that Mitigating Systems was the only cornerstone affected. Using the Mitigating Systems column on the Phase 1 SDP worksheet, the inspectors determined that the finding was not a design or qualification deficiency; did not represent the loss of a safety function; did not represent the loss of a single train for greater than the TS Allowed Outage Time; did not involve risk-significant non-TS equipment; and, was not potentially risk significant due to seismic, flooding, or severe weather. Therefore, the finding screened as Green and was considered to be of very low safety significance.

The finding was also related to the cross-cutting area of human performance (resources) because the procedure utilized to complete the task was not complete and accurate. Specifically, the procedure did not contain adequate precautionary guidance when using the steel-tape dipstick to measure the lube oil sump level with the before/after pump running.

Enforcement

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances. Contrary to the above, procedure 01-OHP-4021-032-001CD, "DG1CD Operation," was not appropriate to the circumstance, in that it did not provide adequate precautionary guidance when using a steel-tape dipstick to measure the lube oil sump level while the before/after pump was running and taking a suction from the sump. Consequently, on July 6, 2005, a steel-tape dipstick unexpectedly entered the before/after pump and discharge piping rendering the emergency diesel generator unavailable for 43 hours longer than planned. Because the finding was determined to be of very low safety significance and has been entered into the licensee's Corrective Action Program (CR 05187007), this violation is being treated as a Non-Cited Violation, consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000315/2005005-01)

As an immediate corrective action, licensee personnel retrieved all but 13 centimeters of the steel-tape dipstick that was entrained in the before/after pump and discharge piping and satisfactorily completed post maintenance testing for the emergency diesel generator. Other corrective actions included revising emergency diesel generator

operating procedures to eliminate the option of using a steel-tape dipstick to measure the lube oil sump level, and increased training for operators regarding foreign material hazards.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors completed two inspection samples regarding outage activities.

On September 22 through September 23, 2005, Unit 2 was shut down to repair an oil leak from a fitting on a vent line off the top of lower bearing oil reservoir for the Number 21 reactor coolant pump motor. The inspectors conducted a containment tour immediately after the plant was in Mode 3, Hot Shutdown, to verify that there was not any evidence of any previously unidentified primary coolant system leakage that adversely impacted other systems, structures, or components; reviewed documentation to verify that appropriate Mode Change Checklist requirements were completed prior to changing plant modes during plant startup; observed portions of reactor startup activities in the control room to verify that reactivity manipulations were completed in accordance with plant procedures; and, observed portions of the activities to synchronize the main turbine generator to the grid to verify that plant procedures were implemented appropriately.

On September 25 through 26, 2005, Unit 1 was shut down to repair an oil leak from a fitting for a vent line off the top of lower bearing oil reservoir for the Number 13 reactor coolant pump motor. The inspectors observed portions of plant startup activities in the control room to verify that reactivity manipulations were completed in accordance with plant procedures; and, reviewed documentation to verify that appropriate Mode Change Checklist requirements were completed prior to changing plant modes during plant startup.

In addition, the inspectors reviewed CRs to verify that problems identified during the outage were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors completed six samples regarding surveillance testing activities by reviewing the following activities:

- C Unit 1, 1-OHP-4030-102-016, "Reactor Coolant System Leak Rate Test"
- C Unit 1, 1-OHP-4030-STP-052, "Pressurizer Power Operated Relief Valve Functional Test"

- C Unit 2, 02-OHP-4030-STP-027AB, "AB Diesel Generator Operability Test (Train B)"
- C Unit 1 and 2, 12-OHP-SP-263, "Obtaining Lower Containment Temperature Readings Using Alternate Methods"
- C Unit 1, 12-IHP-4030-082-002, "AB, CD, and N-Train Battery Quarterly Surveillance and Maintenance"
- C Unit 1, 01-OHP-4030-114-049, "Hot Shutdown Panel Operability Test," Attachment 15, "East ESW Pump Operability Test"

The inspectors observed portions of test activities to verify that testing was accomplished in accordance with plant procedures. The inspectors reviewed the test methodology and documentation to verify that equipment performance was consistent with safety analysis and design basis assumptions, and that testing acceptance criteria were satisfied. In addition, the inspectors verified that surveillance testing problems were being entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

1R23 Temporary Modifications (71111.23)

a. Inspection Scope

The inspectors completed one inspection sample by reviewing Temporary Modification 1-TM-04-68-RO, which was utilized to install temporary lead shielding on Unit 1 east and west residual heat removal system heat exchangers.

The inspectors interviewed engineering, operations and maintenance department personnel and reviewed the design modification documents and 10 CFR 50.59 evaluations to verify that s and the updated final safety analysis report requirements were satisfied. The inspectors verified that the installation was consistent with design modification documents and that the modification did not adversely impact system operability or availability.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed a simulator training session for one crew of licensed operators on August 16, 2005, in which the Shift Manager was required to implement the emergency plan in response to simulated plant conditions. Licensee emergency preparedness personnel had pre-designated that the opportunities for the Shift Manager

to classify the event and make required notifications would be evaluated and included in performance indicator data regarding drill and exercise performance.

The inspectors verified that the Shift Manager classified the emergency condition and completed the required notifications to state and local police authorities in an accurate and timely manner as required by the emergency plan implementing procedures. The inspectors verified that the emergency preparedness evaluator accurately assessed and documented the number of opportunities that was to be included in the performance indicator data.

b. Findings

No findings of significance identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed licensee event reports, corrective action documents, electronic dosimetry transaction data for radiologically restricted area egress, and data reported on the NRC's web site relative to the licensee's occupational exposure control performance indicator to determine whether or not the conditions surrounding any actual or potential performance indicator (PI) occurrences had been evaluated, and identified problems had been entered into the corrective action program for resolution. Also, performance indicator data collection and analysis methods used by the radiation protection staff for this indicator were evaluated by the inspectors as described in Section 4OA1.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns/Boundary Verifications and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors identified recently completed and ongoing exposure significant work within radiation, high radiation and locked high radiation areas of the plant and selectively reviewed radiation work permit (RWP) packages and radiation surveys for these areas. The inspectors evaluated the radiological controls for these activities to

determine if these controls including area postings and access control barriers were adequate.

The inspectors reviewed active and closed RWP packages which governed activities in radiologically significant areas to identify the work control instructions and control barriers that had been specified. For these work activities, electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant procedures.

The inspectors walked down and surveyed (using an NRC survey meter) radiologically significant area boundaries and other radiological areas in the Unit 1 and Unit 2 Auxiliary Buildings to verify that the prescribed radiological access controls were in place, that licensee postings were complete and accurate, and that physical barricades/barriers were adequate. During the walkdowns, the inspectors physically challenged locked gate/door barriers to verify that high radiation area, locked high radiation area (LHRA) and very high radiation area (VHRA) access was controlled in compliance with the licensee's procedures, TSs, the requirements of 10 CFR 20.1601, and were consistent with Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas in Nuclear Power Plants."

The inspectors reviewed RWP packages for selected activities completed during approximately the six-month period that preceded the inspection to verify barrier integrity and engineering controls performance (e.g., filtered ventilation system operation) and to determine if there was a potential for individual worker internal exposures of greater than 50 millirem committed effective dose equivalent. The inspectors reviewed the licensee's procedures and its methods for the assessment of internal dose as required by 10 CFR 20.1204, to ensure methodologies were technically sound and included assessment of the impact of hard to detect radionuclides such as pure beta and alpha emitters, as applicable. No worker intakes resulting in a committed effective dose equivalent greater than 10 millirem occurred since this area was last reviewed by the inspectors as described in NRC Inspection Report 05000315/316/2004010.

The inspectors reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within the spent fuel pool. Specifically, radiation protection (RP) procedures were reviewed, RP staff were interviewed, and a walkdown of the refuel floor was conducted. The radiological control for non-fuel materials stored in the spent fuel pool was evaluated to ensure adequate barriers were in-place to reduce the potential for the inadvertent movement of these materials and to assess compliance with the licensee's procedures and for consistency with NRC regulatory guidance.

These reviews represented six inspection samples.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems Associated with the Radiological Access Control Program

a. Inspection Scope

The inspectors reviewed the report of a licensee audit, the CR database, and individual CRs related to the radiological access and exposure control programs to verify that identified problems were entered into the corrective action program for resolution. Specifically, the inspectors reviewed radiological problems which occurred over approximately the 12-month period that preceded the inspection, including the review of any high radiation area (HRA) radiological incidents (non-PI occurrences identified by the licensee in high and locked high radiation areas). The inspectors' review was conducted to verify that follow-up activities were conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

1. Initial problem identification, characterization, and tracking;
2. Disposition of operability/reportability issues;
3. Evaluation of safety significance/risk and priority for resolution;
4. Identification of repetitive problems;
5. Identification of contributing causes; and
6. Identification and implementation of corrective actions.

The inspectors evaluated the licensee's process for problem identification, characterization and prioritization, and verified that radiological problems were entered into the corrective action program and were being resolved in a timely manner. For potential repetitive deficiencies or possible trends, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies, if applicable.

The inspectors reviewed the licensee's documentation for all potential PI events occurring since the last radiological access control inspection in August 2004 to determine if any of these events involved dose rates greater than 25 Rem/hour at 30 centimeters or greater than 500 Rem/hour at 1 meter or involved unintended exposures greater than 100 millirem total effective dose equivalent (or greater than 5 Rem shallow dose equivalent or greater than 1.5 Rem lens dose equivalent). None were identified.

These reviews represented four inspection samples. Specifically, the samples pertained to the licensee's self-assessment capabilities, its problem identification and resolution program for radiological incidents, a review of the licensee's ability to identify and address repetitive deficiencies, and a review of those radiological incidents and potential PI occurrences of greatest radiological risk.

b. Findings

No findings of significance were identified.

.4 Job-In-Progress Reviews and Review of Work Practices in Radiologically Significant Areas

a. Inspection Scope

The inspectors discussed with radiation protection staff the controls for work recently performed in various radiologically significant areas of the plant. Radiation surveys for these activities were reviewed by the inspectors as were the radiological job requirements provided in the RWP package for conformity with LHRA s and with the licensee's access control procedure. The inspectors discussed with radiation protection staff the methods for communicating radiological information to work crews, the methods for approving access into high radiation areas and the administrative and physical controls used over ingress/egress into HRAs.

The inspectors reviewed the licensee's procedures and discussed with RP staff its practices for at power containment entry and for entry into the reactor pit and in-core detector instrument area to determine the adequacy of the radiological controls and hazards assessment associated with such entries. Work instructions provided in RWPs and in pre-entry briefing documents were discussed with RP staff to determine their adequacy relative to industry practices and NRC Information Notices.

The inspectors also reviewed the licensee's procedure and generic practices associated with dosimetry placement and for the use of multiple whole body dosimetry for work in high radiation areas having significant dose gradients for compliance with the requirements of 10 CFR 20.1201(c) and applicable industry guidelines. Additionally, previously completed work in areas where the dose rate gradients were subject to significant variation were reviewed (i.e., steam generator work) to evaluate the licensee's practices for dosimetry placement.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.5 High Radiation Area, LHRA and VHRA Access Controls

a. Inspection Scope

The inspectors reviewed the licensee's procedures and evaluated its practices for the control of access to radiologically significant areas (high, locked high, and very high radiation areas). The inspectors assessed compliance with the licensee's TSs, procedures, the requirements of 10 CFR Part 20, and the guidance contained in Regulatory Guide 8.38. In particular, the inspectors reviewed the circumstances associated with several high radiation area access control issues. Additionally, the inspectors evaluated the radiation protection staff's control of keys to locked high and very high radiation areas, the use of access control guards during work in locked high and very high radiation areas, and for independently verifying that access doors are locked and secured upon area egress. The inspectors selectively reviewed the key

issuance/return and door lock verification log for selected periods in 2005 through July 2005, to verify the adequacy of accountability practices and documentation. The inspectors also reviewed selected records and evaluated the RP department's practices for obtaining radiation protection management approval for access into high dose rate LHRAs and VHRAs and for the use of flashing lights in lieu of locking areas to verify compliance with procedure requirements and those of 10 CFR 20.1602.

The inspectors discussed with radiation protection staff the controls that were in place for areas that had the potential to become high radiation areas during certain plant operations to determine if these operations required communication before hand with the radiation protection group, so as to allow corresponding timely actions to properly post and control the radiation hazards. In particular, operations procedures for selected plant evolutions that could affect radiological conditions were reviewed as was RP guidance to determine if adequate mechanisms were in place to identify and control emerging changes in radiological conditions.

The inspectors conducted plant walkdowns to verify the posting, locking and barrier integrity of numerous high radiation areas and LHRAs.

These reviews represented three inspection samples.

b. Findings

Introduction: A self-revealed finding of very low safety significance and an associated violation of NRC requirements were identified for the failure to follow plant procedures for ensuring workers are adequately briefed on radiological conditions, prior to entering a HRA.

Description: On April 23, 2005, at approximately 2200 hours, two contractor radworkers reported to the RP staff that they had been working in the Unit-1 Auxiliary Building Vestibule when one of them received an electronic dosimeter (ED) dose rate alarm. The ED dose rate alarm setpoint for the two workers was established at 90 millirem/hour. The workers were in the area collecting laundry and trash for several minutes at the time of the ED alarm. The workers exited the area upon hearing the alarm as required.

The Unit-1 vestibule was a posted HRA with actual general area dose rates in accessible areas of up to 250 millirem/hour. Neither radworker was wearing a Personal Alarming Module (PAM) style alarming dosimeter nor received a brief on the area radiological conditions prior to entry, both conditions being requirements of the RWP (RWP 05-1133) governing access into this high radiation area. A pre-entry radiation protection briefing was also required by station procedure. Specifically, procedure PMP-6010-RPP-003 "High, Locked High and Very High Radiation Area Access" Step 3.7.2 states, that high radiation areas "require a pre job briefing prior to access."

A review of station access records determined that one of the involved individuals last entered the Unit 1 vestibule 10 days earlier and the other individual had not been in the area for more than 10 days before this entry. As a result, neither individual was cognizant of the dose rates in the work area at the actual time of entry. Given the

radiological conditions in the area and the workers immediate departure upon receiving an ED alarm, the doses received by the two workers for the unauthorized entry were minimal.

Analysis: The failure to have a pre-job brief prior to HRA entry as required by the licensee's procedure (PMP-6010-RPP-003, Step 3.7.2) represents a performance deficiency as defined in NRC Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." The inspectors determined that the issue was associated with the Program/Process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. Therefore, the issue was more than minor and represented a finding which was evaluated using the Significance Determination Process (SDP).

Since the finding involved a radiological access control problem, the inspectors utilized IMC 0609, Appendix C, "Occupational Radiation Safety SDP," to assess its significance. The inspectors determined that although the area dose rates in the vestibule were elevated, the actual dose received by the individuals was minimal. Consequently, the inspectors concluded that the SDP assessment for this finding was of very low safety significance (Green).

Enforcement: Technical Specification 6.8.1 requires that written procedures be established, implemented and maintained covering the applicable procedures in Regulatory Guide 1.33 (Revision 2), Appendix A, February 1978. Procedures specified in Regulatory Guide 1.33 include RP procedures for access control to radiological areas, which are provided by licensee procedure PMP-6010-RPP-003 "High, Locked High and Very High Radiation Area Access." Contrary to this procedure, personnel entered the Unit-1 Auxiliary Building Vestibule without the required pre-job brief and without the RWP required PAMs.

Corrective actions taken by the licensee included performance management (coaching) of the involved personnel. The licensee was also considering enhanced administrative measures to ensure workers understand high radiation area access controls and additional physical controls to reduce the potential for future unauthorized HRA entries. Since the licensee documented this issue in its corrective action program (CR 05114001) and because the violation is of very low safety significance, it is being treated as a Non-Cited Violation (NCV 50-315/2005005-02; 50-316/2005005-02).

.6 Radiation Worker Performance

a. Inspection Scope

The inspectors reviewed selected radiological CRs which found that the cause of the event was due to radiation worker errors to determine if there was an observable pattern traceable to a similar cause, and to determine if this matched the corrective action approach taken by the licensee to resolve the identified problems.

This review represented one inspection sample.

b. Findings

No findings of significance were identified.

.7 Radiation Protection Technician Proficiency

a. Inspection Scope

During plant walkdowns and through discussions with radiation protection staff, the inspectors evaluated radiation protection technician performance and proficiency with respect to radiation protection work requirements, station procedures and health physics practices.

The inspectors reviewed selected radiological CRs generated during the 12-month period that preceded the inspection to determine the extent of any specific problems or trends that may have been caused by deficiencies with radiation protection work control, and to determine if the corrective action approach taken by the licensee to resolve the reported problems, if applicable, was adequate.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

.1 Evaluation of Volume Control Tank Gaseous Effluent Venting Practices

a. Inspection Scope

The inspectors reviewed the circumstances associated with the venting of the Volume Control Tank (VCT) gas space in preparation for Unit 1 shutdown in March 2005, which caused the vent stack monitor to unexpectedly alarm from elevated radiation. Specifically, the inspectors reviewed the licensee's evaluation of the March 2005 issue and its evaluation of a similar VCT venting issue in 2003, along with the licensee's practices and procedures associated with venting the VCT.

This review represented one inspection sample.

b. Findings

Introduction: An inspector-identified finding of very low safety significance, and an associated violation of NRC requirements were identified for the failure to establish

adequate written procedure(s) for Offsite Dose Calculation Manual (ODCM) implementation to ensure that the radiological impact from venting the VCT to the environment was properly assessed prior to the release, and that the release was properly quantified and reported.

Description: On March 28, 2005, the Unit-1 VCT was vented to the atmosphere to relieve residual reactor coolant system (RCS)/VCT pressure as a planned evolution during unit shutdown in preparation for a refueling outage. The VCT gas was vented through the Unit-1 Auxiliary Building Vent Stack which is an effluent pathway continuously monitored by a radiation monitor. The vent stack monitor unexpectedly alarmed several minutes into the venting process because elevated radiation levels were detected by the monitor. The alarm prompted the operations staff to immediately terminate the release. The licensee evaluated the problem and found that the concentration of gaseous radioactivity in the VCT was significantly (approximately 1000 times) greater than previous instances when the VCT was vented following degassing of the RCS because: (1) elevated fission gas concentrations existed in the RCS due to minor fuel degradation which emerged during the unit's run cycle; and (2) the close proximity of the venting date to the unit shutdown date which reduced the time for radioactive decay.

During the unit shutdown process, residual gas is typically vented from the VCT to the atmosphere after the RCS has been degassed of radioactive and non-radioactive gases. If the RCS has not been sufficiently degassed or elevated concentrations of radioactive gases are otherwise present in the RCS, the residual gas can be transferred from the RCS into the waste gas system and processed as a batch effluent release from the gas decay tanks (GDTs). As a batch release, GDT contents are sampled/analyzed and the resulting offsite dose is determined prior to the release. In this instance, however, due to the addition of hydrogen peroxide to the RCS to initiate a planned crud burst, residual RCS gas was transferred instead to the VCT to avoid creating a potential explosive gas atmosphere in the GDTs. Historically, with the RCS degassed, the concentration of residual radioactive gases in the RCS was small, such that its release via the VCT had negligible environmental impact and was below the detectability levels of the vent stack monitor. In either case, the licensee relied on the vent stack monitor to alert them to higher than expected concentrations of radioactivity, but not to quantify the amount of material released.

Prior to venting the VCT on March 28, 2005, RCS total gas samples were obtained and analyzed by the chemistry department as is the licensee's usual practice. The results of the RCS gas sample analysis were used to determine if the RCS had been degassed sufficiently. To make that determination, the licensee implemented chemistry procedure 12-THP-6020-CHM-110, "RCS Chemistry - Shutdown and Refueling," which provided shutdown chemistry strategies and chemistry control specifications including RCS degas target parameters. An RCS (xenon-133 fission gas) concentration was specified as one of the degas target parameter. However, the xenon-133 value specified in the procedure was not intended as a bounding value for effluent control or for ODCM implementation since its technical basis was unrelated to offsite dose from the venting operation. Consequently, the value provided in the procedure was not intended to be used to determine if the RCS or VCT could be vented to the environment to ensure the dose to the public from the release was ALARA.

The licensee vented the VCT presuming the RCS was adequately degassed of radioactive gases based on an erroneous application of a fission gas concentration in the RCS. Although the licensee obtained an RCS total gas sample and analyzed it for the presence of fission gases in support of the VCT venting, the sample results were not used properly to determine the dose impact of the elevated gas concentrations or to adjust the vent stack monitor alarm setpoints as necessary prior to the release. While the VCT release was subsequently determined to have minimal offsite dose consequence relative to NRC limits, the quantity of fission gas released during the short (several minute) venting operation was approximately 20 percent of the total fission gases released when compared to calendar year 2004. Absent an alarm, the quantity of that radioactive release would not have been accounted for by the licensee.

The inspectors concluded that the licensee failed to develop an ODCM implementing procedure that ensured that the offsite dose to the public from venting of the RCS or the VCT was ALARA and that ensured the release was properly quantified and reported as required by the ODCM.

Analysis: The failure to develop a procedure for ODCM implementation to ensure the radiological impact from venting the VCT to the environment was properly assessed prior to the release and that the release was properly quantified and reported in accordance with ODCM requirements represents a performance deficiency as defined in NRC IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." The inspectors determined that the issue was associated with the Program/Process attribute of the Public Radiation Safety Cornerstone and potentially affected the cornerstone objective to ensure adequate protection of the public from exposure to radioactive materials from the release of gaseous effluents. Therefore, the issue was more than minor and represented a finding which was evaluated using the SDP.

Since the finding involved a problem with the licensee's radiological effluent assessment program and with ODCM implementation, the inspectors utilized IMC 0609, Appendix D, "Public Radiation Safety SDP," to assess its significance. Specifically, the finding involved a failure to assess the offsite dose impact from the venting of the VCT before the effluent was released to the environment so as to assure its dose impact satisfied the ALARA design objectives of 10 CFR Part 50, Appendix I. Since the licensee failed to adequately assess the offsite dose impact prior to the VCT venting, the situation represented an impaired ability to assess dose. However, the licensee subsequently assessed the offsite dose resulting from the release and determined that applicable dose limits were met. Consequently, there was minimal actual risk to the public from the release; and, therefore, the inspectors concluded that the SDP assessment for this finding was of very low safety significance (Green).

In 2003, the licensee generated a CR to document the lack of an evaluation to quantify the amount of gaseous effluent associated with venting the VCT. The CR resulted in a revision to the operations department procedure that governed the venting process to require that the operations staff verify with chemistry that the RCS was degassed of radioactive gases prior to VCT venting. However, the licensee's evaluation of the CR and the associated corrective actions were not sufficiently comprehensive to ensure that the environmental impact from VCT venting was assessed adequately before the effluent was released. Following the March 28, 2005 problem, a CR was generated to

document that the unit vent radiation monitor alarmed during the venting process; however, that CR was closed with no additional corrective measures deemed necessary. Following additional questions raised by the NRC, the 2005 CR was subsequently reopened to allow the matter to be reevaluated so as to address the deficiencies with the venting process described above. Therefore, deficiencies with the licensee's problem evaluation and resolution program, a cross-cutting issue, contributed to this finding.

Enforcement: Technical Specification 6.8.1 requires that written procedures be established, implemented, and maintained covering ODCM implementation. Contrary to this requirement, an adequate written procedure was not established to ensure the radiological impact from venting the VCT to the environment was properly assessed prior to the release to demonstrate it satisfied the ALARA design (offsite dose) objectives of 10 CFR 50, Appendix I and to ensure that the release was properly quantified and reported, as required by the ODCM.

To correct the problem, the licensee planned to derive an offsite dose based (RCS total gas concentration) bounding condition for use by the chemistry staff to determine that the RCS is sufficiently degassed of radioactive gases prior to venting to the environment. Procedural enhancements and instructions are also being contemplated by the licensee. Since the licensee documented this issue in its corrective action program (CR 05087019 and CR 05216098) and because the violation is of very low safety significance, it is being treated as a Non-Cited Violation (NCV 50-315/2005005-03; 50-316/2005005-03).

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs (71122.03)

.1 Reviews of Radiological Environmental Monitoring Reports, Data and Quality Control

g. Inspection Scope

The inspectors reviewed the Annual Radiological Environmental Operating Reports (AREOR) for calendar years 2003 and 2004, and the results of monthly radiological environmental monitoring analyses for 2005 (documented in quarterly reports) through June 30, 2005. The inspectors also reviewed the results of the routine land use census performed in 2003 and the routine census and a special census performed in 2004. The special census was required due to the retirement of a local dairyman, causing loss of one source of supply for indicator milk sampling. The inspectors reviewed changes made to the Offsite Dose Calculation Manual (ODCM) in 2005 relative to the radiological environmental monitoring program (REMP). The inspectors also examined the results of the vendor laboratory quality assurance programs, including intra-laboratory and inter-laboratory comparisons for 2003 and 2004. The inspectors assessed REMF implementation, as documented in the respective AREORs, against requirements of the TSs and the ODCM, and evaluated changes to the program to determine whether there was any potential effect on capability to monitor the impacts of radioactive effluents on the environment. Additionally, the inspectors evaluated the current locations of the environmental monitoring stations and the types of samples collected from each location to determine if they were consistent with the ODCM and with NRC guidance in

Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light Water Cooled Nuclear Power Plants," Regulatory Guide 4.8, "Environmental TSs for Nuclear Power Plants" and an associated NRC Branch Technical Position.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.2 Examination of the Radiological Environmental Monitoring Stations and Meteorological Towers

a. Inspection Scope

The inspectors visited each of the six onsite environmental air sample monitoring stations and examined each station's location as described in the ODCM, to assess equipment material condition and operability and to verify that monitoring station orientation relative to plant effluent release points, equipment configuration, and vegetation growth control, allowed for the collection of representative samples. The inspectors examined the locations of eight onsite and near site thermoluminescent dosimeters (TLDs), which read radiation levels directly, to verify they were installed as described in the ODCM. In addition, the inspectors examined both the drinking water sampling stations (indicator and control sites) to evaluate the suitability of each in complying with the ODCM. The inspectors also examined equipment located at the primary and back-up meteorological towers, to verify that the towers were sited adequately and that instrumentation was installed consistent with applicable industry guidance. The inspectors examined meteorological data readouts and atmospheric stability information provided by the plant process computer to determine the equipment was operable. In addition, data recording capabilities were discussed with the licensee's environmental staff to verify that meteorological data were sampled and compiled consistent with the Regulatory Guide.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.3 Reviews of Radiological Environmental Monitoring Equipment Maintenance and Testing

a. Inspection Scope

The inspectors reviewed calibration and maintenance records for 2004 and 2005 through June 2005 which documented work on environmental air sampling pumps and meteorological tower equipment. This review encompassed calibration records for associated measurement and test equipment such as the rotameters used for air

sampling pump calibration, to verify that the testing and maintenance programs for this equipment were implemented consistent with procedural requirements and industry standards, including traceability to the National Institute of Standards and Technology. The inspectors discussed air sample pump maintenance practices with the licensee's environmental staff and reviewed overall data recovery success rates and the actions taken to address the minor equipment failures which were experienced.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.4 Reviews of REMP Sample Collection and Laboratory Analyses

a. Inspection Scope

The inspectors accompanied a REMP technician and observed sample collection and handling associated with the changing-out of air particulate filters and charcoal cartridges and also observed sampling practices at each of the two municipal drinking water treatment facilities. The inspectors verified that the samples were collected in accordance with the applicable sampling procedure and determined whether appropriate practices were used to ensure sample integrity and chain-of-custody. The inspectors also observed the REMP technician perform pump sampling train leak checks, to verify that they were accomplished consistent with the procedure and were adequate to ensure no in-leakage paths existed which could impact sample representativeness.

The inspectors reviewed the results of the vendor's inter-laboratory comparison and internal cross-check programs for 2003 and 2004, including cross-checks on radio-analyses of environmental media and readout of environmental TLDs. The inspectors also reviewed lower limit of detection values achieved by the vendor for various sample media. These reviews were performed to assess the analytical detection capabilities for radio-analyses of environmental samples and to determine whether the vendor had demonstrated capability to perform precise and accurate radiological measurements with the necessary sensitivity.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified

.5 Unrestricted Release of Material From Radiologically Controlled Areas

a. Inspection Scope

The inspectors observed several individuals and various material/equipment being released from the radiologically controlled area (RCA) of the plant at both the Job

Coverage Coordinator and the Radiation Protection Access Control points. The inspectors also observed RP Technicians performing radiological surveys of miscellaneous materials being released from the Rad Material Building. These are locations where the licensee monitors potentially contaminated material leaving the RCA. The methods used for control, survey, and release of materials from these areas was evaluated to determine consistency with industry criteria and compliance with the licensee's procedures.

The inspectors verified that the radiation monitoring instrumentation was appropriate for the radiation types present and was in current calibration. The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material and verified that there was adequate guidance on how to respond to indications which may signal the presence of licensed radioactive material. The inspectors reviewed the licensee's procedures and ensured the radiation detection sensitivities were consistent with the NRC guidance contained in IE Circular 81-07 and IE Information Notice 85-92 for surface contamination and applicable NRC Health Physics Positions (HPPOS-221) for volumetrically contaminated material. Through interviews, the inspectors verified that the RP staff had a clear understanding of the radioactive material control program requirements and understood the proper radiation survey equipment to use for various unconditional release applications.

The inspectors verified that the licensee evaluated the impact of difficult-to-measure radionuclides on its radiation survey program including those radionuclides that decay via electron capture. The inspectors reviewed the licensee's procedures to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters (i.e., counting times and background radiation levels). The inspectors verified that the licensee had not established a "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

.6 Identification and Resolution of Problems for the Radiological Environmental Monitoring and Radioactive Material Control Programs

a. Inspection Scope

The inspectors reviewed licensee corrective action documents generated between August 2003 and July 2005 that related to the REMP or to radioactive material control issues. The results of three Performance Assurance Department audits and three REMP self-assessments completed in the same time frame were also reviewed, as were the results of a joint nuclear utility audit of the vendor laboratory. These reviews were conducted to determine if the licensee adequately assessed the effectiveness of its programs and whether the licensee, through its corrective action program, identified

individual problems and trends, evaluated contributing causes and extent of condition, and developed corrective actions to achieve lasting results.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

4OA1 Performance Indicator Verification (71151)

Cornerstone: Public Radiation Safety

.1 Radiation Safety Strategic Area

a. Inspection Scope

The inspectors sampled the licensee's submittals for the performance indicator (PI) listed below for the period October 2004 thru July 2005. The inspectors used PI definitions and guidance contained in Revision 3 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify the accuracy of the PI data. The following PI was reviewed:

- Occupational Exposure Control Effectiveness

For the period reviewed, one reportable occurrence was identified by the NRC as described in Inspection Report 05000315/316/2005004. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with the RP staff the scope and breadth of its PI data review and the results of those reviews. The inspectors independently reviewed electronic dosimetry dose rate and accumulated dose reports, the personnel contamination log, dose assignments for any intakes that occurred during the period of review, and the licensee's CR database along with individual CRs generated during the period reviewed to verify there were no unidentified PI occurrences.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action system at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Some minor issues were entered into the licensee's corrective action system as a result of inspectors' observations but are not discussed in this report.

b. Findings

No findings of significance were identified.

4OA3 Event Response (71153)

.1 (Closed) Licensee Event Report (LER) 50-315/2005-001-00: "Reactor Trip Due to Intermediate Range Instrument Spiking."

The inspectors reviewed the LER. No findings were identified and no violations of NRC requirements occurred.

4OA4 Cross-Cutting Aspects of Findings

- .1 A finding described in Section 1R19 of this report had, as a primary cause, a human performance deficiency related to resources because the procedure utilized to complete the task of measuring the lube oil sump level using a steel-tape dipstick was not complete and accurate. Consequently, the steel-tape dipstick became entrained in the lube oil before/after pump, entered the emergency diesel generator lube oil system and rendered the emergency diesel generator unavailable for 43 hours longer than planned.
- .2 The cause of the finding described in Section 2PS1 included elements of the licensee's problem identification and resolution program given that a similar VCT venting issue was identified by the licensee in 2003 (and a CR was generated) but was not fully evaluated to allow for corrective action to address all aspects of the problem.

4OA5 Other

.1 (Closed) Temporary Instruction (TI) 2515/163 Follow-up: Operational Readiness of Offsite Power.

a. Scope

The inspectors completed a follow-up review of applicable licensee procedures and interviewed station engineering and operations staff to further determine whether the procedures ensured the operational readiness of offsite power systems in accordance with NRC requirements such as 10 CFR 50, Appendix A, General Design Criteria 17; plant TSs for offsite power systems; 10 CFR 50.63; and 10 CFR 50.65(a)(4).

b. Findings

No findings of significance were identified. In accordance with TI 2515/163 reporting requirements, the inspectors provided the required information to the Division of Engineering staff in headquarters for further analysis.

.2 (Closed) Violation 05000316/2003006-04: "Deliberate Failure to Follow Radiation Protection Requirements"

On January 28, 2002, a contractor failed to follow the instructions of an RP technician during work in the Unit 2 Containment Building. The NRC Office of Investigations reviewed the matter and concluded that the individual deliberately failed to obey the instructions of the RP staff to stop work and evacuate the work area and subsequently failed to immediately leave the work area after the individual's electronic dosimetry alarmed, contrary to RP procedures. On May 16, 2003, a Notice of Violation was issued to the licensee for the contractor's deliberate failure to follow radiation protection procedure requirements. (EA 03-058)

The license acknowledged the violation and provided its corrective actions in letters dated June 16, 2003, and July 2, 2003. The implementation and effectiveness of these corrective actions were reviewed by the inspectors which included a review of revised general radiation worker procedures/instructions, the review of a revised general employee training study guide and lesson plan, and a review of a trending CR and the licensee's CR database to determine if any potential recurring issues existed. The inspectors determined that the corrective actions were as described in the licensee's response letters and were effective.

4OA6 Meetings

.1 Resident Inspectors' Exit Meeting

The inspectors presented the inspection results to Mr. J. Jensen and other members of licensee management at the conclusion of the inspection on October 6, 2005. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meeting

Interim exits were conducted for:

- C Radiation safety access and radiological work control, radiological environmental monitoring, radioactive material control and limited aspects of effluent monitoring with Mr. J. Jensen on August 5, 2005.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

M. Nazar, Senior Vice President, Chief Nuclear Officer
J. Jensen, Site Vice President
D. Fadel, Vice President Engineering
L. Weber, Plant Manager
J. Carlson, Environmental Manager
R. Gillespie, Operations Director
M. Scarpello, Compliance Supervisor
R. Serocke, Radiation Protection Manager
S. Simpson, Learning Organization Manager
T. Summers, Chemistry Superintendent

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000315/2005005-01	NCV	Emergency Diesel Generator 1CD Rendered Unavailable for 43 Hours Longer Than Planned (Section 1R19)
05000315/2005005-02 & 05000316/2005005-02	NCV	Failure to Obtain a Pre-Job Briefing Prior to Entry Into a High Radiation Area (Section 2OS1)
05000315/2005005-03 & 05000316/2005005-03	NCV	Failure to Develop an Adequate Procedure to Ensure Proper ODCM Implementation During Venting of a Volume Control Tank (Section 2PS1)

Closed

05000315/2005005-01	NCV	Emergency Diesel Generator 1CD Rendered Unavailable for 43 Hours Longer Than Planned (Section 1R19)
05000315/2005005-02 & 05000316/2005005-02	NCV	Failure to Obtain a Pre-Job Briefing Prior to Entry Into a High Radiation Area (Section 2OS1)
05000315/2005005-03 & 05000316/2005005-03	NCV	Failure to Develop an Adequate Procedure to Ensure Proper ODCM Implementation During Venting of a Volume Control Tank (Section 2PS1)
50-315/2005-001-00	LER	LER for Reactor Trip Due to Intermediate Range Instrument Spiking (Section 4OA3.1)
05000316/2003006-04	VIO	Deliberate Failure to Follow Radiation Protection Requirements (Section 4OA5)

Discussed

NONE

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the inspection. Inclusion on this list does not imply the NRC inspectors reviewed the documents in their entirety but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document in this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather Protection

- C CR 05159019; Changes Required to Procedure to Implement the Temporary Modifications to Provide Cooling to the Unit 1 Main Transformer During Periods With High Outside Temperatures; June 8, 2005
- C 1-OHP-4024-121; Annunciator #121 Response: Generator; Drop 44; Main Transformer Oil Temp High; Revision 23
- C 1-OHP-4021-081-001; Operation of Main and Auxiliary Transformer Cooling; Revision 19

1R04 Equipment Alignment

- C D. C. Cook Units 1 and 2 TSs and Bases
- C D. C. Cook Updated Final Safety Analysis Report, Revision 19
- C O1-OHP-4030-119-022W; West Essential Service Water System Test; Revision 6
- C 12- OHP-4021-019-001; Operation of the Essential Service Water System; Revision 30
- C OP-2-5113-76; "Flow Diagram Essential Service Water" Revision 76
- C 02-OHP-4030-219-022W; "West Essential Service Water System Test," Lineup Sheet 1, "Unit 2 West ESW Header Flow Path Verification," Revision 5
- C 02-OHP-4030-STP-007V; "Containment Spray System Valve Position Verification;" Revision 0a
- C 02-OHP-4021-009-001; "Placing the Containment Spray System in Standby Readiness;" Revision 8
- C PMP-4043-SLV-001; "Sealed/Locked Valves;" Revision 14
- C 02-OHP-4030-214-035; "Controlled Valve Position Logging;" Revision 3
- C CR 05211008; "West CTS Lower Ring Header Isolation Valve, 1-CTS-124W, found Unsealed but in Correct Position;" July 30, 2005

1R05 Fire Protection

- C D. C. Cook Fire Hazards Analysis; Units 1 and 2; Revision 12 (Fire Zones 41, 45, 44A, 44B, 44E, and 44F, 142, 20)
- C D. C. Cook UFSAR; Section 9.8.1; "Fire Protection System"; Revision 19
- C CR 05210165; "Walkdown of Certain Fire Zones as Described in the FHA Resulted in the Identification of Errors in the FHA;" July 29, 2005
- C DC Cook Fire Pre-Plan; Units 1 and 2, Revision 2, (Fire Areas B, HH, LL, and NN)
- C 12-5974; "Fire Hazard Analysis Mezzanine Floor Elevation 609 Foot - Unit 1 and 2;" Revision 8
- C D. C. Cook Fire Hazards Analysis; Units 1 and 2; Revision 12, Figure 3-2
- C ES-FIRE-0601-QCF, "Fire Rated Seals"

- C ES-FIRE-0601-QCF, Attachment 4, "Fire Rated Penetration Seal Requirements by Fire Zone"
- C Fire Training Exercise; "Unit II Pressurizer Heater Transformer Room, Exercise #39," August 8, 2005

1R11 Licensed Operator Requalification Program

- C Cook Nuclear Plant Dynamic Simulator Evaluation Guide; RQ-E-3040A; LBLOCA; Revision 0

1R12 Maintenance Effectiveness

- C Maintenance Rule Scoping Report - Essential Service Water; July 12, 2005
- C Two Year Unavailability Report for the Essential Service Water System; July 12, 2005
- C Maintenance Rule CR's (7/11/2003 to Present) for ESW; July 11, 2005
- C Maintenance Rule (a)(1) Action Plan - Essential Service Water System; July 1, 2005
- C Maintenance Rule Scoping Report - Residual Heat Removal System; July 12, 2005
- C Two Year Unavailability Report for the Residual Heat Removal System; September 7, 2005
- C Maintenance Rule CR's (9/7/2003 to Present) for RHR; September 7, 2005
- C System Health and Status - Emergency Core Cooling System (05/01/2005 - 06/30/2005)
 - CR 05181175; "ESW Pump Improvement (a)(1) Action Plan has not been Presented to the Expert Panel in a Timely Manner;" June 30, 2005
- C CR 04180002; "ESW Header Pressures Lower than Expected;" June 28, 2004
- C CR 05068022; "Stem Nut Failure Resulted in Strainer Diverter Gate Malfunction;" March 9, 2005
- C CR 05182057; "2W-RHR has exceeded Maintenance Rule Goals for Unavailability;" July 1, 2005
- C CR 05181230; "1-QT-130-AB1-MTR, Work Scheduled which did not Correct Condition of WR;" June 29, 2005
- C CR 05182058; "1-QT-130-AB1-MTR, Lubrication and Replacement Part Issues;" July 1, 2005

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

- D. C. Cook Units 1 and 2 TSs and Bases
- D. C. Cook Updated Final Safety Analysis Report; Revision 19
- Unit 1 and Unit 2 Control Room Logs; August 1-5, 2005; August 8-12; August 11-17; August 30 - September 30
- PMP-2291-OLR-001; On-Line Risk Management Data Sheet 1; Work Schedule Review and Approval Form; August 1-5, 2005; August 8-12; August 30 - September 30; September 4 - 10; September 11 - 17, September 18 - 24
- CR 05246005; "Weld Joint Leak on pipe to 1-ESW-186," September 3, 2005
- CR 05229007; "Safety Related Pump Unavailability During Risk Assessments," August 17, 2005
- C Remainder of Response to Request for Additional Information Regarding Licensee Amendment Request to Extend the Allowed Outage Times for Emergency Diesel Generators, 69 KV Offsite Power Circuit, Component Cooling Water, and Essential Service Water (TAC Nos. MC4525 and MC 4526); May 6, 2005

- C IPTE Briefing Guide for Tie in and Testing of SDG
- C CR 05246006; "Discovered Leak from Weld Joint on the Pipe that Taps Off ESW Out of U-1 E CCW HX Going to 1-ESW-186," September 3, 2005.

1R14 Personnel Performance During Non-Routine Plant Evolutions

- C 01-OHP-4021-082-001; 4KV Buses Power Source Transfer and De-energizing and Re-energizing a Safeguards Bus; Revision 15
- C 2-OHP-4024-216; Annunciator #216 Response: Condensate; Drop 10; Left North Reheater Coil Drain Tank Level Low; Revision 10
- C 02-OHP-4021-051-005; Operation of Reheaters; Revision 7
- C CR 05243061; Unit 2 Moisture Separator Reheater Tube Bundle Isolation; August 31, 2005

1R15 Operability Evaluations

- C Licensing Bases; Pressurizer Power Operated Relief Valves - Operating; TSs and Operability
- C CR 05121006; 2-NRV-153 Pressurizer PORV is Leaking By; May 1, 2005
- C CR 04125132; 1-NRV-151 Exhibiting Seat Leakage; May 4, 2004
- C CR 04106001; 1-NRV-153 Exhibiting Seat Leakage; May 15, 2004
- C CR 05227008; The Level Trend from the 24 Safety Injection Accumulator has Shown a Persistent Rise over the Recent Months; August 15, 2005
- C CR 05227014; Instrumentation on the Safety Injection Accumulators has been a Distraction to the Control Room Operators due to Various Concerns; August 15, 2005
- C CR 05235024; During SSPS Testing Reactor Trip Breaker B Would Not Close; August 23, 2005

1R16 Operator Workarounds

- C Work Around Review Board Meeting Agenda for August 18, 2005
- C CR 051090048; "Suspected that Float Valve, 1-QT-518-AB, for Makeup to Jacket Water Surge Tank, 1-QT-133-AB is Leaking By and Diluting the Chemical Additives in the Jacket Water System;" April 19, 2005
- C CR 051090051; "Suspected that Float Valve, 1-QT-518-CD, for Makeup to Jacket Water Surge Tank, 1-QT-133-CD is Leaking By and Diluting the Chemical Additives in the Jacket Water System;" April 19, 2005

1R19 Post Maintenance Testing

- C 01-OHP-4030-STP-027CD; "CD Diesel Generator Operability Test (Train A)," Attachment 1, "DG1CD Slow Speed Start;" Revision 23
- C 01-OHP-4030-STP-027CD; "CD Diesel Generator Operability Test (Train A)," Data Sheet 1, "DG1CD Operating Data - Control Room;" Revision 23
- C CR 05188099; "The time to rated speed for CD EDG on 7-7-05 was 82.53 seconds. This time exceeds the allowable range of 20 to 30 seconds per 1-OHP-4030-STP-027CD Attachment 1, DG1CD Slow Speed Start," July 8, 2005
- D. C. Cook Updated Final Safety Analysis Report; Revision 19

- 01-IHP-4030-166-055; "Unit 1 Engineered Safety Switchgear (East 600V Switchgear Room and Mezzanine Area) CO2 Fire Suppression Test;" Revision 1a
- C Job Order 05209379; "Post Maintenance Testing for Unit 1 Switchgear Room Fire Damper, 1-HV-SGR-FD-1; "4 kV Room 600 Volt Switchgear Transformers Area Vent Rollup Door Barrier Fire Wall Damper;" August 2, 2005
- C ESAT 05209379, 1-HV-SGR-FD-1; "Fire Failed to Close during the Performance of 01-EHP-4030-166-052, CO2 Testing;" July 28, 2005
- C Job Order 02309012-02; "Replace Turbine Room Sump Emergency Overflow Valve;" August 5, 2005
- C 12-EHP-EHP-001-001; "Check Valve Examination Surveillance;" Revision 3
- C CR 05217070; "Incorrect Torque Values during Turbine Room Sump Emergency Overflow Valve, 12-DR-129, Installation;" August 5, 2005
- C 2-IHP-4030-STP-511; "Train 'B' RPS and ESF Reactor Trip Breaker and Automatic Trip/Actuation Logic Functional Test;" Revision 9
- C CR 03225031; "Post Maintenance Testing not Complete for 2-SV-2A-1 (SG #1 Safety Valve #2A);" August 13, 2003

1R20 Refueling and Outage Activities

- C D. C. Cook Unit 2 TS
- C D. C. Cook UFSAR; Revision 19
- C 02-OHP-4021-001-004; "Plant Cooldown From Hot Standby To Cold Shutdown;" Revision 36
- C 2-OHP-4021-002-003; "Reactor Coolant Pump Operation;" Revision 18
- C 02-OHP-4021-001-002; "Reactor Start-Up;" Revision 29
- C 02-OHP-4021-001-006; "Power Escalation," Revision 27

1R22 Surveillance Testing

- C 01-OHP-4030-102-016; Reactor Coolant System Leak Rate Test; July 11, 2005
- C 01-OHP-4030-STP-052; Pressurizer Power Operated Relief Valve Functional Test;
- C D. C. Cook Units 1 and 2 TSs and Bases
 - Shift Manager's Logs; July 23-25, 2005
 - C Unit 1 and Unit 2 Control Room Logs; July 23-25, 2005
- C CR 05195002; "02-OHP-4030-STP-027AB/CD Attachment 1, EDG Slow Speed Start Procedurally Allows for Adjustment of Output Voltage Prior to Verifying TS Acceptance Criteria;" July 14, 2005
 - CR 05094050; "Unit 1 and 2 01/02-OHP-4030-STP-027AB/CD Do Not Verify Proper Steady State Voltage on an EDG Slow Start;" April 5, 2005
 - 02-OHP-4030-STP-027AB; "AB Diesel Generator Operability Test (Train B);" Revision 22
 - 02-OHP-4030-STP-027AB; "AB Diesel Generator Operability Test (Train B)," Revision 21
- C 12-OHP-SP-263; "Obtaining Lower Containment Air Temperature Readings Using Alternate Methods;" Revision 0
- C 12-OHP-SP-263; "Obtaining Lower Containment Air Temperature Readings Using Alternate Methods;" Revision 1
- C CR 05198010; "Operability Determination Evaluation is required for Control Room Air Conditioning Operability;" July 18, 2005

- C CR 050206075; "Unit 2 Cannot Maintain Containment Temperature Less than Maximum Limits;" July 25, 2005
- C CR 05198010; "Lake Temperatures Increasing above 79°F;" July 17, 2005
- C Regulatory Assessment on Implementation of TS 3.6.1.5; Containment Systems - Air Temperature
- C Cook Nuclear Plant Information Change Package 01108; Revision 0, "Setpoint Changes for Unit 1 Lower Containment High Temperature Alarms and Pressurizer Enclosure High Temperature Alarm on Recorder 1-SG-18 Point Numbers 8, 11, 12, and 13;" July 14, 2005
- C Job Order R0274274; "Perform 1-BATT-CD 92 Day Surveillance;" August 4, 2005
- C Unit 1, 12-IHP-4030-082-002; "AB, CD, and N-Train Battery Quarterly Surveillance and Maintenance;" Revision 10
- C CR 05216081; "1-BATT-CD Cell #40 Corrected Specific Gravity is 1.208;" August 4, 2005
- C CR 05216083; "Procedure 12-IHP-5021-EMP-025, "Battery Specific Gravity Adjustment, is Overly Complex and Cumbersome;" August 4, 2005
- C 01-OHP-4030-114-049; "Hot Shutdown Panel Operability Test; "Revision 3, Attachment 15, "East ESW Pump Operability Test"
- C 01-OHP-4030-119-022E; "East Essential Service Water System Test;" Revision 7 July 28, 2005

1R23 Temporary Modifications

- C 1-TM-04-68-RO; "Install Temporary Lead Shielding on Unit 2 East and West Residual Heat Exchangers," December 28, 2004
- C Temporary Modification Log Index; Unit 1
- C Temporary Modification Extension; 1-TM-04-68-RO, "Install Temporary Lead Shielding on Unit 2 East and West Residual Heat Exchangers," May 2, 2005
- C Temporary Modification Extension; 1-TM-04-68-RO, "Install Temporary Lead Shielding on Unit 2 East and West Residual Heat Exchangers," June 21, 2005
- C Temporary Modification Extension; 1-TM-04-68-RO, "Install Temporary Lead Shielding on Unit 2 East and West Residual Heat Exchangers," July 22, 2005
- C 12-EHP-5040-MOD-001; "Temporary Modifications," Revision 11

1EP6 Drill Evaluation

- C PMP-2080-EPP-101; "Emergency Classification," Revision 4
- C PMP-2080-EPP-107; "Notification," Revision 18
- C EMD-32A; "Nuclear Plant Event Notification," Drill Messages for Declared Alert; August 16, 2005

2OS1 Access Control to Radiologically Significant Areas

- C PMP-6010-RPP-003; High, Locked High, and Very High Radiation Area Access; Revision 16
- C 01-EHP-4030-109-226; RCS Pressure Isolation Valves Leak Rate Test; Revision 4
- C 01-OHP-4021-002-005; RCS Draining; Revision 31
- C 01-OHP-4021-002-012; Restoration from RCS Drindown; Revision 5

- C 12-THP-6010-RPP-006; Radiation Work Permit Processing; Revision 23
- C 12-THC-6010-RPP-405; Analysis of Airborne Radioactivity; Revision 10
- C 12-THC-6010-RPP-407; Special Radiological Evolutions; Revision 16
- C SA-2004-RPS-001-F; Radioactive Material Control; June 01, 2004
- C CR 3363015; HIC Storage Area in RMB Used to Store CESA Boxes; December 19, 2003
- C CR 4096046; Baseline Survey Not Performed on Incoming Vendor Equipment; April 5, 2004
- C CR 4097034; Portal Monitors at the North Security Access were Out-of-Service Until RP Reset the Monitors
- C CR 4098055; Two Individuals Exited the North Security Access Turnstile While the Portal Monitors were not Operating; April 7, 2004
- C CR 4098058; One Individual Apparently Exited the North Security Access Turnstiles While the Portal Monitors were not Operating; April 7, 2004
- C CR 4196061; Reactor Coolant Pump Motor Transported without AEP Oversight; July 14, 2004
- C CR 4289027; Poor Rad Worker Practice - Put Tool in the SAM; October 15, 2004
- C CR 4292058; Worker Attempted to Exit RCA without Requesting RP Survey the Tool; October 17, 2004
- C CR 5104014; Rad Worker Used a Different Exit Monitor After Alarming Once; April 13, 2005
- C CR 5114001; Bartlett Nuclear Radworkers Failed to Receive a HRA Pre-Job Brief, April 23, 2005
- C CR 5118025; U1 Outage Crud Burst Resulted in Abnormally High Amounts of Cr-51; April 28, 2005
- C CR 5185001; Further Evaluation of the APTEC PMW-3 Whole Body Contamination Monitors and SAM to the INPO Criteria; July 4, 2005
- C CR 5194079; Contaminated Sling Found in the RMB Clean Area
- C 12-THP-6010-RPP-211; Operation of the Canberra Fastscan Whole Body Counter; Revision 4
- C 12-THP-6010-RPP-206; Internal Dose Assessment and Calculation; Revision 5
- C Records of Whole Body Count Results and Associated Results of Internal Dose Calculations for Selected Workers; October 2004 - July 2005
- C CR 05101011; Inappropriate Posting and Control Could Lead to Overexposure; April 9, 2005
- C CR 04226028; Evidence that a Radiation Protection Posting was Tampered; August 13, 2004

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

- C 12-THP-6020-CHM-110; RCS Chemistry - Shutdown and Refueling; Revision 14
- C 02-OHP-4021-003-001; Establishing a Nitrogen or Hydrogen Atmosphere in the VCT; Revision 30
- C 01-OHP-4021-003-001; Letdown, Charging and Seal Water Operation; Attachment 15, Chemical Addition; March 27, 2005
- C CR 05087019; Venting of VCT Gas Space Caused Alert Alarm on Vent Stack Monitor; March 28, 2005
- C CR 03022021; Gaseous Release Made From VCT Purging That is Not Being Quantified; January 22, 2003

C AEP:NRC Letter 2790-44 (With Attachments/Enclosures); Response to Request for Evaluation for Tracking No. 05-A-0035; June 2, 2005

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs

C PMP-6010-OSD-001; Offsite Dose Calculation Manual; Revision 18
C PMP-6010-RPP-301; Control of Material in a Restricted Area; Revision 18
C Annual Radiological Environmental Operating Reports for 2003 and 2004
C Quarterly Reports of Results of Laboratory Radioanalyses of Environmental Samples; First Quarter and Second Quarter, 2005
C 12-THP-6010-RPP-301; Radiation Protection Actions for Restricted Area Material Control; Revision 3
C 12-THP-6010-RPP-401; Performance of Radiation and Contamination Surveys; Revision 11
C 12-THP-6010-RPP-402; Contaminated Equipment Storage Area (CESA) Material Control; Revision 0
C 12-THP-6010-RPC-514; Calibration of the AVS-28A With the AVT-100 Air Volume Totalizer; Revision 4
C 12-THP-6010-RPP-630; Collection of REMP Surface Water Samples; Revision 3
C 12-THP-6010-RPP-632; Collection of Environmental Air Samples; Revision 4a
C 12-THP-6010-RPP-633; Collection of Environmental Radiation Dosimeters; Revision 5
C 12-THP-6010-RPP-634; Collection of REMP Groundwater Samples; Revision 4a
C 12-THP-6010-RPP-635; Collection of Milk Samples; Revision 1
C 12-THP-6010-RPP-636; Collection of Fish Samples; Revision 2b
C 12-THP-6010-RPP-637; Collection of Lake Sediment Samples; Revision 1a
C 12-THP-6010-RPP-638; Collection of Grape and Broadleaf Samples; Revision 3
C 12-THP-6010-RPP-642; Collection of Drinking Water Samples; Revision 2a
C SA-2003-REA-001; Self-Assessment Report, Radiological Environmental Monitoring Program; March 27, 2003
C SA-2003-RPS-004-QH; Self-Assessment Report, Radiation Protection/Environmental Department Corrective Action Program Performance; December 18, 2003
C SA-2004-RPS-009-QH; Radiation Protection Mid-Cycle Review Self-Assessment Report; September 15, 2004
C SA-2004-RPS-001-F; Self-Assessment Report, Radioactive Material Control; June 1, 2004
C PA-04-07; Report of Performance Assurance Audit, Radiation Protection; January 19 - February 13, 2004
C PA-05-01; Report of Performance Assurance Audit, Radiation Protection; January 17-28, 2004
C PA-05-03; Report of Performance Assurance Audit, Plant Operations (including meteorological monitoring); February 21-March 4, 2005
C RP-TB-001 Evaluation of the Use of the Bicron NE Small Article Monitor (SAM-11) for Unconditional Release of Material from the Restricted Area; Revision 0
C ANP DE&S PPL Audit No.-2003-061; NUPIC Audit No. 18822; Joint Audit of Framatome ANP Environmental Laboratory (FANPEL); December 2-5, 2003
C Framatome ANP Environmental Laboratory, Analytical Services, Semi-Annual Quality Assurance Status Reports; July 2003 - June 2005

- C Calibration Records; 2-IHP-6030-IMP-333, Meteorological Instrumentation Calibration; Performed in 2003 (April 17 and October 2), 2004 (April 1 and September 2) and 2005 (March 4 and July 8)
- C CR 04022037; Surface Water Samples Were Composited in a Manner Which did not Use a Calibrated Measure to Ensure the Required 125 ml Volume
- C CR 04099019; Milk Temporarily Unavailable at Background Milk Sampling Station (Wyant Farm)
- C CR 04145113; Electrical Power to REMP Air Sampler Interrupted
- C CR 04237045; Cross-contamination Event at Vendor Lab Resulted in Failure to Meet Specified Lower Limit of Detection
- C CR 04289057; Laboratory Results Indicated One of Four REMP Fish Samples Contained Cs-137
- C CR 4351048; REMP Milk Farm has Permanently Ceased Milking Operations
- C CR 05027049; REMP Procedure for AREOR Preparation and Submittal Needs Evaluation Regarding Definitive Conformance to NRC Branch Technical Position
- C CR 05028016; REMP Procedures for Reporting Analytical Results Need Clarification Regarding LLD vs. MDC
- C CR 05068011; Need ODCM Revision to Match Meteorological Data Changes

40A1 Performance Indicator Verification

- Summary of Monthly Dose Calculations and Dose Projections from Liquid & Gaseous Effluents for 2004
- C Review of Radiation Protection Logs, Dose Evaluation Records, Personal Contamination Log and Electronic Dosimetry Transaction Reports; Records/Logs Selectively Reviewed for November 2004 - July 2005
- CR 05103066; Posted LHRA did not have Roped-Off Area to Accompany Sign and Flashing Light; April 13, 2005
- C CR 05095016; Worker Received Unanticipated Dose Rate Alarm; April 5, 2005
- C CR 05108018; Electronic Dosimetry Alarm Trending and Evaluation; April 18, 2005

40A3 Event Response

- C Shift Manager's Logs; November 14, 2004
- C D. C. Cook Units 1 TSs and Bases
- LER 50-315/2005-001; "Reactor Trip Due to Intermediate Range Instrument Spiking"
- C NRC Operations Center Event Report; Event #41639; "Automatic Reactor Trip with AFW Actuation," April 26, 2005
- C PMP-4010-TRIP-001; "Reactor Trip Review; Data Sheet 1; Unit 1 Reactor Trip Review Report;" April 26, 2005
- C CR 05116001; "Unit 1 Reactor Trip from 1-NRI-35;" April 26, 2005
- Job Order 05116001; "1-NIR-35, Investigate/Repair;" April 26, 2005

40A5 Other Activities

- C PMP-6010-RPP-001; General Radiation Worker Instruction; Revision 6
- C General Employee Training Lesson Plan; GE-C-1000; Radiation Worker Training; Revision 16

C General Employee Training Lesson Plan; GE-C-2200; Radiation Worker Requalification;
Revision 33

LIST OF ACRONYMS USED

ADAMS	Agency-wide Documents and Management System
ALARA	As Low As Is Reasonably Achievable
AREOR	Annual Radiological Environmental Operating Report
CCW	Component Cooling Water
CDF	Core Damage Frequency
CFR	Code of Federal Regulations
CR	Condition Report
CRID	Critical Reactor Instrumentation Distribution
EDG	Emergency Diesel Generator
EHP	Engineering Head Procedure
ESF	Engineered Safety Features
GDT	Gas Decay Tank
HRA	High Radiation Area
IMC	Inspection Manual Chapter
KV	Kilovolt
LER	Licensee Event Report
LHRA	Locked High Radiation Area
LLD	Lower Limit of Detection
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OA	Other Activities
ODCM	Offsite Dose Calculation Manual
OHP	Operations Head Procedure
OWA	Operator Workaround
PARS	Publically Available Records
PI	Performance Indicator
PMI	Plant Manager's Instruction
PMP	Plant Manager's Procedure
RCA	Radiologically Controlled Area
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RETS	Radiological Effluent Technical Specifications
RP	Radiation Protection
RWP	Radiation Work Permit
SDP	Significance Determination Process
SSPS	Solid State Protection System
TLD	Thermoluminescent Dosimeter
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
VCT	Volume Control Tank
VHRA	Very High Radiation Area