

February 13, 2006

Mr. Christopher M. Crane  
President and Chief Nuclear Officer  
Exelon Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3  
NRC INTEGRATED INSPECTION REPORT 05000237/2005013;  
05000249/2005013

Dear Mr. Crane:

On December 31, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Dresden Nuclear Power Station, Units 2 and 3. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 4, 2006, with Mr. D. Bost and other members of your staff.

The 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 no findings were identified. However, a licensee-identified violation which was determined to be of very low safety significance (Green) is listed in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance of the violation and because it was entered into your corrective action program.

If you contest this NCV, 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, 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 Dresden Nuclear Power Station.

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

Sincerely,

*/RA/*

Mark A. Ring, Chief  
Branch 1  
Division of Reactor Projects

Docket Nos. 50-237; 50-249  
License Nos. DPR-19; DPR-25

Enclosure: Inspection Report 05000237/2005013; 05000249/2005013  
w/Attachment: Supplemental Information

cc w/encl: Site Vice President - Dresden Nuclear Power Station  
Dresden Nuclear Power Station Plant Manager  
Regulatory Assurance Manager - Dresden  
Chief Operating Officer  
Senior Vice President - Nuclear Services  
Senior Vice President - Mid-West Regional  
Operating Group  
Vice President - Mid-West Operations Support  
Vice President - Licensing and Regulatory Affairs  
Director Licensing - Mid-West Regional  
Operating Group  
Manager Licensing - Dresden and Quad Cities  
Senior Counsel, Nuclear, Mid-West Regional  
Operating Group  
Document Control Desk - Licensing  
Assistant Attorney General  
Illinois Emergency Management Agency  
State Liaison Officer  
Chairman, Illinois Commerce Commission

C. Crane

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**U.S. NUCLEAR REGULATORY COMMISSION**

REGION III

Docket Nos: 50-237; 50-249

License Nos: DPR-19; DPR-25

Report No: 05000237/2005013; 05000249/2005013

Licensee: Exelon Generation Company

Facility: Dresden Nuclear Power Station, Units 2 and 3

Location: Morris, IL 60450

Dates: October 1 through December 31, 2005

Inspectors: D. Smith, Senior Resident Inspector  
D. Melendez-Colon, Acting Resident Inspector, Region III  
L. Ramadan, Acting Resident Inspector, Region III  
D. Tharp, Clinton Resident Inspector  
D. Eskins, LaSalle Resident Inspector  
W. Slawinski, Senior Radiation Specialist  
T. Ploski, Senior Emergency Preparedness Analyst  
J. Jandovitz, Reactor Inspector  
M. Jordan, NRC Consultant  
R. Schulz, Illinois Emergency Management Agency

Observer: J. Tapp, Inspector-In-Training

Approved by: Mark Ring, Chief  
Branch 1  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000237/2005013; IR 05000249/2005013; 10/01/2005 - 12/31/2005; Exelon Generation Company, Dresden Nuclear Power Station, Units 2 and 3; Quarterly Integrated Inspection Report.

The report covered a 3-month period of baseline resident inspection and announced baseline inspections in radiation protection and inservice inspection. The inspection was conducted by Region III inspectors and the resident inspectors. No findings of significance were identified in any cornerstones. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

A violation of very low safety significance which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and its corrective actions are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Unit 2 began the inspection period at 912 MWe (95 percent thermal power and 100 percent of rated electrical capacity).

- On October 16, 2005, power was reduced to 83 percent to perform control rod pattern adjustment. The unit was returned to full power on the same day.
- On October 22, 2005, power was reduced to 76 percent due to a trip of the 2C reactor feedwater pump from an electrical fault. The unit returned to full power on October 24, 2005.
- On October 31, 2005, the unit was taken offline for its scheduled refueling outage. The unit was placed online on November 20, 2005, and the unit was returned to full power on November 23, 2005.
- On December 10, 2005, load was reduced to 62 percent to perform control rod pattern adjustment. The unit was returned to full power on the same day.
- On December 17, 2005, load was reduced to 88 percent to perform control rod pattern adjustment, and the unit was returned to full power on the same day.

Unit 3 began the inspection period at 912 MWe (95 percent thermal power and 100 percent of rated electrical capacity).

- On November 5, 2005, the unit was taken offline to replace the 3B reactor recirculation system pump seal, replace the reserve auxiliary transformer #32, repair a leak in the common unit underground service water header piping, perform inspection/repairs on the reactor pressure vessel steam dryer, and various other activities. The unit was returned to full power on November 26, 2005.
- On December 18, 2005, load was reduced to 89 percent to perform control rod pattern adjustment, and the unit was returned to full power on the same day.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather (71111.01)

##### .1 Two Risk Significant Systems

###### a. Inspection Scope

Winter Readiness: The inspectors reviewed the licensee's preparations for reliable operation during winter conditions in accordance with corporate work control procedure WC-AA-107, "Seasonal Readiness," Revision 1. Also, the inspectors verified that

Attachment 3 of WC-AA-107, "System Engineering System Readiness Review," was completed and that any cold weather related adverse conditions that could affect the following systems were identified:

- Unit 2 and Unit 3 station blackout diesel generator system
- Unit 2/3 emergency diesel generator cooling water system

The inspectors walked down equipment and systems to identify any winter readiness issues and ensure that these systems would remain functional when challenged by inclement weather.

This represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Response to Inclement Weather

a. Inspection Scope

The inspectors reviewed the licensee's response to high wind conditions on November 14 and 15, 2005. The inspectors conducted followup reviews to assess the licensee's ability to ensure safety related and risk significant equipment remained operable and functional during inclement weather conditions. The inspectors evaluated the station's response to ensure equipment functionality as specified in the Updated Final Safety Analysis Report. Although the wind speed and duration did not meet the station's entry condition into their abnormal operating procedure, the licensee took actions to check the condition of equipment by performing thermography inspections of the switchyard ring bus.

This represented one inspection sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q and S)

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors selected a redundant or backup system to an out-of-service or degraded train to determine that the system met the design of the Updated Final Safety Analysis Report. Piping and instrumentation diagrams were used to determine correct system lineup and critical portions of the system configuration were verified. Instrumentation, valve configurations, and appropriate meter indications were also observed. The inspectors observed various support system parameters to determine the operational



status of systems. Control room switch positions for the systems were observed. Other conditions, such as adequacy of housekeeping, the absence of ignition sources, and proper labeling were also evaluated.

The inspectors performed partial equipment alignment walkdowns of the:

- Unit 3 containment cooling service water system
- Unit 3 isolation condenser system

This represented two inspection samples.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors performed a complete semi-annual walkdown of the Unit 3 containment cooling service water (CCSW) system. The inspectors reviewed the electrical and mechanical system checklists and drawings to ensure all vital components in this system were properly aligned. The inspectors reviewed work orders associated with the system to determine whether there were any deficiencies that could affect the ability of the system to perform its safety-related function. The inspectors also reviewed all temporary modifications to verify the operational impact on the system. The inspectors reviewed licensee issue reports (IRs) to review past issues that had been identified and their corrective actions.

This represented one inspection sample.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q and A)

.1 Routine Inspection (Quarterly)

a. Inspection Scope

The inspectors toured plant areas important to safety to assess the material condition, operating lineup, and operational effectiveness of the fire protection system and features to ensure compliance with the station's Fire Hazard Analysis Report. The review included control of transient combustibles and ignition sources, fire suppression

systems, manual fire fighting equipment and capability, passive fire protection features, including fire doors, and compensatory measures. The following areas were walked down:

- Unit 2 Reactor building, 517' elevation, ground floor, Fire Zone 1.1.2.2
- Unit 3 Reactor building, 476' elevation, southwest low pressure coolant injection room, Fire Zone 11.1.1
- Unit 2 Reactor building 589' elevation, stand-by liquid control area, Fire Zone 1.1.2.5.D
- Unit 3 Reactor building, 589' elevation, stand-by liquid control area, Fire Zone 1.1.1.5.D
- Unit 3 Turbine building, 517' elevation, diesel generator room, Fire Zone 9.0B
- Unit 3 Reactor building, 517' elevation, shutdown cooling pump room, Fire Zone 1.3.1
- Unit 3 Reactor building, 570' elevation, isolation condenser pipe chase (92 valve room), Fire Zone 1.1.1.5B
- Unit 2 Turbine building, 517' elevation, reactor feed pump room, Fire Zone 8.2.5A
- Unit 2 Reactor building, 570' elevation, isolation condenser pipe chase (2 valve room), Fire Zone 1.1.2.5.B
- Unit 2 Reactor building, 517'-6" elevation, shutdown cooling pump room, Fire Zone 1.3.2

This represented ten inspection samples.

b. Findings

No findings of significance were identified.

.2 Fire Drill (Annual)

a. Inspection Scope

On October 4, 2005, the inspectors observed the fire brigade response to a simulated fire in the Unit 3 station blackout diesel generator day tank room. The inspectors reviewed the licensee's drill procedure and assessed the licensee's critique of the fire brigade's performance. The inspectors reviewed the licensee's activities to determine if the licensee was in compliance with 10 CFR, Part 50, Appendix R, Section III.I.1.a.

This represented one inspection sample.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A)

a. Inspection Scope

The inspectors reviewed the results of the maintenance performed on the 2B containment cooling service water system heat exchanger during the Unit 2 refueling outage in November 2005 to determine if there was acceptable heat exchanger performance per generic letter (GL) 89-13, "Service Water System Problems Affecting Safety-Related Equipment." In addition, the inspectors verified that maintenance was performed in accordance with the licensee's maintenance program for heat exchangers and reviewed issue reports to verify that deficiencies were identified and incorporated into the licensee's corrective action program.

This represented one inspection sample.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08)

.1 Piping Systems Inservice Inspection

a. Inspection Scope

From November 7, 2004, through November 12, 2005, the inspectors conducted a review of the implementation of the licensee's inservice inspection (ISI) program for monitoring degradation of the reactor coolant system boundary and the risk significant Unit 2 piping system boundaries. The inspectors selected the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI required examinations and Code components in order of risk priority as identified in Section 71111.08-03 of the inspection procedure, based upon the ISI activities available for review during the onsite inspection period.

The inspectors observed the following two types of nondestructive examination activities to evaluate compliance with the ASME Boiler and Pressure Vessel Code requirements and to verify that indications and defects were dispositioned in accordance with the ASME Code.

The inspector observed the following three ultrasonic nondestructive examination activities:

- Ultrasonic examination of a Unit 2 Reactor Recirculation System tee to pipe weld # L5/L4
- Ultrasonic examination of a Unit 2 Reactor Recirculation System tee to pipe weld # L5-D6A
- Ultrasonic examination of a Unit 2 Shutdown Cooling elbow to elbow weld # 16-K6

In addition, the inspectors performed a record review of the following examination:

- Magnetic Particle Examination of Unit 2 Low Pressure Coolant Injection System Integrally Welded Attachment # 2/2/1534-18/M3214-42

The inspectors reviewed an examination from the previous outage with recordable indications that was accepted by the licensee for continued service to verify that the licensee's acceptance for continued service was in accordance with the ASME Code. Specifically, the inspectors reviewed the magnetic particle examination of an integrally welded support, M1164D-578, on the B Low Pressure Coolant Injection Heat Exchanger. A 2 5/8 inch linear indication was found and repaired as documented on corrective action report # 174575.

The inspector reviewed a pressure boundary weld repair on Code Class 1 portions of the Unit 2 Reactor Coolant System to determine if the welding acceptance and preservice examinations (e.g., pressure testing, visual, dye penetrant, and weld procedure qualification tensile tests and bend tests) were performed in accordance with ASME Code Sections III, V, IX, and XI requirements. Specifically, the inspectors reviewed the Class 1 pressure boundary weld repair conducted last outage on the Reactor Vessel Head Spray Line that was found leaking during the system hydrostatic test.

The inspectors performed a review of ISI related problems that were identified by the licensee and entered into the corrective action program, conducted interviews with licensee staff, and reviewed licensee corrective action records to determine if:

- the licensee had described the scope of the ISI related problems
- the licensee had established an appropriate threshold for identifying issues
- the licensee had evaluated industry generic issues related to ISI and pressure boundary integrity
- the licensee implemented appropriate corrective actions

The inspectors performed these reviews to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment to this report.

The reviews, as discussed above, counted as one inspection sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

The inspectors observed an evaluation of operating crew # 3 on October 3, 2005, and on December 12, 2005, the inspectors observed operating crew #5. The scenario for both days consisted of loss of the reactor protection system, loss of reactor building

closed cooling water, anticipated transient without scram, stuck control rods, and steam leak in the drywell. The inspectors evaluated the licensee's performance against the requirements of 10 CFR 55.59 by verifying that the operators were able to complete the tasks in accordance with applicable plant procedures. The inspectors observed the licensee's evaluators to ensure that no inappropriate cues were provided by the evaluators while assessing the operators' performance. In addition, the inspectors verified that issue reports written regarding licensed operator requalification training were entered into the licensee's corrective action program with the appropriate significance characterization.

This represented two inspection samples.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope

The inspectors assessed the implementation of the licensee's maintenance rule program to evaluate maintenance effectiveness for the selected systems in accordance with 10 CFR 50.65, Maintenance Rule. The following systems were selected based on being designated as risk significant under the Maintenance Rule, being in the increased monitoring (Maintenance Rule Category a(1)) group, or due to an inspector's identified issue or problem that potentially impacted system work practices, reliability, or common cause failures:

- Core spray system
- Source range monitor system
- Station blackout diesel generator system
- High pressure coolant injection system

The inspectors verified the licensee's categorization of specific issues, including evaluation of the performance criteria, appropriate work practices, identification of common cause errors, extent of condition, and trending of key parameters. Additionally, the inspectors reviewed the licensee's implementation of the Maintenance Rule requirements, including a review of scoping, goal-setting, performance monitoring, short-term and long-term corrective actions, functional failure determinations associated with the condition and issue reports reviewed, and current equipment performance status.

This represented four inspection samples.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's maintenance risk program with respect to the effectiveness of the risk assessments performed before maintenance activities were conducted on structures, systems, and components and verified how the licensee managed the risk in accordance with 10 CFR 50.65, Maintenance Rule. The inspectors evaluated whether the licensee had taken the necessary steps to plan and control emergent work activities. The inspectors also verified that equipment necessary to complete planned contingency actions was staged and available. The inspectors completed evaluations of maintenance activities on the:

- 2A Reactor protection system motor-generator-set flywheel bearing replacement
- 4KV Bus 23-1 to 33-1 cross tie and work on control rod drive pumps
- Low pressure coolant injection system swing bus protective relays and auto transfer functional test
- Unit 2 Division 1 containment cooling service water piping replacement
- Unit 3 high pressure coolant injection system maintenance
- U2 Bus 24-1 preventive maintenance with the 2B and 2/3 service water pumps and the 2B reactor building closed cooling water pump out-of-service
- Unit 2 Service water outage and control rod drive exercising
- Unit 3 Control rod drive cycling and 2/3 reactor building containment cooling water pump out-of-service
- Unit 2 Steam dryer replacement outage activities
- Unit 2/3 "B" Standby gas treatment system charcoal filter replacement and train inspection
- Unit 2 High pressure coolant injection system maintenance
- Unit 2 Low pressure coolant injection mechanical seal pump replacement
- Train 3B standby liquid control pump oil change and accumulator bladder replacement
- Unit 2 Isolation condenser safe shutdown valve operability testing

This represented fourteen inspection samples.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed operability evaluations (OE) to ensure that operability was properly justified and the component or system remained available, such that any non-conformance conditions were in compliance with Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of

Degraded and Nonconforming Conditions and on Operability.” The review included issues involving the operability of:

- OE 05-002, “Main Steam Line Break Outside Containment is No Longer Bounding,” Revision 1
- Engineering Change (EC) 355479, “On Line High Pressure Coolant Injection Room Cooler Maintenance and High Pressure Coolant Injection System Availability”
- EC 356681, “Dresden Diesel Generator Loading with Two Low Pressure Coolant Injection Pumps”
- EC 357894, “Cumulative Effects of Foreign Material (FM) on Reactor Vessel and Connecting Systems Dresden U2&U3,” Revision 2
- EC 354963, “Reactor Water Clean-up Line Break Dose Evaluation”

This represented five inspection samples.

b. Findings

Determination of the site’s bounding steam line break analysis

Introduction: The inspectors identified an unresolved item regarding whether the main steam line (MSL) break outside containment remained the bounding steam line break with respect to mass release and radiological dose consequences after adjusting the analysis to reflect main steam isolation valve closure time.

Description: On April 11, 2005, a licensee design engineer initiated issue report (IR) #323533 which identified that the main steam line (MSL) break outside containment was no longer the bounding steam line break with respect to mass release and radiological dose. This determination was based on using a main steam isolation valve (MSIV) closure time of 5.5 seconds instead of the 10.5 second time period used in the original MSL break design basis analysis. The MSL break mass release for a 10.5 second MSIV closure time was 66,000 pounds mass. However, using a 5.5 second MSIV closure time, the mass release from the main steam line break analysis was reduced to 30,000 pounds mass. Using the 30,000 pounds mass release amount for the MSL break analysis, a reactor water clean up (RWCU) line break at 75,000 pounds mass release appeared to be a larger break than the MSL break and therefore may have resulted in control room and offsite doses which were higher than the doses from the MSL break outside containment.

In previous license submittals for alternate source term on August 22, 2005, and extended power uprate on December 27, 2000, the licensee had submitted documentation indicating that the MSL break was the bounding break analysis. The inspectors were concerned that this information may no longer be correct and that the RWCU system line break may no longer be bounded by the MSL break. In response to IR #323533, the licensee prepared an operability evaluation, OE #05-002. The licensee utilized the application of alternate source term, an NRC approved dose calculational method, in determining whether the radiological conditions to control room operators and at the site boundary from a RWCU system line break was bounded by license conditions. The inspectors reviewed the OE, had questions concerning the acceptability

of analysis, and requested assistance from the Office of Nuclear Reactor Regulation (NRR). NRR determined that the licensee had incorrectly applied the use of the dose conversion factor for Total Effective Dose Equivalent (TEDE) in calculating thyroid dose. The licensee subsequently revised the OE, using the correct dose conversion factor, proper RWCU system piping diameter sizes, and the appropriate activity amount from the portion of coolant that flashes. As a result of the changes, the licensee concluded that the RWCU system line break would result in not exceeding 20.2 REM which was well below the regulatory limit of 30 REM thyroid dose. The NRC agreed with the licensee's conclusion in the revised OE.

The inspectors were also concerned whether Technical Specification (TS) 3.4.6, "Reactor Coolant System Specific Activity," should be changed. The TS directs the isolation of the MSIVs, within 12 hours, based on coolant activity exceeding 4.0 uci/gm DOSE EQUIVALENT I-131, or place the unit in Mode 3 and 4 in 12 and 36 hours, respectively. These actions were based on the assumption that the MSL break was the bounding break. Since the RWCU system line break appeared to have larger mass release and dose consequences, the inspectors were concerned that the TS may no longer provide conservative actions in this area.

At the end of the inspection, the licensee acknowledged errors in the OE calculations, but responded that the actual MSIV closure time had never changed, that the original IR was unnecessary, that the RWCU line break doses were less than the regulatory limits, that closing of the MSIVs by the TS would put the plant in a shutdown condition such that evaluation of the TS for RWCU was unnecessary, and that all of the analyses were bounded by the alternate source term submittal which used a MSL break value of 140,000 pounds mass release.

Since this issue involved the adequacy and accuracy of licensee submittals, bounding break analyses, and TSs, the inspectors needed further assistance from NRR to determine acceptability of the licensee's actions. This issue was considered an unresolved item pending further review with NRR. **(URI 05000237/2005013-01; 05000249/2005013-01)**

1R16 Operator Workarounds (71111.16)

.1 Quarterly Review

a. Inspection Scope

The inspectors assessed the following operator workaround issue to determine the potential effects on the functionality of the corresponding mitigating system:

- Unit 2 control rod drive

During this inspection, the inspectors reviewed the technical adequacy of the workaround documentation against the Updated Final Safety Analysis Report and other design information to assess whether the workaround conflicted with any design basis information. The inspectors compared the information in abnormal or emergency



operating procedures to the workaround information to ensure that the operators maintained the ability to implement important procedures when needed. Multiple entries into the corrective action program were also reviewed to ensure that the operator workarounds had been entered into this process.

This represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Semi-annual Review of the Cumulative Effects of Operator Workarounds

a. Inspection Scope

The inspectors reviewed all operator workarounds and challenges to assess any cumulative effect on the:

- reliability, availability, and potential for misoperation of a system
- multiple mitigating systems
- ability of operators to respond in a correct and timely manner to plant transients and accidents

The inspectors utilized the Updated Final Safety Analysis Report and the Technical Specifications to determine the function of each system impacted by an operator workaround. The inspectors also interviewed licensee personnel and reviewed normal and abnormal operating procedures to determine the potential effects of the operator workaround.

This represented one inspection sample.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed post-maintenance test results to confirm that the tests were adequate for the scope of the maintenance completed and that the test data met the acceptance criteria in Technical Specifications or other design documents. The inspectors also reviewed the tests to determine if the systems were restored to the operational readiness status consistent with the design and licensing basis documents. The inspectors reviewed post-maintenance testing activities associated with the following:

- WO 00836014, Replace 2A reactor protection system motor-generator-set flywheel bearings

- WO 00834897, Unit 2/3 2 year inservice testing verification remote access valve position indicator
- WO 00693122, Unit 2 reactor pressure vessel ASME Code 1000 PSI system leakage test
- WO 00610673, Replace electric heating coil in 2/3-9400-101 air filtration unit
- WO 00774544, Overhaul and flow scan of control room heating, ventilation and air conditioning refrigeration condensing unit service water inlet valve, 2/3-5741-48B, actuator
- WO 00785291-05, Post maintenance test on Unit 2 main steam line low pressure relays after design modification
- WO 00779136-01; Post maintenance tests on Unit 2 low pressure coolant injection system after D2R19 work
- WO 00580266, Unit 3 internal inspection containment cooling service water system loop II keep fill check valve post repair test
- WO 00863350, Unit 2 utilized parts from D3 source range monitor 21 to repair D2 source range monitor 21
- WO 99019500, Unit 3 environmental qualification containment cooling service water flow transmitter replacement

This represented ten inspection samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

.1 Unit 2 Refueling Outage

a. Inspection Scope

The licensee conducted a refueling outage on Unit 2 from October 31, 2005, through November 23, 2005. During the outage the licensee replaced the electromatic relief valve flanges, the 2A reactor recirculation system pump motor, the Unit 2/3 diesel generator governor, all source range monitor under-vessel connectors, repaired an underground service water system piping leak common to both Unit 2 and Unit 3, overhauled numerous control rod drive hydraulic control units, and repaired and modified the steam dryer.

The inspectors routinely reviewed the outage schedule and outage risk assessment to verify the licensee was correctly maintaining required equipment in service in accordance with the overall outage safety assessment. During the planned outage, the inspectors performed the following activities:

- attended control room operator and outage management turnover meetings to verify that the current shutdown risk status was well understood and communicated
- performed walkdowns of containment to identify any indications of unidentified leakage

- ensured that the control room operators adhered to the licensee's TSs
- performed walkdowns of the main control room to observe the alignment of systems important to shutdown risk
- reviewed selected issues that the licensee entered into the corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance
- ensured that the licensee appropriately considered risk factors during the development and execution of planned activities
- monitored the licensee's troubleshooting efforts for emergent plant equipment issues
- performed plant walkdowns to observe ongoing work activities
- observed control rod withdrawals and initial transition to criticality
- performed walkdown of containment prior to closure to ensure that debris had not been left that could affect the performance of the containment sumps
- monitored mode switch changes and observed portions of power ascension

This represented one inspection sample.

b. Findings

Inadequate Work Order Package Caused Temporary Loss of Shutdown Cooling

Introduction: The inspectors identified an unresolved item regarding the adequacy of work order instructions to address a single point vulnerability with the 4160 Volt buses.

Description: On November 6, 2005, electricians were using work order (WO) #843308-2, Electrical Maintenance Rewire Over Current Relays on Bus 23 Cub 12 per engineering change (EC) 356612. The EC had the unit and reserve auxiliary transformers overcurrent relays rewired to these buses to address a single point vulnerability (SPV) associated with the relays to 4160 Volt Buses 23 and 24. This SPV issue was discovered in February 2005 and resulted in locking out all power sources to these buses. This EC was for both buses on each unit, and a work order package was generated for each bus to each transformer. The same drawing was included in each work order package. The electricians noted during the work on Bus 23 that two jumpers designated to be de-terminated in accordance with the drawing were not included in the work package. Subsequent discussions between the electricians' supervisor and design engineering personnel indicated that the jumpers should be removed as indicated by the drawing, and that the WO package would be revised to reflect this change. However, design engineering personnel and the work planner did not discuss the proposed WO change. Subsequently, the work planner revised the WO package to remove the jumpers without a review from engineering personnel. As a result, when the first jumper was removed from the unit auxiliary transformer, which was energized through backfeeding from the switchyard, Buses 23 and 24 (4160 Volts) were de-energized, followed by the loss of Buses 23-1 (4160 Volts) and Bus 28 (480 Volts) and the initiation of a Group II and Group III isolations.

Prior to the loss of the buses, the 'A' shutdown cooling system pump was aligned to the reactor vessel, the 'C' shutdown cooling system pump was aligned to the spent fuel pool and the 'B' shutdown cooling system pump was in standby. As a result of the event, a

loss of shutdown cooling occurred due to the tripping of the 'A' shutdown cooling system pump which had been aligned to the reactor vessel. The 'B' shutdown cooling system pump was started approximately 35 minutes after the 'A' shutdown cooling system pump tripped. The reactor vessel temperature increased from 92 degrees Fahrenheit to 94 degrees Fahrenheit during this time. The inspectors reviewed IR 395280, control room logs, and the prompt investigation report, and discussed the sequent of events with the onshift shift manager. The licensee's preliminary investigation determined that removing the jumper from the unit auxiliary transformer was beyond the scope of the out-of-service which had been placed to allow work on the reserve auxiliary transformer which was de-energized. Additionally, an apparent cause evaluation was assigned for this event to understand what barriers failed and identify the appropriate corrective actions. During the event, the Unit 3 Division I power was an available power source to provide power to the 'B' and 'C' shutdown cooling system pumps through the Unit 3 cross-tie breakers and both fuel pool pumps were available. Therefore, the licensee determined that the overall risk remained Green despite the temporary loss of shutdown cooling for approximately 35 minutes. This issue will be an unresolved item pending the inspectors review and assessment of the licensee's apparent cause evaluation.  
**(URI 05000237/2005013-02)**

.2 Unit 3 Planned Maintenance Outage

a. Inspection Scope

The licensee conducted a planned maintenance outage on Unit 3 from November 5, 2005, through November 24, 2005, to replace the 3B reactor recirculation system pump seal. During the outage the licensee also repaired and modified the steam dryer, replaced the reserve auxiliary transformer, and overhauled 16 control rod drive system hydraulic control units.

The inspectors verified that the licensee effectively conducted the shutdown, managed elements of risk pertaining to reactivity control during and after the shutdown, and implemented decay heat removal system procedure requirements in accordance with technical specifications and other plant procedures.

The inspectors performed the following activities:

- conducted drywell walkdown to identify any reactor coolant system leakage
- attended control room operator turnover meetings to verify that the current shutdown risk status was well understood and communicated
- performed walkdowns of the main control room to observe the alignment of systems important to shutdown risk
- reviewed selected issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance
- ensured that the licensee appropriately considered risk factors during the development and execution of planned activities
- monitored licensee's troubleshooting efforts for emergent plant equipment issues
- performed plant walkdowns to observe ongoing work activities

- conducted in-office reviews of selected issues that the licensee entered into its corrective action program to verify that identified problems were being entered into the program with the appropriate characterization and significance
- observed control rod withdrawals and initial transition to criticality
- monitored mode switch changes and observed portions of power ascension

This represented one inspection sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed surveillance testing on risk-significant equipment and reviewed test results. The inspectors assessed whether the selected plant equipment could perform its intended safety function and satisfy the requirements contained in Technical Specifications. Following the completion of each test, the inspectors determined that the test equipment was removed and the equipment returned to a condition in which it could perform its intended safety function.

The inspectors observed surveillance testing activities and/or reviewed completed packages for the tests, listed below, related to systems in the initiating event, mitigating systems, and barrier integrity cornerstones:

- Unit 2 DOS 0250-03, Main Steam Isolation Valve Fail-Safe Closure Test, Revision 18
- Unit 2 Reactor Coolant System Leakage Appendix A, Revision 99, Unit NSO Daily Surveillance Log
- DIS 1500-15, 2 Year Dresden 2 Low Pressure Coolant Injection Heat Exchanger Differential Pressure Transmitter Calibration/Maintenance and Inspection, Revision 8
- Unit 2 DOS 6600-07, Test Low Pressure Coolant Injection Swing Bus Relays Setpoint Calibration, Revision 19
- Unit 2 DOS 7100-10, High Pressure Seat Leakage Testing of Core Spray Injection Check Valves (IST), Revision 01
- DOS 7000-21, Local Leak Rate Testing of Unit 2 Drywell Equipment Drain Sump (DWEDS) & Drywell Floor Drain Sump (DWFDS) Discharge Valves, Revision 2

This represented six inspection samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors screened two active temporary modifications and assessed the effect of the temporary modifications on safety-related system functions as specified in the Updated Final Safety Analysis Report and Technical Specifications. The inspectors also determined if the installations were consistent with system design:

- EC 357144, Revision 0, "Provide Alternate Flow Path from Containment Cooling Service Water to Reactor Building Containment Cooling Water Heat Exchanger

This represented one inspection sample.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspectors performed a screening review of Revision 19 of the Dresden Nuclear Power Station Annex to the Exelon Standardized Emergency Plan to determine whether the changes made in Revision 19 decreased the effectiveness of the licensee's emergency planning. The screening review of this revision did not constitute an approval of the changes and, as such, the changes are subject to future NRC inspection to ensure that the emergency plan continues to meet NRC regulations.

These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

1EP6 Drill and Training Evaluations (71114.06)

December 6, 2005, Emergency Preparedness Performance Indicator Drill Exercise

a. Inspection Scope

The inspectors observed station personnel during a licensee-only-participation emergency preparedness drill exercise on December 6, 2005. The drill scenario involved vehicle fire inside the protected area, fork truck collision through Unit 3 emergency diesel generator louvers, reactor scram anticipated transient without scram, steam leak in the steam tunnel from a 'B' main steam line break, and 'B' main steam isolation valve failed to isolate. This observation was compared against the emergency plan requirements to determine the effectiveness of drill participants and the adequacy of the licensee's critique in identifying weaknesses and failures.

This represented one inspection sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control To Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiation Work Permit (RWP) Reviews

a. Inspection Scope

The inspectors selectively reviewed the licensee's access controls and survey data for a variety of outage work areas located within radiation areas, high radiation areas and locked high radiation areas in the plant to determine if the radiological controls, postings and barricades were adequate. These areas included the Unit 2 and Unit 3 drywells, the Unit 2 traversing-in-core room, and general areas throughout the Unit 2/3 Reactor Buildings including the refuel floor. The inspectors also walked down and surveyed (using an NRC survey meter) selected areas in the Unit 2/3 Reactor, Turbine and Radwaste Buildings to verify that radiological conditions were consistent with area postings and controls.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

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

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed plant collective refueling outage exposure history, current exposure trends for the Unit 2 refueling outage (D2R19) and ongoing outage activities in order to assess current dose performance and exposure challenges. This included determining the plant's current 3-year rolling average for collective exposure in order to provide a perspective of significance for any resulting inspection finding assessment.

The inspectors reviewed D2R19 work and the associated exposure (dose) projections, time/labor estimates and historical dose data for the following six work activities which were likely to result in the highest personnel collective exposures or were otherwise radiologically significant activities:

- Drywell control rod drive system maintenance activities
- Drywell steam dryer modification diving activities
- Main condenser maintenance
- Drywell nuclear instrumentation maintenance
- Drywell in-service inspection activities
- Drywell permanent shielding installation

The inspectors determined site specific trends in collective dose based on plant historical exposure and source term data including historical Boiling Water Reactor Assessment and Control dose rate data. The inspectors reviewed procedures associated with maintaining occupational exposures ALARA and evaluated those processes used for D2R19 to develop dose projections including time/labor estimates, and to track work activity specific exposures.

These reviews represented four inspection samples.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning

a. Inspection Scope

The inspectors obtained the licensee's list of D2R19 refueling outage work ranked by estimated exposure and reviewed the following radiologically significant D2R19 work activities:

- Reactor disassembly/reassembly and related activities (RWP 10005204)
- Reactor steam dryer modification diving activities (RWP 10005205)
- Drywell nuclear instrumentation maintenance (RWP 10005230)
- Drywell control rod drive system maintenance (RWP 10005240)
- Drywell reactor water cleanup system maintenance (RWP 10005241)
- Hotwell maintenance/inspection (RWP 10005202)

For each of the activities listed above, the inspectors reviewed the RWP, the ALARA Plan including specific task plan time/labor estimates and associated total effective dose equivalent (TEDE) ALARA evaluations (i.e., respirator evaluations), as applicable. The reviews were performed in order to verify that the licensee had established radiological engineering controls and dose mitigation criteria that were based on sound radiation protection principles in order to achieve occupational exposures that were ALARA. This also involved determining that the licensee had reasonably grouped the radiological work into activities that were based on historical precedence, industry norms, and/or special circumstances.

The inspectors compared the exposure results achieved throughout most of the approximate 20-day refueling outage including the dose rate reductions and person-rem expended with the doses projected in the licensee's ALARA planning for the above listed work activities and for other selected outage activities. Reasons for



inconsistencies between intended (projected) and actual work activity doses as well as time/labor differences were examined to determine if the activities were planned reasonably well and to ensure the licensee was cognizant of and evaluated any work planning deficiencies.

The interfaces between radiation protection, maintenance and scheduling groups were reviewed to varying degrees to identify potential interface problems. The integration of ALARA requirements into work procedures and RWP documents was evaluated to verify that the licensee's radiological job planning would reduce dose.

The inspectors compared the person-hour estimates provided by maintenance planning and craft groups to the radiation protection ALARA staff with the actual work activity time expenditures in order to evaluate the accuracy of these time estimates.

Work-In-Progress ALARA Reports were reviewed by the inspectors for those outage jobs that approached their respective dose estimates or that were otherwise generated to document problems, to identify changes in work scope or to document variances in estimated versus actual doses. These reports were reviewed to verify that the licensee could identify problems and address them as work progressed. Additionally, the post outage radiation protection department report for the licensee's Unit 3 October - November 2004 outage (D3R18) was reviewed to determine if corrective actions were taken for previous ALARA issues and if lessons learned were applied to D2R19 activities, as applicable.

These reviews represented seven inspection samples.

b. Findings

No findings of significance were identified.

.3 Verification of Dose Estimates and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the licensee's assumptions and basis for its collective refueling outage exposure estimate and for individual outage job estimates, and evaluated the methodology and practices for projecting work activity specific exposures. This included evaluating both dose rate and time/labor estimates for adequacy compared to historical station specific or industry data.

The inspectors reviewed the licensee's process for adjusting outage exposure estimates when unexpected changes in scope, emergent work or other unanticipated problems were encountered which could significantly impact worker exposures. This included determining that adjustments to estimated exposure (intended dose) were based on sound radiation protection and ALARA principles and not adjusted to account for failures to effectively plan or control the work. The frequency and scope of these adjustments was also reviewed to evaluate the adequacy of the original ALARA planning.

The licensee's exposure tracking system was examined to determine whether the level of exposure tracking detail, exposure report timeliness, and exposure report distribution was sufficient to support control of outage work exposures. Radiation work permits were reviewed to determine if they covered an excessive number of work activities to ensure they allowed work activity specific exposure trends to be detected and controlled. During the conduct of exposure significant work, the inspectors evaluated if licensee management was aware of the exposure status of the work and would intervene if exposure trends increased significantly beyond exposure estimates.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.4 Job Site Inspections and ALARA Controls

a. Inspection Scope

The inspectors observed Unit 2 reactor cavity decontamination, the initial stages of reactor disassembly for Unit 3 in preparation for steam dryer inspections and observed hydro-testing and closeout inspection activities in the Unit 2 drywell using the licensee's closed circuit television system. The inspectors discussed dose reduction initiatives and results with members of the radiation protection staff for dose significant activities completed earlier in the outage to assess the effectiveness of the ALARA program.

The licensee's use of ALARA controls for these work activities was evaluated to determine whether:

- The licensee developed and effectively used engineering controls to achieve dose reductions and to verify that the controls were consistent with the licensee's ALARA reviews
- Workers were cognizant of work area radiological conditions, utilized low dose waiting areas and that radiological oversight of work was adequate

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.5 Monitoring of Declared Pregnant Women and Dose to Embryo/Fetus

a. Inspection Scope

The inspectors reviewed the licensee's monitoring methods and procedures, radiation exposure controls, and the information provided to declared pregnant women to determine if an adequate program had been implemented to limit embryo/fetal dose. The inspectors also reviewed the pregnancy declaration and radiation exposure results

for several individuals that declared their pregnancy to the licensee between November 2003 and October 2005, to verify compliance with the requirements of 10 CFR 20.1208 and 20.2106.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.6 Radiation Worker and Radiation Protection Technician Performance

a. Inspection Scope

Radiation worker and radiation protection technician performance was observed by the inspectors during work activities being performed in radiation areas and high radiation areas focusing on work activities on the refuel floor and the Unit 2 drywell. The inspectors determined whether workers demonstrated the ALARA philosophy in practice by being familiar with the work activity scope, the tools to be used for the job by utilizing low dose waiting areas and had knowledge of the radiological conditions and adhered to the ALARA requirements for the work activity. Job support and the communications provided by the radiation protection staff were also evaluated by the inspectors.

This review represented one inspection sample.

b. Findings

No findings of significance were identified.

.7 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the results of an outage readiness self-assessment and the results of Nuclear Oversight Department field observations and audits of the radiation protection program to assess the licensee's ability to identify and correct problems.

The inspectors verified that identified problems were entered into the corrective action program for resolution, and that they had been properly characterized, prioritized, and were being addressed. This included ALARA program critique items and lessons learned from the licensee's previous Unit 3 refueling outage completed in October - November 2004.

Corrective action reports (ARs) generated over the five month period that preceded the inspection that were related to the radiation protection program were selectively reviewed by the inspectors and licensee staff members were interviewed to verify that follow-up activities were being conducted in a timely manner commensurate with their importance to safety and risk using the following criteria:

- Initial problem identification, characterization, and tracking
- Disposition of operability/reportability issues
- Evaluation of safety significance/risk and priority for resolution
- Identification of repetitive problems
- Identification of contributing causes
- Identification and implementation of effective corrective actions

The licensee's corrective action program was also reviewed to determine if repetitive deficiencies in problem identification and resolution had been addressed, as applicable.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Quarterly Review

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. In addition, in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. This review was accomplished by reviewing daily issue reports and attending daily issue report review meetings.

b. Findings

No findings of significance were identified.

.2 Semiannual Review for Trends

a. Inspection Scope

The inspectors performed a review of plant deficiencies as documented in IRs, corrective action backlog lists and all of the nuclear oversight assessments, rework maintenance list, trend reports, engineering change backlog, the open temporary modification backlog, the deferred preventive maintenance backlog, and the change in the number of Maintenance Rule a(1) systems over the last two quarters conducted during the second, third, and part of the fourth quarter of 2005. This review was evaluated against the licensee's corrective action program and 10 CFR 50, Appendix B

to determine if the licensee was effective at identifying trends that could indicate the existence of a more significant safety issue. The inspector's review consisted of a 6 month period from June 2005 through December 2005, although some examples expanded beyond those dates when the scope of the trend warranted. The inspectors reviewed IRs generated during the time period of mid-June through mid-December 2005, in an attempt to identify potential trends. The screening was accomplished as follows:

1. IRs dealing with company policies, administrative issues, and other minor issues were eliminated as being outside the scope of this inspection.
2. The IRs were sorted into categories involving same equipment problems, repetitive issues, reoccurring departmental problem/challenges and repeated entries into Technical Specifications. The IRs were then screened for potential common cause issues and considered for potential trends.
3. The inspectors removed groups of IRs that discussed strictly programmatic problems because the inspection requirement was primarily for equipment problems and human performance issues.
4. The inspectors removed groups of IRs that discussed security issues because they will be reviewed and documented as necessary in a separate report during a future inspection by a security specialist.
5. The inspectors also removed groups of IRs where their review indicated that duplicate IRs had been written for the same event or failure.
6. The inspectors reviewed the IRs in which the title indicated a trend or potential adverse trend were considered licensee-identified trends.
7. The remaining groups, considered potential unidentified trends, were provided to the licensee for discussion in case there was extenuating information that the inspectors were not aware of.
8. Groups of IRs remaining after all of the above screening were considered trends which the licensee had failed to identify.
9. The inspectors then were able to make an assessment by comparing the trends identified by the licensee to those trends identified by the NRC.

This represented one inspection sample.

b. Findings

There were no findings of significance identified. The inspectors determined that licensee employees were writing IRs at an appropriate threshold, and that employees at all levels of the organization were writing IRs. The inspectors determined that the licensee had identified the same specific trends as the inspectors. Overall, the licensee identified issues adequately and entered them into their corrective action program.

4OA3 Event Followup (71153)

a. Inspection Scope

The inspectors reviewed one licensee event report (LER) to ensure that the issue documented in the report was adequately addressed in the licensee's corrective action program. The inspectors interviewed plant personnel and reviewed operating and maintenance procedures to ensure that generic issues were captured appropriately. The inspectors reviewed operator logs, the Updated Final Analysis Report, and other documents to verify the statements contained in the LER. The inspectors also reviewed one Unresolved Item to determine if the licensee was in violation of any regulatory requirements.

b. Findings

.1 (Closed) LER 05000237;05000249/2005-003-00, Units 2 and 3 Offsite Power Sources Declared Inoperable Due to Low Voltage

On June 23, 2005, the station declared the offsite power sources for both units inoperable but available. The declaration was made based upon the predicted switchyard voltages provided by the load dispatcher, not meeting the licensee's minimum undervoltage requirements. This low voltage condition resulted in the licensee declaring the offsite power sources inoperable and entering TS 3.8.1, "AC Sources-Operating," for both units. Also, the licensee entered the appropriate abnormal operating procedure in response to the predicted undervoltage conditions. Subsequently, the licensee exited the TS and abnormal procedure when the load dispatcher provided a predicted voltage value which exceeded the minimum voltage requirements. As part of the corrective actions, the licensee installed two new transformers with load tap changers to compensate for the low voltage conditions. The LER was reviewed by the inspectors and no findings of significance were identified, and no violation of NRC requirements occurred. This condition was documented in IR 212836.

This LER is closed.

This represented one inspection sample.

.2 (Closed) URI 05000237/2003011-02, Unit 2 Potential Consequences of the Lost Feedwater Sample Probe

During the 2001 Unit 2 refueling outage the licensee initiated actions to verify that the in-line feedwater sample probes, a total of three, were still intact after reviewing an operating experience report (OPEX SEN 204, "Water Induced Fuel Leaks)." General Electric had previously issued SIL 257 on the same topic. The licensee's inspection identified that one of the three probes was missing. Therefore, the licensee installed a new probe which was designed differently to address the concerns in the OPEX and SIL. Also, the licensee performed a lost parts evaluation in November 2001 which concluded that there were no adverse consequences on the reactor vessel internals from the missing feedwater probe. At that time, the licensee did not note any damage to

the feedwater spargers and did not attempt to locate the missing probe. However, during the Unit 2 November 2003 refueling outage the licensee identified damage to one of the four feedwater spargers. Subsequently, the licensee performed a boroscope inspection of the damaged sparger and identified the feedwater probe that was identified as missing in 2001 in that particular sparger. The sparger was repaired and the remaining three other spargers were not inspected. During a shut down of Unit 2 in December 2003, the licensee identified that the modified feedwater probe was missing and suspected inside one of the four spargers. The licensee generated an operability evaluation for the missing probe which was reviewed by the inspectors and determined acceptable.

During the Fall 2005 refueling outage, the licensee inspected all four feedwater spargers and did not locate the missing probe. In addition, the licensee did not note any damage to any of the spargers which would have indicated that the probe had been inside the sparger. The inspectors reviewed the video tape of the sparger inspection and agreed with the licensee that the probe was not inside any sparger. The licensee initiated additional efforts in searching for the probe by disassembling and inspecting the feedwater inboard and outboard primary containment check valves and inspecting the lines downstream of the inboard check valves up to the elbow. The licensee documented the station's efforts in locating the missing feedwater sample probe in EC #358313, Revision 0, which concluded that the probe was most likely removed during replacement of the feedwater sparger to address design deficiencies with the sparger in the early 1980s. The licensee's efforts to search for and retrieve the missing probe met the licensee's commitment to the NRC in a letter, dated May 13, 2005.

This URI is closed.

This represented one inspection sample.

#### 4OA5 Other Activities

##### .1 Review of Institute of Nuclear Power Operations Reports

The inspectors completed a review of the interim report for the Institute of Nuclear Power Operations, December 2005 Evaluation, dated December 1, 2005. The onsite inspections were conducted September 26 - 30, 2005, and October 3 - 7, 2005. During the review the inspectors did not identify any new safety significant issues.

The inspectors completed a review of the Dresden Accreditation Final Report, dated December 2005. The onsite inspection was September 12 - 16, 2005. The training programs evaluated included the Instrument and Control Technician and Supervisor, Electrical Maintenance Personnel and Supervisor, Mechanical Maintenance Personnel and Supervisor, Chemistry Technician, Radiological Protection Technician, and Engineering Personnel.

#### 4OA6 Meetings

##### .1 Exit Meeting

The inspectors presented the inspection results to the Site Vice President, Mr. D. Bost, and other members of licensee management on January 4, 2006. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. Proprietary information was identified.

##### .2 Interim Exit Meetings

Interim exit meetings were conducted for:

- Inservice Inspection (IP 71111.08), with Mr. D. Bost and other members of licensee management at the conclusion of the inspection on November 9, 2005. The inspectors returned proprietary information reviewed during the inspection and the licensee confirmed that none of the potential report input discussed was considered proprietary.
- Occupational Radiation Safety ALARA program inspection during the licensee's Unit 2 refueling outage with Mr. D. Wozniak on November 18, 2005.
- Emergency Preparedness Inspection (IP 71114.04) with Mr. R. Ford on December 1, 2005 via telephone.

#### 4OA7 Licensee-Identified Violations

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

Technical Specification 5.7 requires, in part, that individuals entering a high radiation area be knowledgeable of the dose rate levels in the area. Technical Specification 5.4 requires that written procedures be established and implemented for activities provided in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Procedures specified in Regulatory Guide 1.33 include radiation protection procedures for access control to radiological areas, which are provided by licensee procedure RP-AA-460, "Controls for High and Very High Radiation Areas." The procedure requires that workers receive a high radiation brief from radiation protection prior to entry into a high radiation area. Contrary to these requirements, on September 1, 2005, three individuals entered a posted high radiation area in the Radwaste Building without knowledge of the dose rate levels in the area and had not received a high radiation area briefing from the radiation protection staff. This incident is documented in the licensee's corrective action program as CR 369795. This 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 to the workers that entered the high radiation area, nor was the licensee's ability to assess worker dose compromised.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## KEY POINTS OF CONTACT

### Licensee personnel

D. Bost, Site Vice President  
D. Wozniak, Plant Manager  
H. Bush, Radiation Protection, Radiological Engineering Manager  
R. Conklin, Radiation Protection Supervisor  
R. Ford, Emergency Preparedness Manager  
J. Fox, Design Engineer  
R. Gadbois, Operations Director  
D. Galanis, Design Engineering Manager  
V. Gengler, Dresden Site Security Director  
J. Griffin, Regulatory Assurance - NRC Coordinator  
P. Salas, Regulatory Assurance Manager  
M. Kanavos, Site Engineering Director  
A. Khanifar, Nuclear Oversight Director  
J. Kish, ISI Coordinator  
S. Kroma, Reactor Services Project Manager  
T. Loch, Supervisor, Design Engineering  
M. McGivern, System Engineer  
M. Mikota, Dry Cask Project Manager, Dresden  
M. Overstreet, Lead Radiation Protection Supervisor  
J. Strmec, Chemistry Manager  
B. Surges, Operations Requalification Training Supervisor  
G. Bockholdt, Maintenance Director  
S. Taylor, Radiation Protection Manager

### NRC personnel

M. Ring, Chief, Division of Reactor Projects, Branch 1

### IEMA personnel

R. Schulz, Illinois Emergency Management Agency  
R. Zuffa, Resident Inspector Section Head, Illinois Emergency Management Agency

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000237/2005013-01 05000249/2005013-01	URI	Determination of the Site Bounding Steam Line Break Analysis
05000237/2005013-02	URI	Inadequate Work Order Package Caused Loss of Shutdown Cooling

### Closed

05000237/2003011-02	URI	Unit 2 Potential Consequences of the Lost Feedwater Sample Probe
05000237;05000249/2005-003	LER	Units 2 and 3 Offsite Power Sources Declared Inoperable Due to Low Voltage

### Discussed

None

## LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that 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 on 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**

- IR 377626; NOS ID standing order deficiency; September 25, 2005
- IR 395296; Weather causes 138 kv switch yard issues; November 6, 2005
- IR 425318; Winter readiness issues not completed by November 15, 2005; November 18, 2005
- IR 427038; NOS ID winter readiness snow removal hazard; November 23, 2005
- IR 427848; Alarm indicating that heat trace is not working; November 27, 2005
- IR 428372; NOS ID site winter readiness certification deficiency; November 29, 2005
- IR 428426; NOS ID cribhouse winter readiness issue; November 29, 2005
- IR 428522; NOD IS winter readiness potential enhancements; November 29, 2005
- WC-AA-107, Revision 1, "Seasonal Readiness"

### **1R04: Equipment Alignment**

- DOP 1300-M1/E1, Revision 20, Unit 3 Isolation Condenser (Valve and Breaker alignment)
- DFPS 4114-02, Revision 19, Fire System Inspection, Checklist 1
- IR 376150; Documenting Delays in Completion of SBGT 'B' Train LCO Window; September 21, 2005
- IR 376212; SBGTs AFU deficiencies; September 21, 2005
- IR 435730; NRC Identified Check List Question (with lock on valve not identified in valve check sheet); December 20, 2005

### **1R04: Equipment Alignment (Semi-Annual)**

- DOP 1500-E1, Revision 13, Unit 3 LPCI and CCSW System Electrical
- DOP 1500-M1, Revision 29, Unit 3 LPCI and Containment Cooling Valve Checklist
- DOS 1500-18, Revision 03, LPCI System 1st Comprehensive/Preservice Pump Test with Torus Available
- Design Change Package for: TCCP EC 353933 and WO 784151, "Isolate U3 CCSW Pump Vault Cooling Coil 3-5700-30A to Keep Coil 3-5700-30B Operable"
- EC 357145, Revision 0, "Provide Alternate Flow Path from CCSW to RBCCW Heat Exchangers"
- WO 778172, D3 2Y TS CCWS Pmp Comprehensive Oper Test and IST Surv
- WO 784151, "TMOD - Blank Off U3 CCSW Pump Vault Cooling Coil 3-5700-30A"
- WO 825477, 1st pump test invalid due to post cal gauges OOT; June 30, 2005
- IR 301788; NRC question on operability of CCSW room coolers; February 15, 2005
- IR 314046; 3A CCSW pump vibration in the alert range; March 17, 2005
- IR 315386; Replace 3-1501-44A 3A CCSW pump case; March 21, 2005

- IR 363698; —360 sheet 2 drawing discrepancy; August 16, 2005
- IR 373158; Require re-test of 3-4999-75 due to M&TE OOT; September 13, 2005
- IR 377070; Valve 3-1599-109B missing T-handle; September 23, 2005
- IR 377216; NRC inspector raises questions about CCSW TCCP; September 23, 2005
- IR 379598; NRC Insp. questions acceptance criteria in ED TCCP 353888
- IR 388299; NRC question concerning potential preconditioning; October 20, 2005
- IR 391852; CCSW system operability question; October 29, 2005
- IR 391980; CCSW flow indicator shows flow with no pumps on; October 29, 2005

### **1R05: Fire Protection**

- WO 00840357 “D2/3 Qtr Com Fire Drill (4<sup>th</sup> Drill of Qtr)”
- Fire Drill Scenario
- OP-AA-201-003, Revision 6, “Fire Drill Performance”
- NOS Audit NOSA-DRE-05-10 (AR 287383)
- List of training provided to fire brigade

### **1R07: Heat Sink Performance**

- WO 99118679, Coat Upper and Lower End Bell Internals in Plastic
- WO 00654885, D2 RFL PM Clean/Insp/Hydro/Eddy Current ‘B’ LPCI Hx
- IR 381471; Unqualified person authorized reassembly of 89-13 RCU; October 3, 2005
- IR 393932; ER-AA-340-1002 is not clear/implies a cert guide requirement; November 2, 2005
- IR 395016; 2B LPCI Hx Upper Channel Head has One Pit Requiring Repair
- IR 430595; VT-2 not performed on 2B LPCI heat exchanger; December 5, 2005
- IR 431435; HX inspection work order packages FASA identified weaknesses; December 7, 2005
- IR 431966; RBCCW heat exchanger replacement head cover; December 6, 2005
- GL 89-13 Program Basis Document, Appendix C, Revision 4, page C-7
- DOS 1500-12, Revision 21, Containment Cooling Service Water Loop Flow Verification
- ER-AA-340-1002, Revision 2, Service Water Heat Exchanger and Component Inspection Guide
- ER-AA-340-2000, Revision 1, Balance-Of-Plant Heat Exchanger Inspection, Testing and Maintenance Guide
- DCP 1008-04, Revision 6, Heat Exchanger Inspection Program
- Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment

### **1R08: Inservice Inspection Activities**

#### Non-destructive examination (NDE)

- GE-MT-100; Procedure for Magnetic Particle Examination (Dry Particle, Color Contrast or Wet Particle, Fluorescent); Version 5.
- GE-PDI-UT-2; PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds; Revision 3.
- Magnetic particles (MT) Data Sheet R19-002; Weld 2/2/1534-18/M-3214-42; November 3, 2005
- Ultrasonic Examination Data Sheet R19-055; Weld L5/L4; November 8, 2005

- Ultrasonic Examination Data Sheet R19-006; Weld L5-D6A; November 8, 2005
- Ultrasonic Examination Data Sheet R19-028; Weld 16-K6; November 7, 2005
- GE-ADM-1062; Procedure for Determining and Documenting Examination Requirements for Risk-Informed Inservice Inspections

#### Corrective Action Documents

- IR 00303203; Inconsistency Between NDE Procedure and RI-ISI Requirement; February 18, 2005
- IR 00293713; Pipe Degradation of 2C and 2D CCSW Pump Discharge Elbows; August 5, 2005
- IR 00276507; ASME Code Piping Replaced Without Repair/Replacement Plan; November 24, 2004
- IR 00344388; Incorrect Weld Inspected During 1999 ISI Inspection; June 15, 2005
- IR 00176040; Flaw Discovered on M-1164D-578 During ISI Inspection; September 16, 2003
- IR 1850505; Through Wall Leak on Reactor Head Spray Line 2-0304-2 ½"; November 6, 2003

#### Documents Related to ISI Flaw Evaluation

- EC Evaluation 344587; Assess Capability of Upper Support of 2B LPCI Heat Exchanger (2-1503-B) With Missing Section of Attachment Weld
- Metallurgical Report, DRE-81678; Evaluation of Indications in LPCI Heat Exchanger Support Plates at Dresden Station; dated October 31, 2003

#### Documents Related to Welded Repairs

- Work Order 00634436; Repair Leak at Head Spray Line at the Bulkhead; dated November 06, 2003
- RT Data Sheet 03822; Weld W-1; dated November 07, 2003
- RT Data Sheet 03834; Weld W-2; dated November 07, 2003
- Equipment Apparent Cause Evaluation (EACE); Through Wall Leak on Reactor Head Spray Line 2-0304-2 ½"; dated January 06, 2004
- CC-AA-501-1003; Revision 1; Exelon Nuclear Welding Program Visual Weld Acceptance Criteria

#### **1R05: Fire Protection**

- IR 393124; Outage equipment laying across fire protection equipment; November 1, 2005
- IR 394005; TR21 energized with deluge isolated, missed TRM entry; November 3, 2005
- IR 397394; Penetration fire barriers INOP or status unknown; November 29, 2005
- IR 395150; D2R19LL: NOS ID improper hot work practices; November 5, 2005
- IR 399230; U-3 condensate pump room (west end) in complete disarray; November 16, 2005
- IR 399720; Fire hose reel has scaffold piled on the hose; November 17, 2005
- IR 428962; Penetration F-59-04 & -05 fire barriers found operable; November 30, 2005
- Dresden Fire Pre-Plan; U3TB-73, Revision 05
- DFPS 4183-03, Revision 10; Unit 2/3 Diesel Generator Room and Alterrex Cabinet Heat Detector Test; page 12
- Dresden Fire Pre-Plan; U3RB-30, Revision 05
- DFPS 4183-05, Revision 15; Unit 3 Heat/Smoke Detector Operability Test, page 8
- Dresden Fire Pre-Plan; U2RB-11, Revision 05

- DFPS 4183-04, Revision 16; Unit 2 Heat/Smoke Detector Operability Test, page 8
- DFPS 4114-05, Revision 24; Fire Hose Inspection Service Test
- DFPS 4114-15, Revision 12; Fire Extinguisher Inspection
- DFPS 4114-04, Revision 21; Fire Extinguisher Maintenance Inspection,

### **1R11: Operator Requalification**

- IR 369426; Operations OBE Training Failures: September 1, 2005
- IR 370901; High Failure Rate for Licensed Operators in August; September 7, 2005
- IR 371173; NRC Form 396 Cert of Medical Exam Not Found in Medical Files; September 8, 2005
- IR 431547; LORT NARS form attention to detail errors are too high; December 7, 2005

### **1R12: Maintenance Effectiveness**

- ER-AA-310, Revision 4, Implementation of the Maintenance Rule
- ER-AA-310-1001, Revision 2, Maintenance Rule - Scoping
- ER-AA-310-1002, Revision 2, Maintenance Rule - SSC Risk Significance Determination
- ER-AA-310-1003, Revision 3, Maintenance Rule - Performance Criteria Selection
- ER-AA-310-1004, Revision 3, Maintenance Rule - Performance Monitoring
- ER-AA-310-1005, Revision 2, Maintenance Rule - Dispositioning Between (a)(1) and (a)(2)
- ER-AA-310-1006, Revision 2, Maintenance Rule - Expert Panel Roles and Responsibilities
- ER-AA-310-1007, Revision 3, Maintenance Rule - Periodic (a)(3) Assessment
- Licensee Maintenance Rule - Evaluation History for SRMs from November 2003 until December 2005
- Licensee Maintenance Rule - Evaluation History for SBO from January 2004 - December 2005
- Plant Health Committee System Presentation for September 2005 for Station Blackout Diesel Generator
- Plant Health Committee System Presentation for September 2005 for SRM system
- IR 146495; SRM 22 High Voltage Inop Trip Setpoint; February 27, 2003
- IR 164257; SRM 21 Indication and HI-HI Trip Out of Tolerance; June 20, 2003
- IR 172089; SRM 22; August 19, 2003
- IR 173513; SRMs Out of Calibration. Not a Tech Spec Concern; August 28, 2003
- IR 182051; SRM/IRM Drive Control Fuse Holder/Clips Found Cracked; October 21, 2003
- IR 183490; SRM 23 Failed Downscale; October 29, 2003
- IR 184570; SRM 24 Inop Trip Powersupply Out of Tolerance; November 4, 2003
- IR 188123; SRMs 22 and 24 Setpoints Out of Tolerance; November 25, 2003
- IR 189455; SRM 23 Indicating 1E5 Counts While Fully Withdrawn and Rx SD; December 7, 2003
- IR 195899; SRM 22 HI-HI Trip Out of Tolerance; January 16, 2004
- IR 195901; SRM 24 Out of Tolerances; January 16, 2004
- IR 204291; SRM 22 HI-HI Trip Setpoint Out of Tolerance Not Tech Spec; February 26, 2004
- IR 204295; SRM 21 Setpoints Out of Tolerance. Not Tech Spec; February 26, 2004
- IR 207495; SRM 24 Spiked During a Monthly LPRM Plateau; March 10, 2004
- IR 219059; SRM Channel 24 Reading High; May 5, 2004
- IR 219384; SRM Drive Mechanism Fuses Failed; May 7, 2004
- IR 219407; NI Failures During Startup Surveillances
- IR 219692; Unit 3 Start Up Aborted Due Insufficient SRM's; May 8, 2004

-IR 224566; U2 SRM's Setpoints Out of Cal, no Tech Spec Violations; May 28, 2004  
 -IR 235824; SRM 23 HI-HI Trip Setpoint; July 14, 2004  
 -IR 235825; SRM 22 High-High Trip OOT; July 14, 2004  
 -IR 235826; SRM 24 High-High Trip Setpoint and High Voltage Inop OOT; July 14, 2004  
 -IR 236912; SRM 24 OOT; July 14, 2004  
 -IR 250586; SRM Undervessel, Pre-Amp, and Chassis Connectors; September 7, 2004  
 -IR 253706; SRM Signal to Noise Ratio Test; September 16, 2004  
 -IR 254521; SRM 21 Detector Position; September 19, 2004  
 -IR 255937; SRM Chan 23 Upscale; September 23, 2004  
 -IR 263028; IMD OOT SRM 21 - No Tech Spec Violation; October 13, 2004  
 -IR 263034; IMD SRM 24 OOT - No Tech Spec Violation; October 13, 2004  
 -IR 269735; SRM 23 Failed Surv; November 3, 2004  
 -IR 273410; SRM 21 Inop; November 15, 2004  
 -IR 274356; SRM 24 Unable to Achieve > 3 CPS During Refuel Operations; November 17, 2004  
 -IR 274438; D3R18LL: SRM 24 Discriminator Setting Apparently Incorrect; November 17, 2004  
 -IR 273806; SRM 23 Count Rate Meter; November 16, 2004  
 -IR 280553; SRM-22 EPN 2-0750-3B HI HI Found Out of Tolerance; December 8, 2004  
 -IR 281860; Unit 3 SBO engine B glycol leak; December 13, 2004  
 -IR 289471; 3-0756-SRM21&24 Source Range Monitors Out of Tolerance; January 11, 2005  
 -IR 290632; Unexpected Alarm; January 13, 2005  
 -IR 300650; Failed pmt for U3 SBO D/G room secondary vent fan; February 11, 2005  
 -IR 304881; SRM 22 & SRM 23 Source Range Monitors Out of Tolerances; February 24, 2005  
 -IR 307995; 2-5790-6018A/B hydromotor leaking oil and stroke is short; March 3, 2005  
 -IR 309510; Received Hi Vibration Alarm during SBO surveillance; March 7, 2005  
 -IR 323676; Source Range Monitors 21, 22 & 23 Out of Tolerance; April 12, 2005  
 -IR 323794; SRM 24 HI-HI Setpoint and Inop Setpoint OOT, Not Tech Spec; April 12, 2005  
 -IR 329610; SRM 23 Exhibiting Noise, Need WO to Trouble Shoot; April 28, 2005  
 -IR 332780; PMT 619180-02 failed due to switch not operating smoothly; May 6, 2005  
 -IR 334376; Unit 2 SBO System trouble engine A glycol leak; May 12, 2005  
 -IR 337331; SBO processor failure; May 21, 2005  
 -IR 338915; U3 SBO EDG air system valve found out of normal position; May 27, 2005  
 -IR 339022; U3 SBO diesel generator engine A lube oil sump level low; May 27, 2005  
 -IR 340239; Low A/C input voltage on U3 SBO battery charger; June 1, 2005  
 -IR 342639; During inspection hydromotor 2-5790-6025 found degraded; June 9, 2005  
 -IR 343073; SRM 24 Dwnscale Inop Light On; June 10, 2005  
 -IR 344069; 2A SBO starting air compressor not pressing up air receiver; June 14, 2005  
 -IR 344452; NRC Questions: SRM 24 Conservatively Declared Inoperable; June 15, 2005  
 -IR 346453; Unit 2 SRM 21 is Noisier than Other 3 SRMs; June 22, 2005  
 -IR 353756; 2B SBO starting air compressor breaker tripped; July 16, 2005  
 -IR 357101; U3 SBO trouble; July 27, 2005  
 -IR 361724; Unit 3 SRM 24 is Noisier than Other 3 SRM Channels; August 10, 2005  
 -IR 362847; U3 SBO A engine needs lube oil addition; August 14, 2005  
 -IR 362872; U3 SBO DG vibration indicator erratic behavior; August 14, 2005  
 -IR 363153; U3 SBO DCS trouble; August 15, 2005  
 -IR 368534; SRM 23 Erratic Operation; August 31, 2005  
 -IR 369019; Lost 902-5 Pnl Indication for SRM & IRM Positions; September 1, 2005  
 -IR 369621; Difficulty in Meeting MR Expert Panel Quorum Requirements; September 1, 2005  
 -IR 370211; ISCO Make up Pump Clearance Order Not in MR Database; September 9, 2005



- IR 370347; SRM 22 Inoperable; September 6, 2005
- IR 370798; NRC Identifies Discrepancies with MR Evaluations; September 7, 2005
- IR 372119; SRM 21 Inoperable Due to Erratic Indication; September 10, 2005
- IR 372324; U2 Source Range Monitor 21 Mode Switch; September 11, 2005
- IR 375409; Unexpected entry into DOA 6700-06 480 volt breaker trip; September 20, 2005
- IR 375825; Unnecessary risk being during high risk surveillance; September 21, 2005
- IR 376833; Work not properly screened; September 27, 2005
- IR 377025; SRM Refuel Relay Chattering; September 23, 2005
- IR 377316; SBO DG run abnormalities; September 23, 2005
- IR 384226; MRule: Reclassify IR 288043 as MRFF; October 10, 2005
- IR 384906; D3 SRM 21, 22, 23 Instrument Out of Tolerance; October 12, 2005
- IR 384910; Comp. Point B375 (SRM 24 Cps) Unable to be Calibrated; October 12, 2005
- IR 388044; SBO engine B Glycol Leak Alarm; October 20, 2005
- IR 388320; SRM 21 Pulse Height Discriminator Erradic Scaler Output; October 20, 2005
- IR 389344; Alarm received for SBO engine 3A glycol leak; October 24, 2005
- IR 391100; Slight leak on joint going into 3 SBO DG fuel pump; October 27, 2005
- IR 392536; SRM 21 Failed DOS 700-1, CM-U; October 31, 2005
- IR 393113; SRM 21 Indication/Position Issue; November 1, 2005
- IR 396946; MRule function Z5709-01 performance criteria; November 9, 2005
- IR 396962; MR function Z01-1 MRule performance criteria exceeded; November 9, 2005
- IR 399778; Pump discharge piping appears to be leaking oil; November 17, 2005
- IR 426768; Z7800-01 needs (A)(1) expert panel evaluation; November 22, 2005
- IR 428376; Need to perform A1 determinations for multiple backlogged FF; November 29, 2005
- IR 429137; Numerous Items Found Out of Tolerance During DIS 0700-10; November 30, 2005
- IR 430852; MRule: performance criteria exceeded on Z6700-01 and Z6700-02; December 6, 2005
- IR 431977; U3 RBCCW maintenance rule unavailability extended; December 6, 2005

**1R13: Maintenance Risk Assessment**

-DOS 0010-16; Unit 2 (3) Isolation Condenser Safe Shutdown Valve Operability; Revision 14

**1R15: Operability Evaluations**

- AR 323533; Deficiencies in the Main Steam Line Break (MSLB) Analysis; April 4, 2005
- IR 368692; Non-treated Wood Found on the Main Turbine Floor; August 31, 2005
- IR 387342; Non-safety related part provided by materials management; October 18, 2005
- IR 394350; NRC Identifies Missed Opportunities in Engineering Analyses; November 1, 2005
- IR 398755; NRC states that Op Eval 05-002 methodology is incorrect; November 14, 2005
- IR 399563; Question on loop concurrent with a RWCU line break; November 16, 2005
- Calculation Number DRE98-0077, Dresden HPCI Room Response with Reduced Room Cooler Capability, Revision 1
- Calculation Number DRE97-0161, Justification for continued Operation of HPCI Gland Seal and Exhauster Subsystem Components, Revision 2
- EC 354963, Reactor Water Clean-up (RWCU) Line Break Dose Evaluations, Revision 0 and 1
- EC 355479, On-line HPCI Room Cooler Maintenance and HPCI System Availability, Revision 0

- EC 356681, Dresden Diesel Generator Loading with Two LPCI Pumps. One Core Spray Pump and One CCSW Pump, Revision 7.
- OE 05-002, Main Steam Line Break outside containment no longer the bounding steam line break for radiological dose, Revisions 0, 1 and 2
- Calculation Number DRE97-0150, Control Room Habitability Following a Main Steam Line Break, Revision 1
- Calculation Number DRE98-0077, Dresden HPCI Room Response with Reduced Room Cooler Capability, Revision 1
- Calculation Number DRE97-0161, Justification for continued Operation of HPCI Gland Seal and Exhauster Subsystem Components, Revision 2
- Calculation Number DRE02-0035, Determination of Control Room (CR), Exclusion Area Boundary (EAB, and Low Population Zone(LPZ) doses following a Main Steam Line Break Accident, Revision 3
- RS-05-114, Correspondence from Exelon to US Nuclear Regulatory Commission, SUBJECT: Additional information supporting the request for license amendment related to application of Alternative Source Term, dated August 22, 2005
- Correspondence from US Nuclear Regulatory Commission to Nuclear Energy Institute, SUBJECT: NEI Draft White Paper, Use of the Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability, dated January 30, 2004

### **1R16: Operator Workaround**

- OP-AA-102-103, Rev 1, Operator Work-Around Program
- IR 197229; High Radiation discovered during routine survey; January 23, 2004
- IR 285690; U2 Narrow Range Reactor Pressure; December 27, 2004
- IR 289573; Verify EHC Throttle Pressure Transmitter Sensing Line Fill; January 11, 2005

### **1R19: Post Maintenance Testing**

- IR 384511; HCU Alarm Relay Replaced - inadequate PMT; October 11, 2005
- IR 395851; DOS 1500-02 not performed as PMT for WO 00580266-01; November 7, 2005
- IR 425671; Out of Tolerance on TD Relay 2-595-103C-1; November 18, 2005
- IR 425672; Out of Tolerance on TD Relay 2-595-103D-1; November 18, 2005
- IR 425674; PS 2-0261-30D Out of Tolerance; November 18, 2005
- WO 779136-01; OP Perform PMT's for LPCI System for D2R19; November 17, 2005
- WO 785291-05; IM PMT Perform DIS-0250-12; November 18, 2005
- DOP-1500-01; Preparation of Low Pressure Coolant Injection for Automatic Start; Revision 15
- DOS 0201-01; Revision 44; Unit 2 RPV ASME B and PV Code 1000 PSI system Leakage Test
- DIS-0250-12; Main Steam Line Low Pressure Isolation Switch Calibration (Reactor Mode Switch not in Run Position); Revision 7
- WO 580266, D3 2Y PM Perform Internal Inspection of Keep-fill Check Valve, March 31, 2005
- WO 863350, Utilize Parts from D3 SRM 21 to Repair D2 SRM21, November 4, 2005
- WO 99019500, D3 17.6y EQ CCSW Flow Transmitter Replacement, October 7, 2005
- DIS 1500-11, CCSW Flow Channel Calibration and Maintenance Inspection, Revision 19
- DOS 0700-01, SRM Functional Test, Revision 17, conducted on 11/03/05
- DOS 0700-03, SRM Detector Position Rod Block Functional Test, Revision 15, conducted on 11/3/2005

- DOS 0700-12, Determining Source Range Monitor Signal to Noise (S/N) Ratio and Minimum SRM Count Rate, Revision 01, conducted on 11/3/05
- DOS 1500-02, Unit 2(3) Containment Cooling Service Water pump Test and Inservice Test (IST), Revision 55
- Assignment Report 00395851, DOS 1500-02 Not Performed as PMT for WO 00580266-01, dated 11/07/2005

### **1R20: Outage**

- IR 386140; New fuel assy. discovered staged into wrong location; October 14, 2005
- IR 393370; Operation personnel removing hoses from floor drain; November 1, 2005
- IR 393755; Indication found on Unit 2 steam dryer; November 2, 2005
- IR 393851; Incorrect interpretation of NF-AA-310; November 2, 2005
- IR 393908; 2 E LPCI corner room ladder does not meet code and not secure; November 2, 2005
- IR 394027; Steam dryer gusset cracking; November 3, 2005
- IR 394923; Wrong weld for ISI inspection; November 4, 2005
- IR 394941; Snubber 2-23019A-60 exceeded test criteria; November 4, 2005
- IR 395093; Venture scaffold found 1/8" from SR valve - NRC ID; November 5, 2005
- IR 395280; Bus 23 overcurrent while EMD manipulated a lead; November 6, 2005
- IR 395287; Argon bottle inadequately chained - NRC ID; November 6, 2005
- IR 395500; Inconsistent documentation of IVVI, VT-1 best effort exams; November 6, 2005
- IR 395897; T1 transmission lag times to the COE occurred during EIVVI; November 7, 2005
- IR 395911; Loss of FME integrity in U2 reactor vessel; November 7, 2005
- IR 396770; D2R19 IVVI-jet pump wedge handle in contact with housing; November 9, 2005
- IR 397881; NOS ID gas bottle issue & chem cntl - refuel floor; November 11, 2005
- IR 398293; Flange leak on 4A safety valve identified; November 13, 2005
- IR 399346; A lost part evaluation per ER-AA-2006 was not initiated; November 16, 2005
- IR 399471; Powerplex critical power correlation convergence problem; November 16, 2005
- IR 425081; Vessel head seal leak detection alarm; November 17, 2005
- IR 425366; Weld not verified with gauge on unit 2 steam dryer; November 18, 2005
- IR 426090; D3M12 steam dryer - indications found gusset welds; November 20, 2005
- IR 426537; D2R19LL: RX vessel clarity; November 21, 2005
- IR 428839; D2R19LL A SRV leak causing crit path delay; November 30, 2005
- IR 429099; Collegial review board report documentation; November 30, 2005
- Unit 2 (3) DGP 01-01, Rev 124, Unit Startup
- Unit 2 (3) DGP 02-01, Rev 104, Unit Shutdown
- Unit 2 (3) DOS 1600-10, Rev 34, Drywell Closeout Inspection Plan
- OP-AA-108-108-1001, Rev 0, Drywell/Containment Closeout
- EC #357894, Rev 2, Cumulative Effects of Foreign Material (FM) on the Reactor Vessel and Connecting Systems Dresden Units 2 and 3

### **1R22: Surveillance Testing**

- IR 384106; Jet pump loop flow vs pump speed surveillance; October 25, 2005
- IR 388127, As Found Data- Found OOT - After PKG Closed; October 20, 2005
- IR 394620; NRC Inspection manual provides early warning of RCS leakage; November 4, 2005
- WO 684787; D2 2Y LPCI HX D/P Transmitter Cal/EQ Insp; September 8, 2005;

- WO 796803; U2 LPCI Swing Bus 28-7/29-7 Protective Relay Setpoint Change; September 20, 2005
- DIS 1500-15, LPCI Heat Exchanger Differential Pressure Transmitter Calibration/Maintenance Inspection and Trip Unit Calibration, Revision 08
- DOS 6600-07, Testing LPCI Swing Bus Protective Relays Auto Transfer Function, Revision 19
- WO 658117, D2 24M TS Test LPCI Swing Buss Relays; October 14, 2005
- WO 684787, D2 2Y LPCI HX D/P Transmitter Cal/EQ Insp; September 8, 2005
- WO 796803, U2 LPCI Swing Bus 28-7/29-7 Protective Relay Setpoint Change; September 20, 2005
- DIS 1500-15, LPCI Heat Exchanger Differential Pressure Transmitter Calibration/Maintenance Inspection and Trip Unit Calibration, Revision 08
- DOS 6600-07, Testing LPCI Swing Bus Protective Relays Auto Transfer Function, Revision 19
- WO 635035, Perform as-found LLRT per DOS 7000-21
- DOS 7000-08, Local Leak Rate Testing of Primary Containment Isolation Valves, Revision 4
- ER-AA-321, Administrative Requirements for Inservice Testing
- ASME Boiler and Pressure Vessel Code, Section XI, 1986 Edition
- WO 627804, D2 RFL IST Sect XI Seat Leakage Test of Vlv 2-1402-9A Lv
- DOS 7100-10, Revision 01, High Pressure Seat Leakage Testing of Core Spray Injection Check Valves
- Drawing —27, Diagram of Core Spray Piping
- DTP 47, Rev 14, Primary Containment Leak Rate Test Log

### **1R23: Temporary Modifications**

- IR 377216; NRC Inspector raises question about CCSW TCCP; September 23, 2005
- IR 378679; NOS IDs discrepancies during CM installation of FP to TBBCW; September 27, 2005
- IR 390203; NOS identified issues with EC# 357373; October 25, 2005
- IR 430735; TCCP 348442 partially removed without all authorizations; December 6, 2005

### **1EP4: Emergency Action Level and Emergency Plan Changes**

Dresden Nuclear Power Station Annex to the Exelon Standardized Emergency Plan; Revision 19

### **1EP6: Drill and Training Evaluations**

- IR 369261; Emergency Action Level Determination; September 1, 2005
- IR 386241; Personnel did not attend scheduled training; October 14, 2005
- IR 425644; Dresden drill participation rate is <80% of available ERO; November 18, 2005
- IR 429217; 2 emergency preparedness duty lists exist; December 1, 2005
- IR 431353; E not involved in LORT scenario reviews; December 7, 2005
- IR 431540; No memos to document prior designation of LORT drills for PI; December 7, 2005
- IR 431541; Documentation of key PO parameters on NARS forms; December 7, 2005
- IR 431542; Some of the May 2005 DEP NARS forms not in documentation pkg; December 7, 2005
- IR 431544; Reports not timely leading to loss of detail; December 7, 2005
- IR 431549; EP DEP PI review forms used <15 min instead of actual values; December 7, 2005

- IR 431550; Enhancement for presentation of EP dep records; December 7, 2005
- Dresden Plant Based PAR Flowchart; EP-AA-111-F-04, Revision B

### **2OS1: Access Control to Radiologically Significant Areas**

- RWP 10005221; D2R19 Observations, Tours and Walkdowns; Revision 0
- RWP 10005242; D2R19 Drywell Walkdowns and Inspections; Revision 0
- RP-AA-460; Controls for High and Very High Radiation Areas; Revision 9
- AR 00369795 and Associated Apparent Cause Evaluation(ACE); Mechanical Maintenance Performed High Radiation Area Work Without High Radiation Brief; AR dated September 1, 2005; ACE dated October 7, 2005

### **2OS2: ALARA Planning and Controls**

- D2R19 Outage RWP Preparation Log and Associated Job Dose Projections and Daily RWP Outage Doses; Dose Reports for November 14 - 18, 2005
- RP-AA-400; ALARA Program; Revision 3
- RP-AA-401; Operational ALARA Planning and Controls; Revision 4
- RP-AA-270; Prenatal Radiation Exposure; Revision 3
- Self-Assessment Report; Declared Pregnant Worker Program; dated June 1, 2004
- RWP 10005204 (Revision 0); Associated ALARA Plan and TEDE ALARA Evaluations; D2R19 Reactor Disassembly/Reassembly and Related Activities
- RWP 10005205 (Revision 0); Associated ALARA Plan and TEDE ALARA Evaluation; Reactor Steam Dryer Modification Diving Activities
- RWP 10005230 (Revision 0); Associated ALARA Plan and TEDE ALARA Evaluation; Drywell Nuclear Instrumentation Maintenance
- RWP 10005232 (Revision 0); Associated ALARA Plan and TEDE ALARA Evaluation; Drywell Equipment/Floor Drain System Maintenance Activities
- RWP 10005235 (Revision 0); Associated ALARA Plan and TEDE ALARA Evaluation; Drywell Main Steam Safety, Electromatic and Target Rock Valve Maintenance
- RWP 10005240 (Revision 0); Associated ALARA Plan and TEDE ALARA Evaluation; Drywell Control Rod Drive System Maintenance
- RWP 10005202 (Revision 0); Associated ALARA Plan and TEDE ALARA Evaluation; Howell Maintenance and Inspection
- ALARA Work-In-Progress Review for RWP 10005240; Control Rod Drive System Maintenance; dated November 13, 2005
- ALARA Work-In-Progress Review for RWP 10005235; Main Steam Safety, Electromatic Valve Replacement; dated November 12, 2005
- ALARA Work-In-Progress Review for RWP 10005245; Drywell In-Service-Inspection; dated November 11, 2005
- ALARA Work-In-Progress Review for RWP 10005199; Main Condenser Maintenance Activities; dated November 9, 2005
- ALARA Work-In-Progress Review for RWP 10005230; Drywell Nuclear Instrumentation; dated November 10, 2005
- ALARA Work-In-Progress Review for RWP10004166; In-Vessel Inspection - Core Spray Modification Activities; dated November 16, 2004
- D3R18 Post Outage Radiation Protection Department Report; dated December 2004

- AR 00390225 and associated prompt investigation; Diamond Plate in Unit 2 TIP Room not Secured to the Floor; dated October 25, 2005
- AR 00361844; Refuel Floor Steam Plugs High Dose; dated August 8, 2005
- AR 00376230; Engineering Person Removed Lead Blankets and Opened Process Line Without Radiation Protection; dated September 21, 2005
- Focus Area Self-Assessment Report; Outage Readiness and Preparation; dated September 14, 2005
- Nuclear Oversight Field Observation; Outage Dose Estimates; dated November 11, 2005
- Nuclear Oversight Field Observation; RWP Preparation and Quality; dated November 11, 2005
- Nuclear Oversight Field Observation; Radiation Worker Practices; dated April 28, 2005
- Nuclear Oversight Field Observation; Radiation Dose Control; dated September 19, 2005
- Nuclear Oversight Audit NOSA-DRE-05-06; Health Physics Functional Area; dated July 6, 2005

### **71152: Identification and Resolution of Problems**

- IR 303692; As Found Setpoint Outside of Technical Specifications; February 21, 2005
- IR 379027; IR 271864 Lacks Sufficient Historic Reportability Info; September 28, 2005
- IR 397919; Main steam safety valve setpoint outside TS limit; November 11, 2005

### **71153: Event Follow-up**

- IR 398113; D2R19 IVVI - hole found in feedwater sparger repair; November 12, 2005
- EC 358417, Revision 0010, TR32 Tap Setting Evaluation to determine the minimum 345 KV switchyard voltage for the specific configuration of only (1) SW pump running and (1) CW pump removed on Unit 3
- EC 349539, Revision 005, Design Change Package for Replacement of TR32 Transformer DOA 6500-12, Unit 2(3) Low Switchyard Voltage, Revision 11

## LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Is Reasonably Achievable
AR	Action Report
ASME	American Society of Mechanical Engineers
BWRAC	Boiling Water Reactor Assessment and Control
CCSW	Containment Cooling Service Water System
CFR	Code of Federal Regulations
D2R19	Nineteenth Refueling Outage for Dresden Unit 2
DIS	Dresden Instrument Surveillance
DOA	Dresden Operating Abnormal Procedure
DOS	Dresden Operating Surveillance
EC	Engineering Change
FM	Foreign Material
HPCI	High Pressure Coolant Injection System
IEMA	Illinois Emergency Management Agency
IR	Inspection / Issue Report
ISI	Inservice Inspection
LER	Licensee Event Report
MSIV	Main Steam Isolation Valve
MSL	Main Steam Line
MT	Magnetic Particle Examination
MWe	megawatts electrical
NCV	Non-Cited Violation
NDE	Nondestructive Examination
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OE	Operability Evaluation
PARS	Publicly Available Records
REM	Rotengen Equivalent Man
RWCU	Reactor Water Cleanup
RWP	Radiation Work Permit
SDP	Significance Determination Process
SPV	single point vulnerability
TEDE	Total Effective Dose Equivalent
TS	Technical Specification
URI	Unresolved Item
UT	Ultrasonic Examination
WO	Work Order