October 28, 2005

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

SUBJECT: CLINTON POWER STATION
NRC INTEGRATED INSPECTION REPORT 05000461/2005008

Dear Mr. Crane:

On September 30, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Clinton Power Station. The enclosed report documents the inspection findings which were discussed on October 6, 2005, with Mr. Mike McDowell and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and to 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, one NRC-identified finding and one self-revealing finding of very low safety significance (Green) were identified. Neither of these findings were determined to involve violations of NRC requirements,.

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Sincerely,

/RA/

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

Docket No. 50-461
License No. NPF-62

Enclosure: Inspection Report No. 05000461/2005008
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-461
License No: NPF-62

Report No: 05000461/2005008

Licensee: AmerGen Energy Company, LLC

Facility: Clinton Power Station

Location: Route 54 West
Clinton, IL 61727

Dates: July 1 through September 30, 2005

Inspectors: B. C. Dickson, Senior Resident Inspector
D. Tharp, Resident Inspector
M. Mitchell, Radiation specialist
B. Jorgensen, NRC Contractor
L. Ramadan, Reactor Engineer
A. Barker, Project Engineer
C. Matthews, Illinois Emergency Management Agency Inspector

Observers: R. Lukes, Nuclear Safety Professional

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

Enclosure

SUMMARY OF FINDINGS

IR 05000461/2005008, AmerGen Energy Company LLC; 07/01/2005 - 09/30/2005; Clinton Power Station; Post Maintenance Testing, Event Follow-up.

This report covers a three month period of baseline resident inspection, announced baseline inspection on radiation protection, and follow-up inspection on the grid reliability temporary instruction. The inspection was conducted by Region III inspectors and the resident inspectors. Two Green findings were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the Significance Determination Process does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self Revealing Findings

Cornerstone: Initiating Events

- Green. On August 29, 2005, a finding of very low safety significance was self revealed following the performance of work in the off-gas system that resulted in a subsequent loss in off-gas system flow and the operators performing a rapid power reduction. The finding involved the failure to stroke a gas dryer inlet valve to ensure the valve would operate following a packing adjustment. This issue was caused by poor work practices and communication by licensee personnel.

  The issue was more than minor because it affected the Reactor Safety/Initiating Event cornerstone objective of limiting the likelihood of those events that upset plant stability. The finding was of very low safety significance because it would not affect the availability of mitigating systems or functions even if it had resulted in a plant trip. No violation of NRC requirements occurred. The finding also affected the cross cutting area of Human Performance. (Section 1R19)

- Green. On July 17, 2005, a finding of very low safety significance was identified by the inspectors when the licensee failed to take prompt action to correct a problem within the electro-hydraulic control system. In April 2005, one main turbine combined intermediate valve went shut at power due to a clogged servo valve strainer, causing a plant transient. The licensee identified that other main turbine valves were susceptible to the same failure, but did not take action to correct the problem until after a second combined intermediate valve went shut three months later, causing a second plant transient.

  The issue was more than minor because the licensee knew of the degraded condition and associated risks and failed to correct the problem before it resulted in a second plant transient requiring operators to respond. The finding was of very low safety significance because it would not affect the availability of mitigating systems or functions even if it had resulted in a plant trip. No violation of NRC requirements occurred. (Section 4OA3)

B. Licensee-Identified Violations

No findings of significance were identified.

REPORT DETAILS

Summary of Plant Status

The plant operated at approximately 95.5 percent rated thermal power (maintaining 103 percent electrical output) throughout most of the inspection period. On July 17, 2005, reactor power was reduced to 70 percent in response to two of the four main turbine combined intermediate valves going closed. Following repairs and testing of turbine combined intermediate valves, plant operators returned reactor power to 95.5 percent. On August 6, 2005, operators lowered reactor power to 65 percent in response to an oil leak on the B turbine-driven reactor feed pump. The B turbine-driven reactor feed pump was removed from service, the motor-driven reactor feed pump (1C) was placed in service, and power was raised to 83 percent. On August 9, 2005, following B turbine-driven reactor feed pump repairs, operators again lowered reactor power down to 65 percent, removed the 1C feed pump and restored the B turbine-driven reactor feed pump to service. Operators then returned reactor power back to 95.5 percent. On August 29, 2005, reactor power was reduced to 80 percent in response to a loss of off-gas flow causing lowering condenser vacuum. Off-gas flow was restored promptly, and power was returned to 95.5 percent. On September 11, 2005, operators lowered reactor power to 65 percent for a planned rod pattern adjustment and turbine on-line testing. Power was restored to 93 percent on May 12, 2005, and maintained at 93 percent due to temperature limitations on the cooling water discharge being returned to the lake. On September 27, 2005, once discharge temperatures were consistently below limits, reactor power was raised to 95.5 percent (maintaining 103 percent rated electrical output) and maintained there through the end of the inspection period.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather (71111.01)

a. Inspection Scope

The inspectors reviewed the Updated Safety Analysis Report (USAR), Operations Requirements Manual (ORM), and licensee procedures to verify limitations on second drop structure discharge temperature. Due to extreme hot weather, elevated lake inlet temperatures, and high power operations, the licensee approached the lake discharge temperature limits. The inspectors reviewed the licensee's extreme heat implementation plan and interviewed operations and engineering personnel to evaluate the licensees' plan for a possible derate over the weekend beginning July 22, 2005, to lower discharge temperatures. The inspectors also reviewed condition reports related to other challenges presented by the extreme hot weather experienced throughout the month of July. A list of documents reviewed is contained in the attachment at the end of this report. This activity represents one inspection sample.

- Preparations for de-rate due to extreme high outfall temperatures

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04Q)

a. Inspection Scope

The inspectors performed partial walkdowns of accessible portions of divisions of risk-significant mitigating systems equipment during times when the divisions were of increased importance due to the redundant divisions or other related equipment being unavailable. The inspectors utilized the valve and electric breaker checklists, listed at the end of this report, to verify that the components were properly positioned and that support systems were lined up as needed. The inspectors also examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors reviewed outstanding work orders and issue reports (IRs) associated with the divisions to verify that those documents did not reveal issues that could affect division function. The inspectors used the information in the appropriate sections of the Updated Safety Analysis Report to determine the functional requirements of the systems. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

The inspectors performed four samples by verifying the alignment of the following divisions:

- Reactor core isolation cooling (RCIC),
- Electro-hydraulic control (EHC) system,
- Division 1 and 2 emergency diesel generator in standby alignment, and
- High pressure core spray (HPCS), following maintenance and surveillance activities.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of fire fighting equipment, the control of transient combustibles and ignition sources, and on the condition and operating status of installed fire barriers. The inspectors selected fire areas for inspection based on their overall contribution to internal fire risk, as documented in the Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could cause a plant transient, or their impact on the licensee's ability to respond to a security event. The inspectors used the documents listed at the end of this report to verify that fire hoses and extinguishers were in their designated locations and available for immediate use, that fire detectors and sprinklers were not obstructed, that transient

material loading was within the analyzed limits, and that fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program.

The inspectors reviewed portions of the licensee's fire protection evaluation report and the Updated Safety Analysis Report (USAR) to verify consistency in the documented analysis with installed fire protection equipment at the station.

The inspectors completed five samples by inspection of the following areas:

- Fire Zone F-1p, 737', 755', & 781' fuel pool area
- Fire Zone T-1a, turbine building general access area
- Fire Zone CB-6a, elevation 800 fire zone CB-6a, Peripheral rooms of the control room
- Fire Zone F-1b, 712' high pressure core spray system pump room
- Fire Zone A-3b, residual heat removal system "C" pump room

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors verified that flooding mitigation plans and equipment were consistent with the design requirements and risk analysis assumptions. The inspectors walked down the screen house, the unit two pit area, and other areas outside the auxiliary and control buildings to ensure compliance with the design for heavy rain events. Additionally, the inspectors toured the lake dam and emergency spillway areas. The inspectors reviewed updated safety analysis report Section 3.4.1 for external flooding events and reviewed issue reports related to flooding protection. The inspectors completed one sample by performing the following:

- Annual external flooding review.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

The inspectors reviewed the effectiveness of the licensee's maintenance efforts in implementing the Maintenance Rule (MR) requirements, including a review of scoping, goal-setting, performance monitoring, short and long-term corrective actions, and current equipment performance problems. These systems were selected based on their designation as risk significant under the Maintenance Rule, or being in the increased monitoring (MR category (a) (1)) group. In addition, the inspectors interviewed the

system engineers and maintenance rule coordinator. The inspectors also reviewed condition reports and associated documents for appropriate identification of problems, entry into the corrective action system, and appropriateness of planned or completed actions. The documents reviewed are listed at the end of the report. The inspectors completed two samples by reviewing the following:

- Shutdown service water system
- Division 3 essential switchgear heat removal system

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment (71111.13)

a. Inspection Scope

The inspectors observed the licensee's risk assessment processes and considerations used to plan and schedule maintenance activities on safety-related structures, systems, and components, particularly to ensure that maintenance risk and emergent work contingencies had been identified and resolved. The inspectors completed five samples by assessing the effectiveness of risk management activities for the following work activities or work weeks:

- Division 2 emergency diesel generator surveillance testing and division 2 diesel generator air start bank maintenance
- Work week 530, division 3 diesel generator engine analysis and monthly run
- Low pressure core spray pump and valve operability concurrent with 345kV switchyard work and division 1 diesel generator restart and operability surveillance
- Standby liquid control pump and valve operability and
- Main steam line turbine building calibration and functional testing concurrent with spent fuel pool re-rack activities

b. Findings

No findings of significance were identified.

1R14 Non-routine Evolutions (71111.14)

a. Inspection Scope

The inspectors reviewed personnel performance during planned and unplanned plant evolutions and selected licensee event reports focusing on those involving personnel response to non-routine conditions. The review was performed to ascertain that operator responses were in accordance with the required procedures. In particular, the inspectors completed one sample by reviewing personnel performance during the following plant event:

- Division 3 shutdown service water pump and diesel fuel oil transfer pump auto started.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following operability determinations and evaluations affecting mitigating systems to determine whether operability was properly justified and the component or system remained available such that no unrecognized risk increase had occurred. The inspectors completed one sample of operability determinations and evaluations by reviewing the following:

- IR 352894, "Received low division 1 DC volts performance monitoring system alarm during division 1 post maintenance test".

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the post maintenance testing activities associated with maintenance or modification of important mitigating, barrier integrity, and support systems that were identified as risk significant in the licensee's risk analysis. The inspectors reviewed these activities to verify that the post maintenance testing was performed adequately, demonstrated that the maintenance was successful, and that operability was restored. During this inspection activity, the inspectors interviewed maintenance and engineering department personnel and reviewed the completed post maintenance testing documentation. The inspectors used the appropriate sections of the Technical Specifications (TS) and Updated Safety Analysis Report, as well as the documents listed at the end of this report, to evaluate this area.

Testing subsequent to the following activity was observed and evaluated for one sample:

- Adjustment of UG8 governor shutdown solenoid following the start of division 3 diesel generator

b. Findings

Introduction: A finding of very low safety significance (Green) was self revealed following the performance of work in the off-gas system that resulted in a subsequent loss in off-gas system flow and the operators performing a rapid power reduction. The

issue involved the failure to stroke a gas dryer inlet valve to ensure the valve would operate following a packing adjustment. This issue was caused by failure to perform adequate post maintenance testing following maintenance activities due to poor work practices and communication by the licensee's maintenance staff.

Description: On August 29, 2005, maintenance personnel performed packing adjustments on the following off-gas system valves: 1N66-F047B gas dryer B regenerator inlet valve, 1N66-F021A gas dryer A outlet valve, and 1N66-F012A, gas dryer A inlet valve. During packing adjustment of 1N66-F012A , maintenance personnel could only make partial packing adjustments due to the need for special tooling that was not at the work site. A special tool was needed because interference on one side of the valve made completing the packing adjustment on 1N66-F012A very difficult and time consuming. A slight adjustment, approximately 15 degrees according to licensee, was made on the packing nut on the accessible side of the valve. An operator assigned to the work crew became aware of the need for special tooling and assumed that no packing adjustments were made. Based on the assumption, the operator concluded that no post maintenance valve stroking was needed. Maintenance personnel failed to communicate that a minor adjustment had been made on the accessible portion of the valve. Following this maintenance activity, operations personnel placed the "A" off-gas desiccant train back in standby condition.

Later, during main control room panel walkdowns, an operator noted off-gas flow trending down rapidly. Soon after the control room received alarms and indication of lowering off-gas flow and main condenser vacuum and an increase in differential pressure across the in-service desiccant dryer. Operators also noted high condenser hotwell temperatures. Control room indication showed condenser hotwell temperature at 137.5 degrees F. The procedural limit for condenser hotwell temperature is 130 degrees F. Control room operators entered, CPS 4004.02 "Loss of Vacuum," and rapidly lowered reactor power from 95 percent to approximately 80 percent.

Simultaneously, the operators recognized that the only change that had occurred during this time period was an automatic swap of the off-gas desiccant trains from the "B" train to the "A." Off-gas desiccant trains were set to automatically swap every 90 hours. Operators manually swapped off-gas desiccant train from "A" to "B". This resulted in both off-gas flow and main condenser vacuum being restored to normal operating parameters. Condenser hotwell temperature also was decreased below 130 degrees F.

Followup troubleshooting and investigation by the licensee identified that 1N66-F012A would not stroke when its control switch was placed in the OPEN position. The licensee made packing adjustments and eventually stroked the valve successfully.

The licensee performed an apparent cause evaluation (ACE) 368008 for this event. In this evaluation the licensee concluded that the apparent cause of this event was maintenance standards and practices by the fix-it-now (FIN) teams. The evaluation also concluded that a contributing cause was a lack of supervisory oversight in this area.

Analysis: The inspectors considered the licensee's failure to perform an adequate post maintenance test on 1N66-F012A following a minor packing adjustment to be a performance deficiency. This issue was caused by poor work practices and

communication by maintenance personnel. The inspectors used Inspection Manual Chapter (IMC) 0612, Appendix B, to disposition this issue and determined that it was more than minor because the finding affected the reactor safety/initiating event cornerstone objective of limiting the likelihood of those events that upset plant stability. The inspectors evaluated this finding using IMC 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening associated with the initiating events cornerstone. The inspectors answered "No" to all three questions. Therefore, the inspectors concluded that this issue was a finding of very low safety significance (Green).

The finding also affected the cross cutting area of human performance because maintenance personnel made decisions relative to impact of work performed without proper communication with operations following the maintenance activity.

Enforcement: Though the failure to perform adequate post maintenance testing due to poor maintenance work practices and communication was a performance deficiency, no violation of regulatory requirements occurred. This issue was considered a finding of very low safety significance **(FIN 05000461/2005008-01)**. This issue was documented in the licensee's corrective action program as Issue Report (IR) 368008. Corrective actions developed by the licensee included actions to enhance work packages to include a comprehensive operational impact statement regarding the effect of this work on the plant. Additionally, this issue and the importance of understanding the impact of work performed was communicated to all maintenance shops.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed selected surveillance testing and/or reviewed test data to verify that the equipment tested using the surveillance procedures met the TSs, the Technical Requirements Manual, the Updated Safety Analysis Report, and licensee procedural requirements, and demonstrated that the equipment was capable of performing its intended safety functions. The activities were selected based on their importance in verifying mitigating systems capability and barrier integrity. The inspectors used the documents listed at the end of this report to verify that the testing met the frequency requirements; that the tests were conducted in accordance with the procedures, including establishing the proper plant conditions and prerequisites; that the test acceptance criteria were met; and that the results of the tests were properly reviewed and recorded. In addition, the inspectors interviewed operations, maintenance and engineering department personnel regarding the tests and test results.

The inspectors completed four inspection samples by evaluating the following surveillance tests:

- Division 1 shutdown service water pump operability.
- Standby liquid control system operability.
- CPS 9069.01 shutdown service water operability test.
- Division II diesel generator monthly operability surveillance test.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed temporary plant modifications to verify that the instructions were consistent with applicable design modification documents and that the modifications did not adversely impact system operability or availability. The inspectors interviewed operations, engineering and maintenance personnel as appropriate and reviewed the design modification documents and the 10 CFR 50.59 evaluations against the applicable portions of the updated safety analysis report. The documents listed at the end of this report were also used by the inspectors to evaluate this area.

The inspectors reviewed the issues that the licensee entered into its corrective action program to verify that identified temporary modification problems were being entered into the program with the appropriate characterization and significance. The inspectors also reviewed the licensee's corrective actions for temporary modification related issues documented in selected issue reports. The issue reports are specified in the list of documents reviewed. The inspectors completed one sample by reviewing the temporary modification to the residual heat removal system shutdown cooling suction line.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency response activities associated with the pre-exercise drill conducted on August 24, 2005. Specifically, the inspectors verified that the emergency classification and simulated notifications were properly completed, and that the licensee adequately critiqued the training. Additionally, the inspectors observed licensee activities during the drill in the simulated control room, including observations of interactions of operators with each other and with the technical support center. These activities completed one inspection sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the plant Updated Safety Analysis Report to identify applicable radiation monitors associated with transient high and very high radiation areas including those used in remote emergency assessment. This review represented one sample. The inspectors identified the types of portable radiation detection instrumentation used for job coverage of high radiation area work, other temporary area radiation monitors currently used in the plant, continuous air monitors associated with jobs with the potential for workers to receive 50 mrem committed effective dose equivalent, whole body counters, and the types of radiation detection instruments utilized for personnel release from the radiologically controlled area. This review represented one sample.

The inspectors verified calibration, operability, and alarm setpoint (if applicable) of the following five instruments:

- Containment/drywell gamma high range monitor;
- Fastscan whole body counter;
- Eberline RO2;
- Radeco breathing zone monitor; and
- Gamma 60 portal monitor

This review represented one sample.

The inspectors determined what actions were taken when, during calibration or source checks, an instrument was found significantly out of calibration (>50 percent), determined possible consequences of instrument use since last successful calibration or source check, and determined if the out of calibration result was entered into the corrective action program. There were no instances where the instrument was found significantly out of calibration. The inspectors also reviewed the licensee's 10 CFR Part 61 source term reviews to determine if the calibration sources used were representative of the plant source term. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, licensee event reports, and special reports that involved personnel contamination monitor alarms, due to personnel internal exposures, to verify that identified problems were entered into the corrective action program for resolution. This review represented one sample.
The inspectors reviewed corrective action program reports related to exposure significant radiological incidents that involved radiation monitoring instrument deficiencies since the last inspection in this area. Staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

- 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;
- Resolution of Non-Cited Violations (NCVs) tracked in the corrective action system; and
- Implementation/consideration of risk significant operational experience feedback

This review represented one sample.

The inspectors determined if the licensee's self-assessment activities were identifying and addressing repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

b. Findings

No findings of significance were identified.

.3 Radiation Protection Technician Instrument Use.

a. Inspection Scope

The inspectors verified the calibration expiration and source response check currency on radiation detection instruments staged for use and observed radiation protection technicians for appropriate instrument selection and self-verification of instrument operability prior to use. This review represented one sample.

b. Findings

No findings of significance were identified.

.4 Self-Contained Breathing Apparatus (SCBA) Maintenance and User Training

a. Inspection Scope

The inspectors reviewed the status and surveillance records of self contained breathing apparatus staged and ready for use in the plant and inspected the licensee's capability for refilling and transporting self contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions. The inspectors determined if control room operators and other emergency response and radiation protection personnel were trained and qualified in the use of self contained breathing apparatus, including personal bottle change-out. The inspectors verified that three individuals on each control room shift crew, and three individuals from each designated department were currently assigned emergency duties (e.g., onsite search and rescue duties). This review represented one sample.

The inspectors reviewed the qualification documentation for all of the onsite personnel designated to perform maintenance on the vendor-designated vital components, and the vital component maintenance records over the past five years for three self contained breathing apparatus units currently designated as "ready for service." The inspectors also ensured that the required, periodic air cylinder hydrostatic testing was documented and up to date, and that the required retest air cylinder markings were in place for these three units. The inspectors reviewed the onsite maintenance procedures governing vital component work including those for the low-pressure alarm and pressure-demand air regulator and licensee procedures and the self contained breathing apparatus manufacturer's recommended practices to determine if there were inconsistencies between them. This review represented one sample.

b. Findings

No findings of significance were identified.

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

.1 Inspection Planning and Reviews of Radiological Environmental Monitoring Reports and Data

a. Inspection Scope

The inspectors reviewed Radiological Environmental Monitoring Program (REMP) documents in the form of annual radioactive effluent release reports and annual radiological environmental operating reports for calendar years 2003 and 2004. The inspectors also reviewed quarterly progress reports of radiological environmental monitoring analyses through June 30, 2005. The annual radiological environmental operating reports were performed and prepared for the licensee by a contracted laboratory with specialized expertise in radio-analyses of environmental media. The inspectors reviewed the Offsite Dose Calculation Manual (ODCM), revision 20, relative to the environmental monitoring program, and assessed implementation of the environmental monitoring program, as documented in the respective annual radiological environmental operating reports against requirements of the TSs and the Offsite Dose Calculation Manual, and evaluated changes to the program in regards to any potential effects on capability to monitor the impacts of radioactive effluents on the environment. Additionally, the inspectors evaluated the current locations of the environmental

monitoring stations and the types of samples collected from each location to determine if they were consistent with the offsite dose calculation manual and with NRC guidance in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light Water Cooled Nuclear Power Plants," Regulatory Guide 4.8, "Environmental TSs for Nuclear Power Plants," and an associated NRC branch technical position. The inspectors reviewed the scope of the licensee's audit program to verify that it met the requirements of 10 CFR 20.1101(c). This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked down six onsite and four offsite environmental air sample monitoring stations and examined each station's location as described in the offsite dose calculation manual, assessed equipment material condition and operability and verified proper monitoring station orientation, equipment configuration, and vegetation growth control to assure that each station allowed for the collection of representative samples. The inspectors walked down the locations of 14 thermoluminescent dosimeters (TLDs), which read radiation levels directly, to verify they were installed as described in the Offsite Dose Calculation Manual. In addition, the inspectors walked down three environmental surface water sampling stations and evaluated the suitability of each in complying with the Offsite Dose Calculation Manual. The inspectors accompanied and observed sample collection and handling associated with the changing-out of air particulate filters and charcoal cartridges. This review covered all ten of the licensee's onsite and offsite environmental air sampling stations. The purpose was to observe whether samples were collected in accordance with the applicable sampling procedure and whether appropriate practices were used to ensure sample integrity and chain-of-custody. The inspectors also observed the performance of air sampling device leak checks, to verify that they were accomplished consistent with the procedure and were adequate to ensure no in-leakage paths existed which could impact sample representativeness. The inspectors also observed sampler inspection practices at three surface water sample compositors to verify the locations of the sampling devices and their operability. This review represented one sample.

The inspectors also walked down equipment located at the primary meteorological tower to verify that the tower was sited adequately, that instrumentation was installed consistent with regulatory guide 1.23, "Meteorological Programs in Support of Nuclear Power Plants," and that the instrumentation was operable, calibrated and maintained in accordance with guidance contained in the updated safety analysis report, NRC safety guide 23, and licensee procedures. The inspectors verified that the meteorological data readout and recording instruments in the control room and at the tower were operable. In addition, data recording capabilities were discussed with the licensee's staff to verify that meteorological data were sampled and compiled consistent with the regulatory guide. This review represented one sample.

The inspectors reviewed each event documented in the annual environmental monitoring report which involved a missed sample, inoperable sampler, lost thermoluminescent dosimeters, or anomalous measurement for the cause and corrective actions and conducted a review of the licensee's assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection (LLDs). The inspectors reviewed the associated radioactive effluent release data that was the likely source of the released material. This review represented one sample.

The inspectors reviewed significant changes made by the licensee to the Offsite Dose Calculation Manual as the result of changes to the land census or sampler station modifications since the last inspection. There were no significant changes made during the period reviewed. The inspectors reviewed technical justifications for changed sampling locations. The inspectors verified that the licensee performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment. This review represented one sample.

The inspectors reviewed calibration and maintenance records for 2004 and through June 2005 which documented work on environmental air sampling pumps and meteorological tower equipment. This review encompassed calibration records for associated measurement and test equipment such as the rotameters used for air sampling pump calibration, to verify that the testing and maintenance programs for this equipment were implemented consistent with procedural requirements and industry standards, including traceability to the National Institute of Standards and Technology. The inspectors discussed equipment maintenance practices with the licensee's environmental staff and reviewed overall data recovery success rates. This review represented one sample.

The inspectors reviewed the results of the performance monitoring system sample vendor's quality control program including the interlaboratory comparison program to verify the adequacy of the vendor's program and the corrective actions for any identified deficiencies. The inspectors reviewed audits and technical evaluations the licensee performed on the vendor's program. The inspectors reviewed QA audit results of the program to determine whether the licensee met the TS offsite dose calculation manual requirements. This review represented one sample.

b. Findings

No findings of significance were identified

.3 Unrestricted Release of Material From Radiologically Controlled Areas

a. Inspection Scope

The inspectors observed several locations where the licensee monitors potentially contaminated material leaving the radiologically controlled areas, and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use to verify that the work was performed in accordance with plant procedures. This review represented one sample.

The inspectors verified that the radiation monitoring instrumentation was appropriate for the radiation types present and was calibrated with appropriate radiation sources. The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material and verified that there was guidance on how to respond to an alarm which indicates the presence of licensed radioactive material. The inspectors reviewed the licensee's equipment to ensure the radiation detection sensitivities were consistent with the NRC guidance contained in IE circular 81-07 and IE Information Notice 85-92 for surface contamination and HPPOS-221 for volumetrically contaminated material. The inspectors verified that the licensee performed radiation surveys to detect radionuclides that decay via electron capture. The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters (i.e., counting times and background radiation levels). The inspectors verified that the licensee had not established a "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area. This review represented one sample.

b. Findings

No findings of significance were identified

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed licensee corrective action documents originated during 2004 and through July 2005, that related to the performance monitoring system or to radioactive material control issues. The results of a Nuclear Oversight (NOS) audit and a performance monitoring system self-assessment completed in the same time frame were also reviewed, as were the results of a joint nuclear utility audit of the vendor laboratory. These reviews were conducted to determine if the licensee adequately assessed the effectiveness of these programs and whether the licensee, through its corrective action program, identified individual problems and trends, evaluated contributing causes and extent of condition, and developed corrective actions to achieve lasting results. The inspectors also verified that the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors also reviewed corrective action reports from the radioactive effluent treatment and monitoring program since the previous inspection, interviewed staff and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

- 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;
- Resolution of non-cited violations (NCVs) tracked in the corrective action system; and
- Implementation/consideration of risk significant operational experience feedback.

This review represented one sample.

b. Findings

No findings of significance were identified.

4 OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action system at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Minor issues entered into the licensee's corrective action system as a result of inspectors' observations are generally denoted in the report.

b. Findings

No findings of significance were identified.

.2 Automatic starts of the shutdown service water pumps (Annual Sample)

Introduction

Between October 2004 and July 2005, the plant experienced four automatic starts of the shutdown service water pumps. Two of these resulted in notifications to the NRC required by 10 CFR 50.73. Of the four automatic starts, two were equipment related, one was caused by the operator, and one had a cause that was unable to be determined by the root cause investigation. The inspectors selected the two automatic start occurrences that were not attributed to equipment issues for an annual sample review of the licensee's problem identification and resolution program. These issues are described in IR260905, "Auto start of shutdown service water pump 1SX01PB," and IR334667, "9069.01 Division 2 shutdown service water surveillance pump auto start."

a. Effectiveness of problem identification

(1) Inspection scope

The inspectors reviewed IR 260905 and IR 334667 to verify the licensee's identification of the problems was complete, accurate, and timely, and that the consideration of extent of condition review, generic implications, common cause, and previous occurrences was adequate.

(2) Issues

For both issue reports reviewed, the problems were identified only after the automatic pump start events occurred. Both events occurred while performing operations that were considered somewhat routine in nature. The flush of diesel generator heat exchangers was performed three days per week for more than one year. The shutdown service water surveillance procedure, CPS 9069.01, was performed at least every three months on each division of the system. For the pump automatic start described in IR 260905, the licensee identified some weaknesses in work control, (not including diesel generator flushes on the work schedule), and in error prevention behaviors, (Stop Think Act Review and peer checks). In IR 334667, the licensee identified a human factor deficiency in the procedure.

The inspectors reviewed the root cause report for IR 260905 and apparent cause evaluation for IR 334667. The licensee did include adequate extent of condition reviews, addressed common cause and generic implications associated with the causal factors identified, and used operating experience appropriately in their investigations. The inspectors noted that the human performance weaknesses identified should be monitored continually by the licensee to prevent events from occurring and the licensee should recognize and correct "human traps" in procedures before they cause events.

b. Effectiveness of corrective actions

(1) Inspection scope

The inspectors reviewed the actions taken for the two shutdown service water automatic starts, not attributed to equipment issues, to determine if corrective actions adequately addressed extent of condition and generic implications, and were appropriately focused to correct the problem.

(2) Issues

Following the automatic start of the division 2 shutdown service water pump on October 6, 2004, the licensee was unable to obtain conclusive evidence of the root cause. Because of the lack of evidence, corrective actions were assigned to address the causal factors that allowed the event to occur and prevented the determination of the

actual cause. The licensee determined the two most probable causes were either a faulty control switch for the service water to shutdown service water crosstie valve (1SX014B) or operator error, operating the wrong switch. Actions were assigned to address both possible causes.

The licensee determined the apparent cause for the automatic start of the division 2 shutdown service water pump on May 12, 2005, to be that the operator released tension on the pump hand switch as a result of a human factor deficiency (two handed operation) in the procedure being performed. Corrective actions were assigned to correct the procedure for all three divisions of shutdown service water and to perform a search for and analysis of all other procedures that required two-handed operations. The action to identify other procedures requiring two-handed operations was addressed through another issue report, IR 340713, "NER CL-05-028 Yellow - shutdown service water pump auto start - two handed ops." The inspectors reviewed this issue report and conducted an independent search for operations requiring two handed operations. The inspectors identified one procedure that was missed by the licensee. The licensee documented this in IR 364330, "NRC identified missed procedure revision for shutdown service water two handed operation," and conducted another search.

The inspectors reviewed the corrective actions for these two issues. Most of the actions taken addressed human performance aspects and appeared to be adequate, addressed the extent of condition, and were focused on the apparent cause of the pump auto-starts.

4OA3 Event Follow-up (71153)

.1 Combined intermediate valves numbers one and three closed at rated power

a. Inspection Scope

On July 17, 2005, combined intermediate valves numbers one and three closed while operating at full power. The inspectors reviewed the licensee's response and follow up actions to the event. Specifically, the inspectors reviewed issue report (IR) 353886 and its associated prompt investigation and cause determination, including interviewing operations and engineering personnel. In addition, the inspectors reviewed corrective action program documentation from a previous event with the same apparent cause to determine if the licensee took appropriate actions and to assess the timeliness of those actions. A list of documents reviewed is included in the enclosure at the end of this report.

b. Findings

Introduction: The inspectors identified a finding of very low safety significance (Green) for failing to take timely action to correct a known condition that led to a repeat

unexpected plant transient. The finding was not considered a violation of regulatory requirements.

Description: In April 2005, while operating at steady state, combined intermediate valves (CIV) two and four went shut (note: two and four operate together and one and three operate together). Operators reduced power to 50 percent and investigated the cause of the combined intermediate valves' closure. Troubleshooting revealed the most probable cause of the event was a hydraulic event on intermediate valve (IV) number two due to servo valve failure. The licensee replaced the servo valve and shut off valve for the number two intermediate valve and sent the removed parts to Exelon labs for investigation and failure analysis. Investigation revealed that the servo valve strainer was completely plugged with some type of nylon fibers. Further testing identified the nylon fibers as coming from the electro-hydraulic control system (EHC) pump discharge filters. Details of this event were documented in IR 330003. Corrective action assignments were made to flush the piping and replace the pump discharge filters with a stainless steel filter element. In the extent of condition review for this issue, the licensee identified that all the turbine control valves and combined intermediate valve number one would be susceptible to this same failure mechanism. The licensee created work orders to replace these servo valves and placed them in the forced outage plan late in May 2005. An engineering change was completed and stainless steel filter elements were installed at the electro-hydraulic control system pump discharge in mid June, 2005.

On July 17, 2005, while operating at 95.9 percent power, combined intermediate valves one and three went shut. Operators responded by reducing power to 89 percent and investigating the cause of the combined intermediate valves' closure. Troubleshooting determined that the cause was the same as the April event when combined intermediate valves two and four went shut. Operators reduced power further to 70 percent and maintenance personnel replaced the servo valve and stainer for the number one combined intermediate valve. Following post maintenance testing, operators restored the plant to full power. The details of this event were documented in IR 353886. During a planned down power on September 11, 2005, the licensee replaced the servo valve strainers for all four turbine control valves and numbers one and two combined intermediate valves. The corrective action to flush the electro-hydraulic piping is scheduled for the upcoming refueling outage in February 2006.

Analysis: The inspectors determined that the failure to take timely action to inspect and replace clogged servo valve strainers and prevent a second combined intermediate valve closure was a performance deficiency warranting a significance evaluation in accordance with manual chapter 0612, "Power Reactor Inspection Reports," appendix B, "Issue Disposition Screening." The inspectors determined that the finding was greater than minor because it affected the equipment performance attribute of the initiating events cornerstone objective of limiting the likelihood of those events that upset plant stability during power operations. Specifically, following the investigation of the April 2005 event, when combined intermediate valves two and four went shut, the licensee identified that combined intermediate valve number one and all four turbine control valves were susceptible to this same failure mechanism of the servo valve strainer being plugged with nylon fibers.

The inspectors entered the significance determination process using manual chapter 0609, appendix A, "Significance Determination for Reactor Inspection Findings for At-Power Situations," and performed a phase 1 analysis. Because the finding does not contribute to the likelihood that mitigation equipment or functions will not be available, the inspectors determined that the finding was of very low safety significance (Green).

Enforcement: Although the failure to take timely action and prevent a second plant transient due to servo strainer clogging was a performance deficiency, no violation of regulatory requirements occurred. The issue was considered a finding of very low safety significance **(FIN 05000461/2005008-02)**. This issue was documented in the licensee's corrective action program as IR 387610, "Missed opportunity to identify likelihood of combined intermediate valves 1/3 failure."

4OA4 Cross-Cutting Aspects of Findings

A finding described in Section 1R19 of this report, had as its primary cause, a human performance deficiency, in that, maintenance personnel made a decision not to conduct post maintenance testing following valve maintenance and failed to communicate the details of the scope of work to operations.

4OA5 Other Activities

.1 TI 2515/161, Transportation of Reactor Control Rod Drives in Type A Packages

a. Inspection Scope

Through inspection and interviews of cognizant personnel, the inspectors examined site specific records pertaining to the licensee's use of department of transportation Specification 7A type A packaging for the shipment of control rod drive mechanisms for the period between CY 2002 and the present. The inspectors examined records for the purpose of determining the licensee's compliance with department of transportation requirements contained in 49 CFR Parts 173.412 and 173.415. The inspectors verified that Clinton Power Station had undergone refueling activities between January 1, 2002, and the present and that it had shipped irradiated control rod drives in Department of Transportation (DOT) Specification 7A, Type A packaging.

b. Findings and Observations

No findings of significance were identified.

Title 10 CFR 71.5 requires that NRC licensees comply with all applicable rules and regulations of the department of transportation when transporting Class 7 materials. department of transportation regulations contained in 49 CFR 173.415(a) require that the shipper of a Specification 7A package have available complete documentation of tests and an engineering evaluation or comparative data showing that the construction methods, packaging design, and materials of construction comply with Specification 7A. Contrary to this requirement, Clinton Power Station shipped class 7 materials, i.e., control rod drives, in Specification 7A packaging in the year 2002 without having

available documentation supporting the Specification 7A classification of the package. Although this issue should be corrected, it constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the enforcement policy.

The inspectors reviewed the documentation files for the two irradiated control rod drive shipments made by the licensee in 2002. In each instance, the licensee utilized Specification 7A packaging. Review of these files, together with discussions with licensee personnel and management indicated that the licensee did not have available complete documentation of tests and an engineering evaluation or comparative data showing that the construction methods, packaging design, and materials of construction comply with Specification 7A, as required under Title 49, Code of Federal Regulations (CFR), Part 173.415(a).

The licensee reused department of transportation Specification 7A packaging from General Electric, which was utilized to transport refurbished control rod drives to the licensee in support of refueling outages. The packaging was reloaded with used control rod drives, which were then transported offsite. A review of these shipments indicated that no packages contained more than four used control rod drives, that the package gross weight did not exceed 7200 pounds, and that all other requirements for the transport of class 7 material, as specified in 49 CFR Parts 100-177 were met.

This issue was screened in accordance with IMC 612, "Power Reactor Inspection Reports," A1ppendix B (Issue Screening). This issue is a performance deficiency, in that the licensee did not meet a requirement [49CFR173.415(a)]. The issue is not subject to traditional enforcement, in that it did not involve an actual safety consequence, did not have the potential to impact the NRC's ability to perform its regulatory function, and had no willful aspects. The issue is not more than minor in that it cannot be reasonably viewed as a precursor to a more significant event; would not become a more significant safety concern if left uncorrected; is not related to a performance indicator; does not affect the public radiation cornerstone objective of ensuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain as the result of routine civilian nuclear reactor operation; and, does not relate to maintenance risk assessment or risk management. Clinton Power Station initiated actions to determine if other Specification 7A packaging was utilized without having the appropriate support documentation available, to determine if any additional shipments of irradiated control rod drives were made in the same Specification 7A packaging in earlier years (prior to 2002) and has contacted the package vendor and obtained the required testing documentation. Clinton Power Station entered this matter into its corrective action program (IR 217867).

.2 <u>TI 2515/163, Operational Readiness of Offsite Power, Supplemental followup</u>

TI 2515/163 was completed in May, 2005 at Clinton Power Station. Following the analysis of the nationwide results of TI 2515/163, the Division of Engineering of the Office of Nuclear Reactor Regulation determined that further follow-up was required for certain questions evaluated under the original TI. The supplement to TI 2515/163, "Operational Readiness of Offsite Power," required further consideration of three

questions at Clinton Power Station. The inspectors evaluated licensee procedures against the attributes discussed below.

The operating procedures that the control room operator uses to assure the operability of the off site power system having the following attributes:

- Identify the compensatory actions the control room operator is required to perform if the transmission system operator (TSO) is not able to predict the post-trip voltage at the nuclear power plant for the current grid conditions.
- Identify the notifications required by 10CFR 50.72 for an inoperable offsite power system when the nuclear station is either informed by its transmission system operator or when an actual degraded condition is identified.

The procedures to ensure compliance with 10 CFR 50.65 (a)(4) have the following attributes:

- Direct the plant staff to perform grid reliability evaluations as part of the required maintenance risk assessment before taking a risk-significant piece of equipment out of service to do maintenance activities.

The results of the inspectors' review were forwarded to the office of Nuclear Reactor Regulation for further review and evaluation.

4OA6 Meetings

.1 Exit Meeting

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

.2 Interim Exit Meetings

Interim exit meetings were conducted for:

- Occupational Radiation Safety inspection with Mr. M. McDowell, Plant Manager, on August 26, 2005.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
R. Bement, Site Vice President
M. McDowell, Plant Manager
J. Cunningham, Work Management Director
R. Davis, Radiation Protection Manager
R. Frantz, Regulatory Assurance Representative
W. Iliff, Regulatory Assurance Director
T. Marini, Nuclear Oversight Manager (Acting)
J. Domitrovich, Maintenance Director
D. Schavey, Operations Director
J. Madden, Chemistry Manager
J. Lindsey, Training Director
C. Williamson, Security Manager
R. Peak, Site Engineering Director
W. Carsky, Shift Operations Superintendent
K. Baker, Executive Assistant to SVP
R. Schenck, Business Operations Director

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000461/2005008-01	FIN	Performance of work in the off-gas system that resulted in a subsequent loss in off-gas system flow and the operators performing a rapid power reduction.
05000461/2005008-02	FIN	The licensee failed to take prompt action to correct a problem within the electro-hydraulic control system.

Closed

05000461/2005008-01	FIN	Performance of work in the off-gas system that resulted in a subsequent loss in off-gas system flow and the operators performing a rapid power reduction.
05000461/2005008-02	FIN	The licensee failed to take prompt action to correct a problem within the electro-hydraulic control system.

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 of 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 pat of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather

EN-CL-402-2005, Extreme heat implementation plan; Revision 2
EN-MW-402-0005, Extreme heat implementation plan; Revision 2
USAR Section 9.2.5, Ultimate heat sink, Revision 11
IR 355047, Flame temperature discrepancy; July 20, 2005
IR 355783, Engineering review 3-pump operations of 3113.01; July 22, 2005
IR 356299, Enhancement to turbine building ventilation; July 25, 2005
IR 357469, Clarify CCW temperature limitations; July 28, 2005

1R04 Equipment Alignments

CPS 3310.01V001, Reactor core isolation cooling valve lineup; Revision 12b
CPS 3310.01V002, Reactor core isolation cooling instrument valve lineup; Revision 9c
CPS 3310.01E001, Rector core isolation cooling electrical lineup; Revision 14a
WO 806574, Replace Electro Hydraulic Control power units Fuller's Earth filter; Revision 01
IR 358076, Valve manipulated without operations approval; July 29, 2005
QHP1358976, Valve manipulated without operations approval; August 22, 2005
OP-CL-109-101, Clearance and tagging; Revision 4
CPS 3506.01, "Diesel Generator and support issues", Revision 30e
CPS 3309.01V001 High Pressure Core Spray, Vision No. 11

1R06 Flood Protection

CPS 4303.02, Abnormal lake level; Revision 9
CPS 4304.01, Flooding; Revision 4c
IR 326664, Sandbags placed too close to plant equipment; April 20, 2005
IR 340193, Cut and remove shrubs and trees from main dam crest roadway; June 1, 2005
IR 290574, Elevated lake level prompts entry into off-normal procedure; January 13, 2005
IR 291048, Enhancements for plant readiness to high lake level/flooding; January 14, 2005

1R12 Maintenance Effectiveness

IR 329437, 1SX04AC need minimum wall calculation due to wall loss; April 27, 2005
IR 287942, 1SX29BA-3" experiencing wall loss (division 1 SX); January 5, 2005
IR 335078, Mechanical tube cleaning task did not remove scale; May 13, 2005
IR 239303, 1SX01PB: continued increase in Tin & Ferrous in the oil; July 27, 2004

WO 587009, Repair or replace 1SX01PB motor; June 13, 2003
IR 237787, 1SX01PA: Increase in wear particles in lubrication oil; July 21, 2004

1R13 Maintenance Risk Assessment

WO Activity Number 827588802 Diesel Generator Prestarts
WO Activity Number 827588801 Diesel Generator Monthly Operability
WO Activity Number 820777501 Low Pressure Core Spray Valve Operability (YELLOW Risk)
WO Activity Number 0081298501 SLC Valve Operability (CPS 9015.01E23)
WO Activity Number 0081298401 SLC Pump B (CPS 9015.01B23)
WO Activity Number 0081298601 SLC Pump A (CPS 9015.01A23)
WO Activity Number 0081704101 CPS 9523.29D20 Channel Functional MSL Turbine Building Temperature Division 4
WO Activity Number 0081704201 CPS 9523.29D20 Channel Functional MSL Turbine Building Temperature Division 3
WO Activity Number 008232701 DG-1B Operability Monthly Test
OOS-T/O DG-B29 Hang DG-B29 for 1DG-2CB Maintenance
WO Activity number 0077592101 Division 2 Diesel Generator Air Compressor Performance Test

1R15 Operability Evaluations

AR# 00367373; Complete OpEval for the Subject IR
EC# 0000357101; To evaluate the possible interaction between SX piping (1SX52AC) support and RHR C pump discharge piping 1RH04A

1R19 Post Maintenance Testing

WO# 534579 Adjustment of UG8 Governor Shutdown Soleniod following initial start of Division 3 Diesel Generator
CPS 3506.01P003 Division 3 Diesel Generator Operations

1R22 Surveillance Testing

CPS 9069.01 Shutdown Service Water Operability Test; Revision 43e
CPS 9069.01D001 Shutdown Service Water System Operability Data Sheet; Revision 42a
IR 334667,9069.01 Division 2 Shutdown Service Water Surveillance Pump auto start; May 12, 2005
CPS 9015.04, Standby liquid control system operability; Revision 39b
CPS 9915.01; Standby liquid control chemistry sampling; Revision 37a
CY-AA-110-200, Sampling; Revision 2
IR 362206, NRC questions boron disposal; August 11, 2005
IR 362604, NRC observation on chemistry sampling of SLC piping: August 12, 2005
CPS 9080.02B22, Diesel Generator 1B Operability-Monthly test.

1R23 Temporary Plant Modifications

TCCP No. 356005 Revision 0; To provide temporary vent for shutdown cooling (SDC) suction header.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

AR 148086; Licensed Personnel Not Qualified to Use Premair Respirator; dated March 6, 2002
AR 185354; Radioactive Material Stored Under SAM-11; dated November 7, 2003
AR 217867; Enhancement of Radioactive Material Shipping Records; dated April 29, 2004
AR 222129; Whole Body Count Not Performed in Accordance With PR-AA-220; dated May 19, 2004
AR 300383; Instrument Efficiency on Data Sheet Incorrect; dated February 11, 2005
AR 310070; Shelf Life of Iodine Cartridges Expired; dated March 8, 2005
AR 352888; Lack of Control of Portable Radiation Protection Instrumentation; dated July 12, 2005
AR 354911; Nuclear Oversight Identified Incorrect Respiratory Equipment Inventory in TSC; dated July 19, 2005
AR 356401; Radiation Detection Instrument Fails During Use; dated July 25, 2005
AR 366076; NRC Identified Housekeeping Issue, Eagle Air Compressor Shed; dated August 23, 2005
CPS 3214.02; Breathing Air; Revision 11b
CPS 711.05; Radiation Protection Department Survey Instruments Response Checks; Revision 9b
CPS 7600.03; Operating The Eagle Air Systems/Ingersol Ran Air Compressor; Revision 0
CPS 7600.04; Operating The Eagle Air Systems/Bristol W4 Air Compressor, Revision 2b
CPS 7600.05; Operation of The Bauer K-18 Breathing Air Compressor; Revision 3
CPS 7910.90F001; Annual Fastscan Body Counter Calibration; dated December 13, 2004
CPS 7911.13; Calibration of RO-2, RO-2A, and RO-20; Revision 9
CPS 7911.48; Gamma 60/40 Calibration; Revision 2
CPS 8640.04; Calibration of Containment Refueling Platform Area Radiation Monitor; December 23, 2003
CPS 8640.01; Calibration of Transversing In-Core Probe Drive Mechanism Area Radiation Monitor; May 4, 2004
CPS 9437.65; Containment/Drywell High Range Gamma Monitor Channel Calibration; February 23, 2004
IN 367132; Radiation Protection Instrument Problems in 2005 Pre-exercise; August 26, 2005
IN 366544; Eagle Air Compressor Blowdown Oil Drum Arrangement; dated August 25, 1005
Part 61 Sample Analysis, Waste Sludge; dated June 21, 2005
Part 61 Sample Analysis, Phase Separator; dated March 16, 2005
Part 61 Sample Analysis, Spent Resin; dated March 3, 2004
Part 61 Sample Analysis, Concentrated Waste; dated October 22, 2004
Part 61 Sample Analysis, Fuel Pool Sludge; dated March 16, 2005

RP-AA-825; Maintenance, Care and Inspection of Respiratory Protective Equipment; Revision 2
RP-CL-726; Operation and Calibration of the Eberline PM-7 Portal Monitors; Revision 0
RP-CL-825-1001; Flow Testing of MSA Custom 4500 II SCBA Belt mounted Regulators; Revision 0
RP-AA-700; Controls for Radiation Protection Instrumentation; Revision 0
RP-CL-720; Alarm Verification of Personnel Contamination Monitors and Small Article Monitors; Revision 0
2004 Respiratory Protection Program Self-Assessment
2003 Respiratory Protection Program Self-Assessment

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs

Clinton Power Station; Offsite Dose Calculation Manual; Revision 20a
Clinton Power Station; 2002 Annual Radioactive Effluent Release Report (U-603615); dated April 28, 2003
Clinton Power Station; 2003 Annual Radioactive Effluent Release Report (U-603659); dated March 30, 2004
Clinton Power Station; 2004 Annual Radioactive Effluent Release Report (U-603721); dated April 5, 2005
Clinton Power Station; 2003 Annual Radiological Environmental Operating Report (U-603660); dated April 27, 2004
Clinton Power Station; 2004 Annual Radiological Environmental Operating Report (U-603727); April 20, 2005
Quarterly Reports; Results of Laboratory Radioanalyses of Environmental Samples; First Quarter and Second Quarter, 2005
Monthly Progress Reports to Exelon Nuclear - Clinton Station REMP; Environmental Incorporated/Midwest Laboratory; January-June, 2005
Exelon Corporate Manual; Sampling Requirements of the Radiological Environmental Monitoring Programs (REMP); Revision 9; dated June 6, 2005
Monthly Reports on the Meteorological Monitoring Program at the Clinton Power Station; Murray and Trettel, Inc.; January-June 2005
Calibration and Maintenance Records for Air Rotameters (11 units); dated September 16, 2004
Focused Area Self-Assessment (FASA); NRC REMP (Inspection Procedure 71122.03); dated May 13, 2005
Nuclear Utilities Procurement Issues Committee (NUPIC) Audit/Survey No. 18558; Environmental, Inc., Northbrook, IL; dated June 3, 2003 and (revised) December 8, 2003
Audit Report; Audit # NOSA-CPS-03-08; REMP, ODCM, Non-Radiological Effluent Monitoring and NPDES; dated October 20-24, 2003
RP-CL-720; Alarm Verification of Personnel Contamination Monitors and Small Article Monitors; Revision 0
RP-CL-503-101; CPS Unconditional Release Surveys; Revision 2
CPS 1900.21; Radiological Controlled Area Access and Exit; Revision 5f
CPS 7911.51; Calibration of NE SAM Article Monitor; Revision 1
CPS 7911.52; Calibration of PCM-1; Revision 0a
CPS 7911.53; Calibration of PCM-2; Revision 0a
AR00231242; Improper Scheduling of ODCM REMP Surveillance 9911.80
AR00235594; Enhancement - Use Exelon Vendor for Environmental Monitoring

AR00251000; REMP Monthly Progress Reports - Analytical Results in Error
AR00282942; REMP Monthly Progress Reports - Analytical Results Missing
AR00289026; Backup Meteorological Tower Wind Speed Indicator Broken
AR00318786; Vendor Errors From Their Inter-Laboratory Cross-Check Program
AR00318977; Delay in Obtaining ODCM Milk Sample
AR00328379; Meteorological Tower Backup Generator OEM03E Failed to Auto-Start
AR00348802; ODCM Vegetables Not Available Due to Dry Weather
AR00351449; ODCM Water Compositor CL-99 Not Sampling
AR00363263; ODCM Water Compositor CL-91 Found Not Working

4OA3 Event Follow-up

IR 264179; Inadvertent closure of main turbine stop valve number four; October 15, 2004
EACE 264179, Inadvertent closure of main turbine stop valve number four; March 24, 2005
IR 330003, 1TGCIV2 and 1TGCIV4 unexpectedly shut; April 29, 2005
EACE 330003, Turbine generator combined intermediate valve two and 1TGCIV4 unexpectedly shut; July 8, 2005
IR 337219, 1EH01S - Replace discharge filters with wire mesh filters; May 20, 2005
IR 350916, Replace filter element with stainless steel element; July 7, 2005
IR 350918, Replace filter element with stainless steel element; July 7, 2005
IR 353886, 1TGCIV1 - CIV number 1 and number 3 closed at rated power; July 17, 2005
IR 387610, Missed opportunity to identify likelihood of CIV 1/3 failure; October 19, 2005

4OA5 Other Activities

M02-040; Radioactive Material Shipment Control Rod Drives; dated April 22, 2002
M02-041; Radioactive Material Shipment Control Rod Drives; dated April 22, 2002
IR 334667, 9069.01 Division 2 Shutdown Service Water surveillance pump auto start, May 12, 2005
ACE 334667, 9069.01 Division 2 Shutdown Service Water pump auto start, June 15, 2005
IR 340713, NER CL-05-028 Yellow - SX pump auto start - two handed ops, June 3, 2005

LIST OF ACRONYMS USED

ACE Apparent Cause Evaluation
ADAMS Agency wide Documents Access and Management System

CFR	Code of Federal Regulation
CIV	Combined Intermediate Valves
DOT	Department of Transportation
EHC	Electro-Hydraulic Control
FIN	Fix It Now
IMC	Inspection Manual Chapter
IR	Issue Report
IV	Intermediate Valve
LLD	Lower Limit of Detection
MR	Maintenance Rule
NCV	Non-Cited Violation
NOS	Nuclear Over Sight
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
ORM	Operations Requirements Manual
PARS	Publicly Available Records
RCA	Radiological Controlled Area
REMP	Radiological Environmental Monitoring Program
RHR	Residual Heat Removal
SCBA	Self-Contained Breathing Apparatus
SDC	Shutdown Cooling
SDP	Significant Determination Process
TLD	Thermoluminescent Dosimeter
TS	Technical Specifications
TSO	Transmission System Operator
USAR	Updated Safety Analysis Report