UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

July 22, 2008

Mr. Charles G. Pardee
Chief Nuclear Officer
AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville IL 60555

SUBJECT: CLINTON POWER STATION NRC INTEGRATED INSPECTION REPORT 05000461/2008-003

Dear Mr. Pardee:

On June 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Clinton Power Station. The enclosed report documents the inspection results, which were discussed on July 10, 2008, with Mr. F. Kearney and other members of your staff.

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

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made 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 No. 50-461
License No. NPF-62

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Letter to C. Pardee from M. Ring dated July 22, 2008

SUBJECT: CLINTON POWER STATION NRC INTEGRATED INSPECTION REPORT 05000461/2008-003

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Illinois Emergency Management Agency
Chairman, Illinois Commerce Commission

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-461
License No:	NPF-62
Report No:	05000461/2008-003
Licensee:	AmerGen Energy Company, LLC
Facility:	Clinton Power Station
Location:	Clinton, IL
Dates:	April 1 through June 30, 2008
Inspectors:	B. Kemker, Senior Resident Inspector B. Dickson, Senior Resident Inspector D. Lords, Resident Inspector B. Cushman, Reactor Engineer M. Mitchell, Health Physicist S. Mischke, Resident Engineer, Illinois Emergency Management Agency
Approved by:	M. Ring, Chief Branch 1 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000461/2008-003, 04/01/08 – 06/30/08, Clinton Power Station, Integrated Inspection Report

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

No violations of significance were identified.

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

The unit was operated at or near full power during the inspection period with two exceptions.

On May 18, 2008, the licensee reduced power to about 78 percent to perform control rod pattern adjustment and main turbine control/intermediate valve and main steam isolation valve testing. The unit was returned to full power the following day upon completion of valve testing.

On May 23, 2008, the licensee reduced power to about 91.5 percent to complete testing on the outboard main steam isolation valves. The unit was returned to full power upon completion of testing.

On April 18, 2008, an earthquake was felt at the Clinton Power Station. The earthquake was reported to be of magnitude 5.4 on the Richter Scale, with an epicenter near West Salem, Illinois, approximately 140 miles southeast of the plant. No damage to plant equipment was identified.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness For Impending Hot Summer Weather Conditions

a. Inspection Scope

The inspectors evaluated the licensee's preparations for hot summer weather conditions, focusing on the circulating water system and the service air/instrument air systems. During the last week of May 2008, the inspectors performed a detailed review of severe weather and plant de-winterization procedures and performed general area plant walkdowns. The inspectors focused on plant specific design features and implementation of procedures for responding to or mitigating the effects of hot summer weather conditions on the operation of the plant. The inspectors reviewed system health reports and system engineering summer readiness review documents for the above systems. Additionally, the inspectors reviewed selected action requests for the identification and resolution of procedure and equipment deficiencies associated with adverse weather mitigation.

This inspection constituted one seasonal extreme weather readiness inspection sample as defined in Inspection Procedure 71111.01.

b. Findings

No findings of significance were identified.

.2 Summer Readiness of Offsite and Alternate Alternating Current (AC) Power Systems

a. Inspection Scope

The inspectors evaluated the licensee's plant features and procedures for operation and continued availability of offsite and alternate AC power systems. The inspectors interviewed plant personnel and reviewed the licensee's communications protocols between the Transmission System Operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Aspects considered in the inspectors' review included:

- the actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant will not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- the compensatory actions identified to be performed if it is not possible to predict the post-trip voltage at the plant for the current grid conditions;
- the required re-assessment of plant risk based on maintenance activities that could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- the required communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power is challenged.

This inspection constituted one offsite and alternate AC power systems readiness inspection sample as defined in Inspection Procedure 71111.01.

b. Findings

No findings of significance were identified.

.3 Readiness For Impending Adverse Weather Condition – Tornado/High Winds

a. Inspection Scope

Since a tornado watch was in effect for the vicinity of the plant on April 25 and May 30, 2008, the inspectors reviewed the licensee's overall preparations/protection for the expected conditions. On each day, the inspectors toured the plant grounds in the vicinity of the main power transformers, unit auxiliary transformers, reserve auxiliary transformer, emergency reserve auxiliary transformer, and static VAR compensators to look for loose debris, which if present could become missiles during a tornado or with high winds. During the inspections, the inspectors focused on plant specific design features and the licensee's procedure used to respond to tornado and high winds conditions.

This inspection constituted two readiness for impending adverse weather condition inspection samples as defined in Inspection Procedure 71111.01.

b. Findings

No findings of significance were identified.

.4 Readiness For Impending Adverse Weather Condition – Heavy Rainfall/External Flooding Conditions

a. Inspection Scope

After a period of heavy rainfall, Clinton Lake level reached 694'0" (mean sea level) on June 4, 2008 and the licensee entered off-normal procedure CPS 4303.02, "Abnormal Lake Level." The inspectors reviewed the licensee's procedure and actions taken in response to the abnormal lake level, including a walkdown of the Lake Screen House to view flood protection barriers and other measures for coping with potential external flooding.

This inspection constituted one external flooding inspection sample as defined in Inspection Procedure 71111.01.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns (71111.04Q)

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk significant systems:

- Division II Emergency Diesel Generator (EDG); and
- Reactor Core Isolation Cooling.

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

In addition, the inspectors verified that equipment alignment problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected action requests were reviewed to verify that corrective actions were appropriate and implemented as scheduled.

This inspection constituted two partial system walkdown inspection samples as defined by Inspection Procedure 71111.04.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown (71111.04S)

a. Inspection Scope

The inspectors performed a complete system alignment inspection of the shutdown service water system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment alignment problems were being identified and appropriately resolved.

This inspection constituted one complete system walkdown sample as defined in Inspection Procedure 71111.04.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors performed fire protection tours in the following plant areas:

- Fire Zone A-2o; Elevation 781' 0" Electrical Penetrations (East);
- Fire Zone A-2n; Elevation 781' 0" Division 1 Switchgear Room;
- Fire Zone CS-4; Elevation 781' 0" Division 1 Cable Spreading Room; and
- Fire Zone CS-5a; Elevation 781' 0" Division 3 Switchgear Room.

The inspectors verified that transient combustibles and ignition sources were appropriately controlled and assessed the material condition of fire suppression systems, manual fire fighting equipment, smoke detection systems, fire barriers and emergency lighting units. The inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; that the licensee's fire plan was in alignment with actual conditions; and that fire doors, dampers, and penetration seals appeared to be in satisfactory condition.

In addition, the inspectors verified that fire protection related problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected action requests were reviewed to verify that corrective actions were appropriate and implemented as scheduled.

This inspection constituted four quarterly fire protection inspection samples as defined in Inspection Procedure 71111.05AQ.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

.1 Annual Heat Sink Performance (71111.07A)

a. Inspection Scope

The inspectors reviewed the licensee's testing of the plant heat exchangers cooled by the shutdown service water system during a flow balance test to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors reviewed the licensee's observations as compared against acceptance criteria, the correlation of scheduled testing and deferral of testing, and the impact of instrument inaccuracies on test results. The inspectors also verified that the test acceptance criteria basis and design flow assumptions were valid.

This inspection constituted one annual heat sink inspection sample as defined in Inspection Procedure 71111.07.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

The inspectors observed licensed operators during simulator training on April 23 and April 30, 2008. The inspectors assessed the operators' response to the simulated events focusing on alarm response, command and control of crew activities, communication practices, procedural adherence, and implementation of Emergency Plan requirements. The inspectors also observed the post-training critique to assess the ability of licensee evaluators and operating crews to self-identify performance deficiencies. The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements.

This inspection constituted two quarterly licensed operator requalification inspection samples as defined in Inspection Procedure 71111.11.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for maintenance and emergent work activities affecting risk significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- Division I EDG;
- 'A' Control Room Ventilation Train (emergent activity); and
- 4160 Volt AC Breaker 1B1.

These activities were selected based on their potential risk significance relative to the reactor safety cornerstones. As applicable for each of the above activities, the inspectors reviewed the scope of maintenance work in the plant's daily schedule, reviewed Control Room logs, verified that plant risk assessments were completed as required by 10 CFR 50.65(a)(4) prior to commencing maintenance activities, discussed the results of the assessment with the licensee's Probabilistic Risk Analyst and/or Shift Technical Advisor, and verified that plant conditions were consistent with the risk assessment assumptions. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify that risk analysis assumptions were valid, that redundant safety-related plant equipment necessary to minimize risk was available for use, and that applicable requirements were met.

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

This inspection constituted three maintenance risk assessment inspection samples as defined in Inspection Procedure 71111.13.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issue:

- Standby Gas Treatment (VG) 'A' Train Secondary Containment Drawdown.

The inspectors selected this potential operability issue based on the risk significance of the associated components and systems. The inspectors verified that the conditions did not render the associated equipment inoperable or result in an unrecognized increase in plant risk. When applicable, the inspectors verified that the licensee appropriately applied TS limitations, appropriately returned the affected equipment to an operable status, and reviewed the licensee's evaluation of the issue with respect to the regulatory

reporting requirements. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluation.

In addition, the inspectors verified that problems related to the operability of safety-related plant equipment were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected action requests were reviewed to verify that corrective actions were appropriate and implemented as scheduled.

This inspection constituted one sample as defined in Inspection Procedure 71111.15.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the test results for the following surveillance testing activities to determine whether risk significant systems and equipment were capable of performing their intended safety function and to verify that the testing was conducted in accordance with applicable procedural and TS requirements:

- OP 9053.07, "Residual Heat Removal 'C' Pump Operability Test" (In-service Testing); and
- CPS 2700.13, "Division II Shutdown Service Water System Flow Balance Test" (Routine).

The inspectors observed selected portions of the test activities to verify that the testing was accomplished in accordance with plant procedures. The inspectors reviewed the test methodology and documentation to verify that equipment performance was consistent with safety analysis and design basis assumptions, and that testing acceptance criteria were satisfied.

In addition, the inspectors verified that surveillance testing problems were entered into the licensee's corrective action program with the appropriate characterization and significance. Selected action requests were reviewed to verify that corrective actions were appropriate and implemented as scheduled.

This inspection constituted one in-service test and one routine surveillance test for a total of two inspection samples as defined in Inspection Procedure 71111.22.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of the licensee's annual emergency preparedness exercise on May 21, 2008, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. This exercise was planned to be evaluated and was included in performance indicator data regarding drill and exercise performance. The inspectors observed emergency response operations in the Operations Simulator and Technical Support Center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee's drill critique to compare any inspector-observed weaknesses with those identified by the licensee's staff in order to evaluate the critique and to verify whether the licensee's staff was properly identifying weaknesses and entering them into the corrective action program.

This inspection constituted one emergency preparedness drill inspection sample as defined in Inspection Procedure 71114.06.

b. Findings

No findings of significance were identified.

2. RADIATION PROTECTION

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within spent fuel or other storage pools.

This inspection constituted one sample as defined in Inspection Procedure 71121.01.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed licensee documentation packages for all performance indicator (PI) events occurring since the last inspection to determine if any of these performance indicator PI events involved dose rates >25 R/hr at 30 centimeters or >500 R/hr at 1 meter. Barriers were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures >100 millirem total effective dose equivalent (or >5 rem shallow dose equivalent or >1.5 rem lens dose equivalent) were evaluated to determine if there were any regulatory overexposures or if there was a substantial potential for an overexposure.

This inspection constituted one sample as defined in Inspection Procedure 71121.01.

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 documents to determine if there were site-specific trends in collective exposures and source-term measurements.

This inspection constituted one sample as defined in Inspection Procedure 71121.02.

The inspectors reviewed procedures associated with maintaining occupational exposures ALARA and processes used to estimate and track work activity specific exposures.

This inspection constituted one sample as defined in Inspection Procedure 71121.02.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning.

a. Inspection Scope

The inspectors evaluated the licensee's list of work activities ranked by estimated exposure that were completed during the last outage and reviewed the following five work activities of highest exposure significance:

- Drywell Scaffold,
- Drywell Flex Hose Replacement,
- Refuel Floor Non-Cavity Work,

- Refuel Floor Cavity Work; and
- Drywell Bioshield Inservice Inspection.

The inspectors compared the results achieved, including dose rate reductions and person-rem used, with the intended dose established in the licensee's ALARA planning for these five work activities. Reasons for inconsistencies between intended and actual work activity doses were reviewed.

This inspection constituted one sample as defined in Inspection Procedure 71121.02.

b. Findings

No findings of significance were identified.

.3 Source-Term Reduction and Control

a. Inspection Scope

The inspectors reviewed licensee records to determine the historical trends and current status of tracked plant source terms and determined if the licensee was making allowances and had developed contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry.

This inspection constituted one sample as defined in Inspection Procedure 71121.02.

b. Findings

No findings of significance were identified.

.4 Declared Pregnant Workers.

a. Inspection Scope

The inspectors reviewed dose records of declared pregnant workers for the current assessment period to verify that the exposure results and monitoring controls employed by the licensee complied with the requirements of 10 CFR Part 20.

This inspection constituted one sample as defined in Inspection Procedure 71121.02.

b. Findings

No findings of significance were identified.

.5 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, and Special Reports related to the ALARA program since the last inspection to determine if the licensee's overall audit program scope and frequency for all applicable areas under the Occupational Cornerstone met the requirements of 10 CFR 20.1101(c).

This inspection constituted one sample as defined in Inspection Procedure 71121.02.

The licensee's corrective action program was also reviewed to determine if repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution had been addressed.

This inspection constituted one sample as defined in Inspection Procedure 71121.02.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Review of Submitted Quarterly Data

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the Second Quarter 2008 Performance Indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter (IMC) 0608, "Performance Indicator Program."

This inspection was not considered to be an inspection sample as defined in Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.2 Reactor Coolant System (RCS) Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System (RCS) Specific Activity performance indicator (PI) for the period from the first quarter 2007 through the first quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's RCS chemistry samples, TS requirements, issue reports, event reports and NRC integrated inspection reports for the period of January 2007 to May 2008, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the Attachment to this report.

This inspection constituted one reactor coolant system specific activity sample as defined in Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.3 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Radiological Occurrences performance indicator for the period from the first quarter 2007 through the first quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed the scope and breadth of the data review and the results of those reviews with radiation protection staff. The inspectors independently reviewed electronic dosimetry dose rate and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas. Specific documents reviewed are described in the Attachment to this report.

This inspection constituted one occupational radiological occurrences sample as defined in Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

.4 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences performance indicator for the period from the first quarter 2007 through the first quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates between January 2007 to May 2008, to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Additionally, the inspectors selectively reviewed the

licensee's analysis for discharge pathways resulting from a spill, leak, or unexpected liquid discharge focusing on those incidents which occurred over the last few years. Specific documents reviewed are described in the Attachment to this report.

This inspection constituted one RETS/ODCM radiological effluent occurrences sample as defined in Inspection Procedure 71151.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

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

This inspection was not considered to be an inspection sample as defined in Inspection Procedure 71152.

b. Findings

No findings of significance were identified.

.2 Semi-annual Trend Review

a. Inspection Scope

The inspectors reviewed repetitive or closely related issues documented in the licensee's corrective action program to look for trends not previously identified. The inspectors also reviewed action requests regarding licensee-identified potential trends to verify that corrective actions were effective in addressing the trends and implemented in a timely manner commensurate with the significance.

This inspection constituted one semi-annual trend review inspection sample as defined in Inspection Procedure 71152.

b. Assessment and Observations

The inspectors reviewed LS-AA-125-1005, "Coding and Analysis Manual," Revision 5 and LS-AA-125, "Corrective Action Program (CAP) Procedure," Revision 11. The Coding and Analysis Manual provides guidance for coding of action requests and performing trend analysis of issues documented in action requests. The Corrective Action Program Procedure requires the Corrective Action Program Administrator and

Department Corrective Action Program Coordinators to perform periodic analysis of the corrective action program trending data.

In general, the inspectors were not able to determine whether the licensee's trending program was effective at identifying, monitoring, and correcting adverse trends. The inspectors found that while the licensee's quarterly trending data reports provided raw data in the form of lists of process trend codes from action requests entered into the licensee's corrective action program data base, the reports provided little to no analysis of the data. Although "focus areas" were identified in the reports for each department as required by LS-AA-125-1005, it was unclear what the selection of the various focus areas was based upon since there appeared to be no correlation with the trending data. Based on discussions with the Corrective Action Program Administrator and selected Department Corrective Action Program Coordinators, it appeared that the analysis of trend data was being performed informally; with no documented analysis of the data unless a potential adverse trend requiring further evaluation was identified. The inspectors noted that action requests were initiated to evaluate potential adverse trends and several common cause analyses were performed by the licensee; however, the inspectors were not able to determine whether the licensee was identifying all potential adverse trends because there was no written analysis of the trending data to review. The inspectors discussed these observations with the licensee's management.

The inspectors noted that the licensee had previously identified weaknesses in corrective action program trending. Specifically, in December 2007, the Corrective Action Program Administrator identified in AR 00712689 that corrective action program trending was not being conducted in accordance with LS-AA-125-1005. The Corrective Action Program Administrator identified multiple examples where analysis of the corrective action program trending data was lacking and where there appeared to be no correlation between the corrective action program trending data and the focus areas identified by the individual departments. It was not clear whether the focus areas for several departments were from Fundamentals Management System (i.e., manager/supervisor field observations of human performance fundamentals) or corrective action program trending, and several departments had not performed analyses of issues in processes they owned. In March 2008, the Nuclear Oversight Department identified in AR 00752946 what it considered to be a "Potential Area for Improvement" involving a weakness in station trending and analysis of corrective action program data. The Nuclear Oversight Department identified multiple issues including: (1) the closure notes for action tracking items reviewed for functional area trending did not adequately reflect trending and analysis of corrective action program data because the majority of closure comments did not include the action requests that were reviewed or the results of the binning; (2) the quarterly functional area trending effort was limited because it only considered the most recent quarter's data and did not take into consideration any previous quarters; and, (3) the station's trending did not take into consideration issues in individual department owned processes or the relative significance or consequences of events. Nuclear Oversight concluded that the station's methods for trending were too narrowly focused and may miss important performance trends, in that, the methods for trending did not consider all the applicable elements such as self-assessments or benchmarking results, department owned processes, relative significance or consequence of events, and were not reviewing performance beyond the last three months. The inspectors noted that action items to address the weaknesses identified with corrective action program trending were being implemented at the station based on these action requests.

The inspectors concluded that the issues identified above were of minor significance because the inspectors did not identify any adverse trends that were not already identified by the licensee and entered into the licensee's corrective action program.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 Response to Seismic Event

a. Inspection Scope

The inspectors reviewed the licensee's response to a seismic event that occurred on April 18, 2008. At 6:02 a.m., a magnitude 5.4 (Richter Scale) earthquake was confirmed with an epicenter approximately 140 miles southeast of the plant near West Salem, Illinois. The inspectors observed the licensee's actions in accordance with its response procedures and reviewed the Emergency Action Levels. The inspectors performed plant walkdowns of safety-related and risk significant structures, systems, and components to verify that there was no damage and confirmed that thermography inspections of the switchyard were performed by the licensee.

This inspection constituted one event follow-up inspection sample as defined in Inspection Procedure 71153.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 (Closed) Hydrogen Igniter Backup Power Verification (TI 2515/174)

a. Inspection Scope

The NRC evaluated the potential for early failure of containment during very low probability events involving damage to the reactor core in NUREG/CR-6427, "Assessment of the Direct Containment Heat (DCH) Issue for Plants with Ice Condenser Containments." In that report, the investigators showed that the early containment failure probability of ice condenser containments is dominated by hydrogen combustion following core damage events. The staff later opened generic safety issue GSI-189, "Susceptibility of Ice Condenser and Mark III Containments to Early Failure from Hydrogen Combustion during a Severe Accident."

The objective of Temporary Instruction (TI) 2515/174, "Hydrogen Igniter Backup Power Verification," was to verify that licensees operating plants with ice condenser and Mark III containments have adequately implemented commitments related to provision of backup power to containment hydrogen igniters. Specifically, the inspection requirements were to:

(1) evaluate how the licensee has modified plant equipment and implemented training programs and procedures to provide backup power to at least one complete train of hydrogen igniters;

(2) determine whether the equipment necessary to provide backup power to the hydrogen igniters is available;

(3) determine that appropriate procedures have been established to govern the provision of backup power to the igniters;

(4) determine that a suitable training program has been established to train selected staff in the actions necessary to provide backup power to the igniters; and

(5) determine that maintenance and testing schedules that are consistent with vendor recommendations have been established for portable and permanently installed equipment.

During this inspection period the inspectors reviewed the licensee's response to GSI-189, "Susceptibility of Ice Condenser and Mark III Containments to Early Failure from Hydrogen Combustion during a Severe Accident." The licensee, in a letter from B. Hanson to the NRC, "Enhancement of the Capability of the Containment Hydrogen Igniters," dated February 28, 2007, made a commitment to include a method to supply alternate power to the surviving hydrogen igniter system for beyond design basis events. The inspectors verified that the licensee had completed the plant modifications that it committed to accomplish.

b. Observations

Summary

The inspectors did not identify any discrepancies between actual plant modifications and actions committed to by the licensee.

Evaluation of Inspection Requirements

In accordance with the requirements of TI 2515/174, the inspectors evaluated and answered the following questions:

(1) Did the licensee procure plant equipment and implement training programs and procedures to provide backup power to the surviving hydrogen igniter system?

Yes. The licensee procured portable equipment that can be connected to a division of hydrogen igniters at the containment penetrations in the event that there is no other success path for mitigating an extreme damage event. The licensee has also implemented training programs and modified procedures to provide backup power to either the Division I or II hydrogen igniter trains.

(2) Did the licensee provide the equipment necessary to provide backup power to the hydrogen igniters?

Yes. The licensee has made equipment available to provide 480 volt AC power to the hydrogen igniter electrical distribution panels from any nearby in-plant 480 volt AC source (e.g., the Division 3 switchgear in the Control Building). Also, cabling and a portable circuit breaker are staged to route power from an external 120 volt AC source to the containment electrical penetrations. The inspectors reviewed the

electrical diagrams to verify that the existing and new power supplies were available as described.

(3) Did the licensee establish appropriate procedures to govern the provision of backup power to the igniters?

Yes. The licensee has in place procedure CPS 4303.001P019, "Hydrogen Igniter Operation with External AC Power," which was implemented on December 27, 2007, and governs hydrogen igniter operation with external AC power.

(4) Did the licensee establish a suitable training program to train selected staff in the actions necessary to provide backup power to the igniters?

Yes. The licensee has conducted training of operators on the new procedure and will continue training on a periodic basis as part of its systematic approach to training program. The inspectors interviewed operators and observed their performance of responsibilities under this accident scenario.

(5) Did the licensee establish maintenance and testing schedules consistent with vendor recommendations for permanently installed equipment?

Yes. The licensee completed testing of the new equipment under Work Order 01122527. The licensee has scheduled this maintenance on an annual basis. The equipment is currently stored in the licensee's Technical Support Center.

.2 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted the following observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

- Multiple tours of operations within the security alarm stations,
- Tours of selected security officer response posts,
- Direct observation of personnel entry screening operations within the plant's Main Access Facility, and
- Security force shift turnover activities.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

.1 Resident Inspectors' Exit Meeting

The inspectors presented the inspection results to Mr. F. Kearney and other members of the licensee's staff at the conclusion of the inspection on July 10, 2008. The licensee acknowledged the findings presented. Proprietary information was examined during this inspection, but is not specifically discussed in this report.

.2 Interim Exit Meetings

Interim exits were conducted for:

- Radiological Access Control and ALARA Inspection with Mr. F. Kearney, and other members of the licensee's staff on June 20, 2008;

The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.3 Regulatory Performance Meeting

On May 15, 2008, the NRC held a public meeting with the licensee at the Clinton Public Library to discuss the Clinton Power Station annual plant performance assessment in accordance with Section 06.04 of IMC 0305.

4OA7 Licensee-Identified Violations

The following violation of very low 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.

- Failure to Survey Title 10 CFR 20.1501 requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present. Contrary to the above, on March 26, 2008, the licensee did not make surveys to assure compliance with 10 CFR 20.1902, which requires the licensee to post each high radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA." Specifically, dose rates greater than 100 mR/hour were identified in the cask wash down pit in the fuel handling building after the area was downposted from a high radiation area.

This was identified in the licensee's corrective action program as AR 755161 and corrective actions included restoring proper high radiation area postings and controls. The finding was determined to be of very low safety significance because it was not an ALARA planning issue, there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

D. Brendley, Corrective Action Program Administrator
T. Chalmers, Shift Operations Superintendent
T. Conner, Operations Director
B. Davis, Plant Engineering Manager
S. Deal, Fire Marshall
J. Domitrovich, Maintenance Director
R. Frantz, Regulatory Assurance
M. Friedmann, Emergency Planning Manager
J. Gackstetter, Training Director
M. Kanavos, Plant Manager
F. Kearney, Site Vice President
J. Peterson, Acting Regulatory Assurance Manager
R. Schenck, Site Project Management Director
J. Stovall, Radiation Protection Manager
C. VanDenburgh, Nuclear Oversight Manager
R. Weber, Acting Engineering Director
C. Williamson, Security Manager

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None		

Closed

TI 2515/174	TI	Hydrogen Igniter Backup Power Verification

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

1R01 Adverse Weather Protection

- CPS 1860.01; "Cold Weather Operation," Revision 7
- CPS 1860.02; "Summer Readiness Operation," Revision 0a
- CPS 4302.01; "Tornado/High Winds," Revision 18e
- WC-AA-107; "Seasonal Readiness," Revision 5
- Memorandum from F. Kearney, Clinton Power Station Site Vice President, to S. Kuczynski, Senior Vice President of Nuclear Operations; Subject: Certification of 2008 Summer Readiness; May 15, 2008
- AR 00703840; "Clinton Site Summer Readiness Actions 2008"
- WC-AA-107; "Seasonal Readiness," Attachment 3, "Plant System Readiness Review," Instrument Air/Service Air System, December 19, 2007
- WC-AA-107; "Seasonal Readiness," Attachment 2, "Plant System Readiness Review," Circulating Water System, December 11, 2007
- AR 00781359; "NRC Comments from Walkdown 5-30-08 1500"
- OP-CL-108-107-1001; "Interface Between AMERINIP and Clinton Power Station for Switchyard Operations and Maintenance," Revision 5
- OP-CL-108-107-1002; "Degraded Grid Actions," Revision 0
- Nuclear Plant Operating Agreement for Clinton Power Station, no date
- CPS 4200.01; "Loss of AC Power, " Revision 16e
- NRC Generic Letter 2006-02; "Grid Reliability and the Impact on Plant Risk and the Operability of Offsite Power," February 1, 2006
- NRC Event Notification #44267
- AR 782251; "Screenhouse SX Pit Potential Flooding Problems"
- AR 782836; "Entered 4303.02 Abnormal Lake Level Off Normal"
- AR 782958; "Partial Loss Of Phone And Data Services"
- CPS 4303.02; "Abnormal Lake Level," Revision 9b

1R04 Equipment Alignment

- M05-1036; "P&ID Diesel Generator Fuel Oil System (DO)," Revision S
- M05-1035; "P&ID Diesel Generator Cooling System (DG)," Revision D
- M05-1035; "P&ID Diesel Generator Aux System (DG) Starting Air Exhaust & Combustion Sys," Revision AB
- M05-9035; "P&ID Div. II Lube Oil Tandem EMD 3875 KW Diesel Generator Set 1DG01KB," Revision F
- M05-9036; "P&ID Div. II Fuel Oil Tandem EMD 3875 KW Diesel Generator Set 1DG01KB," Revision E
- CPS 3506.01V002; "Diesel Generator and Support Systems Instrument Valve Lineup," Revision 11b
- CPS 3506.01; "Diesel Generator Operations," Revision 32g
- AR 00783447; "NRC ID 1DG21DB Air Hose Bend Radius Div 2 DG Air Dryer Purge"

- M05-1079; “P&ID Reactor Core Isolation Cooling (RCIC) (RI),” Revisions AH (Sheet 1) and AJ (Sheet 2)
- CPS 3310.01; “Reactor Core Isolation Cooling,” Revision 26f
- CPS 3310.01V001; “Reactor Core Isolation Cooling Valve Lineup,” Revision 12e
- CPS 3310.01E001; “Reactor Core Isolation Cooling Electrical Lineup,” Revision 14b
- USAR
- TS
- AR 787454; “Division II SX System Flow Balance Data Not Per Design”
- AR 737322; “Component Cooling Water Leakage Increase After Aligning To “B” Fuel Pool Cooling Heat Exchanger”
- AR 735492; NRC NCV 2007005-02, “SX System Post Modification Testing”
- AR 736328; NCV 200700805; “Inappropriate SX Pump Test Acceptance Criteria”
- AR 738052; 1SX006C “Division 3 DG Minimum Flow Valves Has Flow Noise While Shut”
- AR 739014; 1SX159 SX “Drain Line Valve Open With Vent Cap Installed”
- AR 740902; “Insulation Damaged Around 1SX001B Discharge Check Valve”
- Calculation IP-M-0486
- Service Request (SR) 57471; “Defer Division II SX System Testing” (dated 5/16/08)
- SR 57710; “Defer Division II SX System Testing” (dated 6/5/08)
- Engineering Change (EC) 341049; “Revise EC Evaluation For Clinton Lake reaching 70 degrees Fahrenheit”
- EC 343286; “Generic Letter 89-13 and SX System Design Bases”
- EC 368377; “Allow Alternate Referred Gasket For Raw Water Piping Flanges”
- CPS 2700.13; “Division 2 SX System Flow Balance Verification”
- Drawing OS-1052; Sheet 1;
- Drawing MO5-1052; Sheet 1-3; Mechanical
- Drawing MO5-1106
- CPS 3211.01E001; “Shutdown Service Water Electrical Lineup”
- CPS 3211.01V001; “Shutdown Service Water Valve Lineup”
- CPS 3211.01V002; “Shutdown Service Water Instrumentation Valve Lineup”
- CPS Top Ten Online and Outage Equipment Issues
- Engineering Programs Evaluation #368530 1SX01PA (Division I SX Pump) “Evaluation Of 9069.01 Data Completed” Revision. 0

1R05 Fire Protection

- Clinton Power Station Updated Final Safety Analysis Report, Appendix E, “Fire Protection Evaluation Report – Clinton Power Station Unit 1,” Revision 11
- AR 00789717; “1DR1-453: Fire Door Does Not Self Latch”
- AR 00789817; “Cable Tray Cover Is Loose 781’ Auxiliary Building”
- CPS 1893.04M352 781 Control: “Division 1 Cable Spreading Room Prefire Plan”
- CPS 1893.01; “Fire Protection Impairment Reporting”
- CPS 1893.04M353 781 Control: “Division 3 Switchgear & Battery Room (CB-51,b)”

1R15 Operability Evaluations

- AR 109629; “VG A Train Secondary Containment Drawdown Surveillance 9065.02”
- AR 194268; “Flow Indication Oscillating +/- 400 cubic feet per minute (CFM)”
- AR 194272; “Flow Rate Exceeded 4400 CFM”
- AR 212219; “Retest Of Secondary Containment Using Improper Standby Gas Treatment System (SGTS) Train”
- AR 233077; “Degraded Conditions Allow Leakage Thru Secondary Containment”

- AR 245527; “NRC Question Regarding Standby Gas Train B”
- AR 558598; “Transient Material Impacts Division 2 VG Operability”
- AR 560324; “VG-B Service Outage Window Unavailability Hours Less Than Planned”
- AR 774553; “Procedure 9065.02 Step 8.8 Fig. 1 Data Off Scale”
- AR 777784; “Last 3 Secondary Containment Drawdown Tests Exceed 4400 CFM”
- OpEval #77455302; “Standby Gas Treatment (VG), Secondary Containment”
- AR 771648; “Scheduling of VC Surveillance, Entry Into 7 Day Shutdown LCO”
- WO # 866896 9070.02; “Main Control Room Emergency Air Cleanup Auto Start (VC “A”)”
- CPS 9070.02; “Control Room HVAC High Radiation, Initiation Functional”
- WC-AA-104; “Production Risk Evaluation Data” Revision 4
- WC-AA-101; “On-Line Work Control Process” Revision 14
- Clinton Power Station Online Schedule Work Week 0823

1R22 Surveillance Testing

- WO #01117869 9053.07C21; “Operations RHR Pump Operability Test (C-Pump)”
- CPS 9053.07; “RHR B/C Pumps and RHR B/C Water Leg Pump Operability” Revision 46
- WC-MW-114; “Predefine Cover Sheet” Revision 0

2OS1 Access Control to Radiologically Significant Areas

-AR 601273; “High Radiation Area Near Miss Event,” March 8, 2008
-AR 755161; “Unposted High Radiation Area Identified,” March 26, 2008
-AR 756176; “Seavan Containers Not Posted/Labeled Properly,” March 28, 2008
-AR 769437; “Gaps Exist in Radiological Posting and Consistency,” April 3, 2008
-AR 772520; “Operator Lack of Sensitivity to Radiation Postings,” May 6, 2008
-AR 784648; “Discrete Radioactive Particles Found on 781 Fuel Handling Building,” June 9, 2008
-FASA 653482-04; “Focused Area Self-Assessment – Access Control to Radiologically Significant Areas,” June 22, 2007
-NF-AA-390; “Spent Fuel Pool Material Control,” Revision 2
-RP-CL-376-1002; “Clinton Power Station Radiological Postings,” Revision 3

2OS2 As-Low-As – Is-Reasonably-Achievable Planning And Controls

-AR 731587; “C1R11 Lesson Not Learned – Inadequate Radiation Protection Staffing,” February 5, 2008
-AR 763397; “Nuclear Oversight Identifies Radiation Protection Red for the First Quarter 2008,” April 15, 2008
-FASA 563533; “Focused Area Self-Assessment – ALARA Planning and Controls,” November 18, 2007
-NOSPA-CL-08-1Q; “Nuclear Oversight Quarterly Report Clinton Power Station,” April 24, 2008
-RP-AA-401; “Operational ALARA Planning and Controls,” Revision 8
-RP-AB-3001; “BRAC Point Radiation Surveys,” Revision 0
-Clinton Power Station C1R11 Post Outage ALARA Report, Draft

4OA1 Performance Indicator Verification

-CPS 9911.59; “Gaseous Radioactive Effluent Surveillance – Monthly,” Revision 29b
-Electronic Dosimeter Alarm Log, January 2007 to June 2008

4OA2 Identification and Resolution of Problems

- LS-AA-125-1005; "Coding and Analysis Manual," Revision 5
- LS-AA-125; "Corrective Action Program (CAP) Procedure," Revision 11
- AR 00712689; "3rd Quarter CAP Trending Not Conducted In Accordance With LS-AA-125-1005"
- AR 00752946; "Nuclear Oversight Identified Potential New Area for Improvement for CAP Trending"
- Clinton Power Station Human Performance Report Data for March 2008
- Clinton Power Station Human Performance Report Data Review for 9/01/07-9/30/07 – Quarterly Coding & Analysis
- AR 00765081; "Trend ID – Potential Trend Based on CAP Process Coded Issue Requests"
- Common Cause Analysis 771013-02, "CAP Process Weakness in the Last 6 Months," May 30, 2008
- AR 00639750; "Evaluate Potential Trend of Scaffold Issues at Clinton Power Station"
- Common Cause Analysis 639750, "Scaffold Issues at Clinton Power Station," July 12, 2007

4OA5 Other Activities

- NRC Inspection Manual Temporary Instruction 2515/174
- Letter from Bryan Hanson, Site Vice President, Clinton Power Station to NRC dated February 28, 2007; "Enhancement of the Capability of the Containment Hydrogen Igniters"
- WO #01122527; "Run he B.5.B 125VDC Generator and Replace Fuel/Oil Annually"
- CPS 4303.01P019; "Hydrogen Igniter Operation With External AC Power," Revision1
- AR 734743; "Earthquake Off-Normal Entry"

LIST OF ACRONYMS USED

AC	Alternating Current
ALARA	As Low As Is Reasonably Achievable
ADAMS	Agency-wide Documents and Management System
CAP	Corrective Action Program
CPS	Clinton Power Station
DCH	Direct Containment Heat
EDG	Emergency Diesel Generator
IMC	Inspection Manual Chapter
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records
PI	Performance Indicators
RCS	Reactor Coolant System
RETS	Radiological Effluent Technical Specifications
TI	Temporary Instruction
TS	Technical Specification
TSO	Transmission System Operator
VG	Standby Gas Treatment
WO	Work Order