

April 4, 2002

Mr. John L. Skolds, President  
and Chief Nuclear Officer  
Exelon Nuclear  
Exelon Generation Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION  
NRC INSPECTION REPORT 50-461/02-02(DRS)

Dear Mr. Skolds:

On March 15, 2002, the NRC completed an inspection at your Clinton Power Station, Unit 1. The enclosed report documents the inspection findings which were discussed on March 15, 2002, with Mr. Heffley and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, this inspection focused on the triennial fire protection baseline inspection.

No findings of significance were identified.

In accordance with 10 CFR Part 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

Ronald N. Gardner, Chief  
Electrical Engineering Branch  
Division of Reactor Safety

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

Enclosure: Inspection Report 50-461/02-02(DRS)

See Attached Distribution

cc w/encl: J. Heffley, Vice President  
W. Bohlke, Senior Vice President  
Nuclear Services  
J. Cotton, Senior Vice President -  
Operations Support  
M. Pacilio, Plant Manager  
K. Ainger, Director - Licensing  
C. Crane, Senior Vice President -  
Mid-West Regional Operating Group  
J. Benjamin, Vice President - Licensing  
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Document Control Desk-Licensing  
Illinois Department of Nuclear Safety

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Sincerely,  
**/RA by John Jacobson Acting For/**

Ronald N. Gardner, Chief  
Electrical Engineering Branch  
Division of Reactor Safety

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DATE	04/03/02		0403/02	04/04/02		

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

REGION III

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

Report No: 50-461/02-02(DRS)

Licensee: AmerGen Energy Company, LLC

Facility: Clinton Power Station

Location: Route 54 West  
Clinton, IL 61727

Dates: February 25 through March 1, 2002, and  
March 11 through 15, 2002

Inspectors: Doris M. Chyu, Reactor Inspector (Lead)  
Robert Daley, Reactor Inspector  
George Hausman, Senior Reactor Inspector

Approved by: Ronald N. Gardner, Chief  
Electrical Engineering Branch  
Division of Reactor Safety

## SUMMARY OF FINDINGS

IR 05000461-02-02(DRS), on 02/25-03/01/2002 and 03/11-15/2002, Exelon Generation Company, LLC, Clinton Power Station. Triennial Fire Protection Baseline Inspection Report.

The report covers a ten day announced inspection. The inspection was conducted by three Region III based reactor inspectors. No findings of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/NRR/OVERSIGHT/index.html>. Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violations.

A. Inspector Identified Findings

**Cornerstones: Initiating Events and Mitigating Systems**

No findings of significance were identified.

B. Licensee Identified Findings

No findings of significance were identified.

## Report Details

### Summary of Plant Status

Unit 1 operated at full power throughout the inspection period.

## **1. REACTOR SAFETY**

### **Cornerstones: Initiating Events and Mitigating Systems**

#### 1R05 Fire Protection (71111.05)

The purpose of this inspection was to review the Clinton Station's Fire Protection Program (FPP) for selected risk-significant fire areas. Emphasis was placed on verifying that the post-fire safe shutdown capability and the fire protection features were maintained free of fire damage to ensure that at least one post-fire safe shutdown success path was available. The inspection was performed in accordance with the Nuclear Regulatory Commission's (NRC's) new regulatory oversight process using a risk-informed approach for selecting the fire areas and attributes to be inspected. The lead inspector used the Clinton Station's Individual Plant Examination of External Events (IPEEE) to choose several risk-significant areas for detailed inspection and review. The fire zones chosen for review during this inspection were:

- Fire Zone A-2k AB 762' Elev., Division 1 non-safety related switchgear room
- Fire Zone A-2n AB 781' Elev., Division 1 safety related switchgear room
- Fire Zone A-3d AB 762' Elev., Division 2 non-safety related switchgear room
- Fire Zone A-3f AB 781' Elev., Division 2 non-safety related switchgear room
- Fire Zone CB-3a CB 781' Elev., auxiliary electric equipment room

For each of these fire zones, the inspection was focused on the fire protection features, the systems and equipment necessary to achieve and maintain safe shutdown conditions, determination of license commitments, and changes to the FPP.

#### .1 Systems Required to Achieve and Maintain Post-Fire Safe Shutdown

The guidelines established by Branch Technical Position (BTP), Chemical Engineering Branch (CMEB) 9.5-1, Section C.5.b, "Safe Shutdown Capability," paragraph (1), required the licensee to provide fire protection features that were capable of limiting fire damage to structures, systems, and components (SSCs) important to safe shutdown. The SSCs that were necessary to achieve and maintain post-fire safe shutdown were required to be protected by fire protection features that were capable of limiting fire damage to the SSCs so that:

- One train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station(s) is free of fire damage; and

- Systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) can be repaired within 72 hours.

#### General Description of Clinton's Safe Shutdown Paths and Capability

The licensee's safe shutdown methodology relied upon the identification of those components necessary and available to achieve and maintain hot shutdown conditions following a fire condition. Once identified for all plant areas, the licensee selected the components necessary to achieve and maintain the reactor in a hot shutdown condition which could be operated from the main control room or which could be operated locally and were not within the fire affected area. The methodology further identified those components necessary to achieve and maintain cold shutdown assuming limited repairs.

The licensee also identified an alternate or dedicated shutdown capability for fire conditions that affected the main control room and several other areas, including the auxiliary electric equipment room. For each of these areas, the licensee relied upon the operators' use of the remote shutdown panel to ensure that the reactor could be brought to and maintained in a hot shutdown status.

To direct the plant staffs' response to fire conditions throughout the plant, the licensee relied upon the operators' use of a single fire response operating procedure in conjunction with other non-fire specific plant procedures. The fire response operating procedure provided the main control room staff with information as to the possible impacts of a fire condition in each of the identified plant areas and those actions necessary to minimize the impacts of potential spurious equipment operations. Expected local equipment operations were also identified in the fire response operating procedure.

#### a. Inspection Scope

The inspectors reviewed the plant systems required to achieve and maintain post-fire safe shutdown to determine if the licensee had properly identified the components and systems necessary to achieve and maintain safe shutdown conditions for each fire zone selected for review. Specifically, the review was performed to determine the adequacy of the systems selected for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring, and support system functions. This review included the fire protection safe shutdown analysis.

The inspectors also reviewed the operators' ability to perform the necessary manual actions for achieving safe shutdown including a review of procedures, accessibility of safe shutdown equipment, and the available time for performing the actions.

The inspectors reviewed the updated final safety analysis report and the licensee's engineering and/or licensing justifications (e.g., NRC guidance documents, license amendments, technical specifications, safety evaluation reports, exemptions, and deviations) to determine the licensing basis.

#### b. Findings

No findings of significance were identified.

## .2 Fire Protection of Safe Shutdown Capability

The guidelines established by BTP CMEB 9.5-1, Section C.5.b, "Safe Shutdown Capability," paragraphs (2)(a) and (3), required separation of cables and equipment and associated circuits of redundant trains by a fire barrier having a three hour rating. If the guidelines cannot be met, then alternative or dedicated shutdown capability and its associated circuits, independent of cables, systems or components in the area, room, or zone under consideration should be provided.

### a. Inspection Scope

For each of the selected fire areas, the inspectors reviewed the licensee's safe shutdown analysis to ensure that at least one post-fire safe shutdown success path was available in the event of a fire. This included a review of manual actions required to achieve and maintain hot shutdown conditions and make the necessary repairs to reach cold shutdown within 72 hours. The inspectors also reviewed procedures to verify that adequate direction was provided to operators to perform these manual actions. Factors, such as timing, access to the equipment, and the availability of procedures, were considered in the review.

The inspectors also evaluated the adequacy of fire suppression and detection systems, fire area barriers, penetration seals, and fire doors to ensure that at least one train of safe shutdown equipment was free of fire damage. To do this, the inspectors observed the material condition and configuration of the installed fire detection and suppression systems, fire barriers, and construction details and supporting fire tests for the installed fire barriers. In addition, the inspectors reviewed license documentation, such as deviations, detector placement drawings, fire hose station drawings, carbon dioxide pre-operational test reports, smoke removal plans, fire hazard analysis (FHA) reports, safe shutdown analysis, and National Fire Protection Association (NFPA) codes to verify that the fire barrier installations met license commitments.

### b. Findings

No findings of significance were identified.

## .3 Post-fire Safe Shutdown Circuit Analysis

The guidelines established by BTP CMEB 9.5-1, Section C.5.b, "Safe Shutdown Capability," paragraph (1), required that SSCs important to safe shutdown be provided with fire protection features capable of limiting fire damage to ensure that one train of systems necessary to achieve and maintain hot shutdown conditions remained free of fire damage. Options for providing this level of fire protection were delineated in BTP CMEB 9.5-1, Section C.5.b, "Safe Shutdown Capability," paragraph (2). Where the protection of systems whose function was required for hot shutdown did not satisfy BTP CMEB 9.5-1, Section C.5.b, paragraph (2), an alternative or dedicated shutdown capability and its associated circuits, was required to be provided that was independent of the cables, systems, and components in the area. For such areas, BTP CMEB 9.5-1, Section C.5.c, "Alternative or Dedicated Shutdown Capability," paragraph (3), specifically required the alternative or dedicated shutdown capability to be physically and electrically independent of the specific fire areas and capable of accommodating

post-fire conditions where offsite power was available and where offsite power was not available for 72 hours.

a. Inspection Scope

On a sample basis, the inspectors investigated the adequacy of separation provided for the power and control cabling of redundant trains of shutdown equipment. This investigation focused on the cabling of selected components in systems important for safe shutdown. The inspectors' review also included a sampling of components whose inadvertent operation due to fire may adversely affect post-fire safe shutdown capability. The purpose of this review was to determine if a single exposure fire, in one of the fire areas selected for this inspection, could prevent the proper operation of both safe shutdown trains.

The inspectors reviewed the licensee's fuse/breaker coordination analysis for the 4.16 kV and 480 Vac switchgears required for post-fire safe shutdown and the vital low-voltage AC and DC buses. The purpose of this review was to verify that selective coordination exists between branch circuit protective devices (fuses, breakers, relays, etc.) and the bus feeder breaker/fuse to ensure that in the event of a fire-induced short circuit, the fault is isolated before the feeder device trips. In addition, a review of the licensee's fuse replacement procedure was conducted to determine if adequate administrative controls exist to prevent the inadvertent substitution of incorrectly sized fuses in critical circuits.

b. Findings

No findings of significance were identified.

.4 Alternative Safe Shutdown Capability

The guidelines established by BTP CMEB 9.5-1, Section C.5.b, "Safe Shutdown Capability," paragraph (1), required the licensee to provide fire protection features that were capable of limiting fire damage so that one train of systems necessary to achieve and maintain hot shutdown conditions remained free of fire damage. Specific design features for ensuring this capability, were provided in BTP CMEB 9.5-1, Section C.5.b, paragraph (2). Where compliance with the separation criteria of BTP CMEB 9.5-1, Section C.5.b, paragraphs (1) and (2) could not be met, BTP CMEB 9.5-1, Section C.5.b, paragraph (3) and Section C.5.c, required an alternative or dedicated shutdown capability be provided that was independent of the specific fire area under consideration. Additionally, alternative or dedicated shutdown capability must be able to achieve and maintain hot standby conditions and achieve cold shutdown conditions within 72 hours and maintain cold shutdown conditions thereafter. During the post-fire safe shutdown, the reactor coolant process variables must remain within those predicted for a loss of normal ac power, and the fission product boundary integrity must not be affected (i.e., no fuel clad damage, rupture of any primary coolant boundary, or rupture of the containment boundary).

a. Inspection Scope

The inspectors reviewed the licensee's systems required to achieve alternative safe shutdown to determine if the licensee had properly identified the components and

systems necessary to achieve and maintain safe shutdown conditions. The inspectors also focused on the adequacy of the systems to perform reactor pressure control, reactivity control, reactor coolant makeup, decay heat removal, process monitoring, and support system functions.

b. Findings

No findings of significance were identified.

.5 Operational Implementation of Alternative Shutdown Capability

The guidelines established by BTP CMEB 9.5-1, Section C.5.c, "Alternative or Dedicated Shutdown Capability," paragraph (2)(d), required that the process monitoring function should be capable of providing direct readings of the process variables necessary to perform and control the functions necessary to achieve reactivity control, reactor coolant makeup, and decay heat removal.

a. Inspection Scope

The inspectors performed a walkdown of a sample of the actions defined in Procedure CPS 4003-01, "Remote Shutdown," which was the procedure for performing a plant alternative shutdown from outside the control room. The inspectors verified that operators could reasonably be expected to perform the procedure actions within the identified applicable plant shutdown time requirements and that equipment labeling was consistent with the procedure.

The inspectors' reviews of the adequacy of communications and emergency lighting associated with these procedures are documented in Sections 1R05.6 and 1R05.7 of this report.

b. Findings

No findings of significance were identified.

.6 Communications

The guidelines established by BTP CMEB 9.5-1, Section C.5.g, "Lighting and Communication," paragraph (4), required that a portable communications system should be provided for use by the fire brigade and other operations personnel required to achieve safe plant shutdown. This system should not interfere with the communications capabilities of the plant security force. Fixed repeaters installed to permit use of portable radio communication units should be protected from exposure fire damage.

a. Inspection Scope

The inspectors reviewed the adequacy of the communication system to support plant personnel in the performance of alternative safe shutdown functions and fire brigade duties.

b. Findings

No findings of significance were identified.

.7 Emergency Lighting

The guidelines established by BTP CMEB 9.5-1, Section C.5.g, "Lighting and Communication," paragraph (1), required that fixed self-contained lighting consisting of fluorescent or sealed-beam units with individual eight hour minimum battery power supplies should be provided in areas that must be manned for safe shutdown and for access and egress routes to and from all fire areas.

a. Inspection Scope

The inspectors performed a walkdown of a sample of the actions defined in plant procedures use to control local equipment operations. As part of the walkdowns, the inspectors verified that sufficient emergency lighting, AC powered lighting (powered from protected EDG), and/or DC powered lighting (powered by safety related DC buses) existed for access and egress to areas and for performing necessary equipment operations. The inspectors verified that testing of emergency lighting for the remote shutdown panel area and the diesel generator rooms ensured a minimum of eight hours of emergency lighting.

b. Findings

No findings of significance were identified.

.8 Cold Shutdown Repairs

The guidelines established by BTP CMEB 9.5-1, Section C.5.c, "Alternative or Dedicated Shutdown Capability," paragraph (5), required that equipment and systems comprising the means to achieve and maintain cold shutdown conditions should not be damaged by fire; or the fire damage to such equipment and systems should be limited so that the systems can be made operable and cold shutdown achieved within 72 hours. Materials for such repairs shall be readily available onsite and procedures shall be in effect to implement such repairs.

a. Inspection Scope

The inspectors determined that the licensee did not require repair of any equipment to reach cold shutdown based on the safe shutdown methods used.

b. Findings

No findings of significance were identified.

.9 Fire Barriers and Fire Zone/Room Penetration Seals

The guidelines established by BTP CMEB 9.5-1, Section C.5.a, "Building Design," paragraph (3), required that penetration seal designs be qualified by tests that are comparable to tests used to rate fire barriers.

a. Inspection Scope

The inspectors reviewed the test reports for three hour rated barriers installed in the plant and performed visual inspections of selected barriers to ensure that the barrier installations were consistent with tested configuration.

b. Findings

No findings of significance were identified.

.10 Fire Protection Systems, Features, and Equipment

The guidelines established by BTP CMEB 9.5-1, required that fire protection systems, features and equipment were designed in accordance with the following:

<b><u>Fire Protection Systems, Features and Equipment</u></b>	<b><u>BTP CMEB 9.5-1 Section</u></b>	<b><u>BTP CMEB 9.5-1 Title</u></b>
Fire Brigade Capabilities	C.3	Fire Brigade
Passive Fire Protection Features	C.5.a	Building Design
Fire Detection System	C.6.a	Fire Detection
Fire Suppression System	C.6.b	Fire Protection Water Supply Systems
	C.6.c	Water Sprinkler and Hose Standpipe Systems
Manual Fire Fighting Equipment	C.6.f and C.3	Portable Extinguishers and Fire Brigade

a. Inspection Scope

The inspectors reviewed the material condition, operations lineup, operational effectiveness, and design of fire detection systems, fire suppression systems, manual fire fighting equipment, fire brigade capability, and passive fire protection features. The inspectors reviewed deviations, detector placement drawings, fire hose station drawings, carbon dioxide pre-operational test reports, and FHA reports to ensure that selected fire detection systems, carbon dioxide systems, portable fire extinguishers, and hose stations were installed in accordance with their design, and that their design was adequate given the current equipment layout and plant configuration.

b. Findings

No findings of significance were identified.

.11 Compensatory Measures

a. Inspection Scope

The inspectors conducted a review to verify that adequate compensatory measures were put in place by the licensee for out-of-service, degraded or inoperable fire protection and post-fire safe shutdown equipment, systems, or features. The inspectors also verified that short term compensatory measures were adequate to compensate for a degraded function or feature until appropriate corrective actions were taken.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES (OA)**

4OA2 Identification and Resolution of Problems

The guidelines established by BTP CMEB 9.5-1, Section C.4, "Quality Assurance [QA] Program," paragraph h, required that measures should be established to ensure that conditions adverse to fire protection, such as failures, malfunctions, deficiencies, deviations, defective components, uncontrolled combustible material and nonconformance, are promptly identified, reported, and corrected.

a. Inspection Scope

The inspectors reviewed a selected sample of condition reports associated with Clinton's FPP to verify that the licensee had an appropriate threshold for identifying issues. The inspectors evaluated the effectiveness of the corrective actions for the identified issues.

b. Findings

No findings of significance were identified.

4OA3 Event Followup

- .1 (Closed) LER 50-461/1998-021-00: The licensee reported a condition in which cracks in medium and high density silicone penetration seals were not in accordance with design basis. In particular, three penetration seals, CB-781-20-4003, TB-762-01-3003, and DB-762-01-5003 were identified not meeting the requirement for 3-hour rated fire barriers. The licensee had performed Generic Letter 86-10 evaluations for which the inspectors determined to be adequate.

Clinton Power Station, Unit 1, Facility Operating License NPF-62, Section 2.F required, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report as

amended, for the Clinton Power Station, Unit 1, and as approved in the Safety Evaluation Report (NUREG-0853) dated February 1982 and Supplement Nos. 1 thru 8. Clinton USAR, Section 9.5.1, "Fire Protection Program," stated, in part, that the licensee complied with the requirements in 10 CFR Part 50, Appendix R, Section III.G. 10 CFR Part 50, Appendix R, Section III.G.2 states, in part, that one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:

- a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Contrary to the above, these penetration seals were not rated for 3 hours as required.

Since safe shutdown of the plant could still be achieved, this issue had no impact to safety. Because this issue was entered into the licensee's condition reporting program as CR 1-98-02-385, it constitutes a violation of minor significance that is not subject to enforcement action in accordance with Section IV of the Enforcement policy.

#### 40A6 Meetings

##### Exit Meeting

The inspectors presented the inspection results to Mr. J. M. Heffley and other members of licensee management at the conclusion of the inspection on March 15, 2002. The licensee acknowledged the findings presented. No proprietary information was identified.

## KEY POINTS OF CONTACT

### Licensee

J. Heffley, Site Vice President  
M. Pacilio, Plant Manager  
J. Williams, Site Engineering Director  
W. Lipscomb, Integration Project Director  
K. Baker, Sr. Manager Design Engineering  
B. Bunte, Engineering Program Manager  
K. Scott, Operations Services Manager  
R. Frantz, Regulatory Assurance Representative  
A. Darelius, Nuclear Oversight  
S. Deal, Fire Marshall  
D. MacDougall, Engineering  
M. McMenemy, Engineering  
S. Chingo, Corporate Engineer  
C. Furlow, Corporate Engineer  
D. Roberts, Corporate Engineer

### NRC

R. Caniano, Deputy Division Director, DRS  
P. Loudon, Senior Resident Inspector

## LIST OF ACRONYMS USED

BTP	Branch Technical Position
CFR	Code of Federal Regulation
CMEB	Chemical Engineering Branch
CPS	Clinton Power Station
DRS	Division of Reactor Safety
ECN	Engineering Change Notice
EOP	Emergency Operating Procedure
ESF	Engineered Safeguard Feature
FCN	Field Change Notice
FPC&A	Fuel Pooling Cooling and Assist
FPP	Fire Protection Program
IMC	Inspection Manual Chapter
IPEEE	Individual Plant Examination - External Event
HPCS	High Pressure Core Spray
LPCI	Low Pressure Core Injection
LPCS	Low Pressure Core Spray
MCC	Motor Control Center
NFPA	National Fire Protection Association
OA	Other Activities
QA	Quality Assurance
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RPV	Reactor Pressure Vessel
RSP	Remote Shutdown Panel
SDC	Shutdown Cooling
SDP	Significance Determination Process
SSC	Structure, System, and Component

## LIST OF DOCUMENTS REVIEWED

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

### **Procedures**

<b><u>Number</u></b>	<b><u>Description</u></b>	<b><u>Rev/Date</u></b>
CPS 1005.09	Emergency Operating Procedure (EOP) and Severe Accident Guideline (SAG) Program	Revision 8
CPS 1893.04	Fire Fighting	Revisions 9a & 9
CPS 3306.01	Unit Shutdown	Revision 30
CPS 3309.01	High Pressure Core Spray (HPCS)	Revision 13a
CPS 3312.01	Residual Heat Removal (RHR)	Revision 34b
CPS 3312.02	Alternate Shutdown Cooling (A-SDC) Methods	Revision 8
CPS 3312.03	RHR - Shutdown Cooling (SDC) & Fuel Pool Cooling and Assist (FPC&A)	Revision 3d
CPS 3313.01	Low Pressure Core Spray (LPCS)	Revision 14
CPS 3402.01	Control Room HVAC (VC)	Revision 21
CPS 3822.17	Emergency Lighting Battery Pack Verification and Testing	Revision 12a
CPS 4003.01	Remote Shutdown	Revision 13
CPS 4003.01C001	RSP - Pressure Control	Revision 0
CPS 4003.01C002	RSP - RCIC Operation	Revision 1
CPS 4003.01C003	RSP - RCIC Alarm Light Responses	Revision 0
CPS 4003.01C004	RSP - Diesel Generator 1A Operation	Revision 0
CPS 4003.01C005	RSP - Div 1 SX Operation	Revision 0
CPS 4003.01C006	RSP - Div 1 LPCI Operation	Revision 0
CPS 4003.01C007	RSP - Div 1 Suppression Pool Cooling	Revision 0a
CPS 4003.01C008	RSP - Div 1 Shutdown Cooling Operation	Revision 1
CPS 4003.01C009	RSP - Div 1 VX Heat Removal Operation	Revision 0
CPS 4006.01	Loss of Shutdown Cooling	Revision 3

<u>Number</u>	<u>Description</u>	<u>Rev/Date</u>
CPS 4009.01	Inadvertent Opening Safety/Relief Valve	Revision 11
CPS 4401.01	RPV Control	Revision 25
CPS 4407.01	Emergency RPV Depressurization (Blowdown)	Revision 25
CPS 4411.09	RPV Pressure Control Sources	Revision 4
CPS 5066.08	Automatic Depressurization System B Out of Service	Revision 25
CPS 9027.01C002	RSP Operability - RCIC Checklist	Revision 4
CPS 9054.05	RCIC RSP Operability Check	Revision 31a
CPS 9054.01	RCIC System Operability Check	Revision 39
CPS 1893.01	Fire Protection Impairment Reporting	Revision 2
CPS 1893.04M120	762 Auxiliary (East): Non-Safety-Related Switchgear Prefire Plan	Revision 4
CPS 1893.04M122	762 Auxiliary (West): Non-Safety-Related Switchgear Prefire Plan	Revision 4
CPS 1893.04M130	781-790 Auxiliary: Div 2 Switchgear Prefire Plan	Revision 4
CPS 1893.04M132	781 Auxiliary (East): Div 1 Switchgear Prefire Plan	Revision 4
CPS 1893.04M351	781 Control: Aux. Elect. Equip., Inverter & Battery Rooms Prefire Plan	Revision 5
CPS 1893.06	Fire Maintenance and Testing Program	Revision 9B
CPS 9337.81	Fire Detector Channel Functional	3/01/2001
CPS 9337.81C004	Ionization Smoke Detector Functional Test Checklist	Revision 25
CPS 9337.81C001	Fire Detection Channel Functional Checklist	Revision 25
CPS 9337.81C008	Sprinkler System Thermal Detector Functional Test Checklist (Accessible)	Revision 27
CPS 9337.81C011	Aux Electrical Equipment Room Halon System Protectowire Functional Test Checklist	Revision 23
CPS 9337.81C013	Visual Inspection of Smoke Detectors	Revision 23
CPS 9601.10	Visual Inspection of Spray and Sprinkler System Piping and Heads	Revision 22A

## Condition Reports

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<u>Number</u>	<u>Description</u>	<u>Rev/Date</u>
CR 00064676	2-01-08-032 transient combustible material removed from plan	August 2, 2001
CR 00080081	Fire Drill U2002-18 failure identified after further eval	August 1, 2001
CR 00092388	Fire protection documentation clarification	January 25, 2002
CR 00092109	Inadequate acceptance criteria for CPS 9071.04 FL Flow Test	January 11, 1999
CR 00092317	CPS 3822.17 preconditioning test error for emergency lights	August 11, 1999
CR 00092323	Apparent failure to include breakers for Appendix R tests	January 25, 2002
AR 00095738	Scanning error on E02 drawing	February 12, 2002
CR 00096320	Incomplete implementation of CAP process for CR80081	February 22, 2002
AR 00096602	Conduit table on E26-1003-03A-EI lists C0722, a deleted item	February 25, 2002
AR 00096919	Deficiencies in FP FASA	February 2, 2002
AR 00097238	1893.04 discrepancy for manual operation actions	February 27, 2002
AR 00097306	Typographical error - NSED calculation H727.B02	February 27, 2002
AR 00097311	Welding cables draped across Div 1 DC MCC	February 14, 2002
AR 00097339	Temporary light string draped over divisional cable tray	March 1, 2002
AR 00097358	Drawing discrepancies identified during NRC FP inspection	March 1, 2002
AR 00097402	Documentation inconsistencies sprinkler system 1FP46S-AB	March 1, 2002
AR 00098156	Conflict identified with data provided to NRC	March 6, 2002
AR 00098757	Document discrepancy NFPA code conformance Eval - 4.3.10.3.c	March 11, 2002
AR 00098758	Inadequate 86-10 evaluation - USAR change package log 10-021	March 11, 2002

## **Engineering Change Notice**

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<b><u>Number</u></b>	<b><u>Description</u></b>	<b><u>Rev/Date</u></b>
ECN 5788	Emergency light addition	
ECN 14061	Light fixture location change	February 18, 1986
ECN 14624	Change Spotlights to Floodlights and add battery packs	April 25, 1986
ECN 30672	Relocation of Electrical Switches and addition of lights	May 1, 1998
ECN 30777	Relocate Electrical Switches	August 20, 1985
ECN 31344	Portable 8-hour seal beam lights mounting	January 26, 1999
FCR 43699	Light Fixture location change	October 16, 1985
ECN 28133	Abandonment of Steam Condensing Mode of RHR	November 19, 2001

## **Calculations**

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<b><u>Number</u></b>	<b><u>Description</u></b>	<b><u>Rev/Date</u></b>
19-D-23	Estimating Load 125Vdc System - MCC 1A	March 1999
IP-M-0532	Appendix R Safe Shutdown Compliance Assessment	Revision 0
IP-M-0471	Clinton Power Station Post Fire Safe Shutdown Criteria	Revision 2
19-AN-04	480 ESF Switchgear Breakers and Associated Upstream Relay Settings	Revision 12, Vols. A, B & C
19-AN-08	4160 V. ESF Switchgear Buses 1A1 & 1B1 Motor Relay Settings	Revision 3, Vols. B, C, D, & E
19-AN-09	4160 V Division # ESF Bus 1C1 Motor Relay Settings	Revision 1, Vols. A, B, & C
19-AN-20	Circuit Breaker Setting for 480 V HPCS MCC (1E22-S002)	Revision 2, Vols. A & B
19-AN-22	Circuit Breaker Settings for 480 V Motor Control Centers	Revision 1, Vols. A & B
H600.Y35	AUTOMATIC SPRINKLER: Aux. Bldg. Cable Trays - 1FP46SA (system #34) 0.15 gpm/sqft for 25.5 ft <sup>2</sup> per tray	July 1, 1986
H601.Y35	AUTOMATIC SPRINKLER: Aux. Bldg. Cable Trays - 1FP46SA (system #34) 0.15 gpm/sqft for 25.5 ft <sup>2</sup> per tray	July 1, 1986

<u>Number</u>	<u>Description</u>	<u>Rev/Date</u>
H727.B02	AUTOMATIC SPRINKLER: Aux. Electric Equipment Rm - 1FP38SA (system #31) 0.20 gpm/ft <sup>2</sup> density over entire area	Revision 1
H727.C01	AUTOMATIC SPRINKLER: Aux. Electric Equipment Rm - 1FP38SA (system #31) 0.30 gpm/ft <sup>2</sup> density over most remote area	Revision 1
IP-M-0177	Fire Loads in CPS Fire Zones	Revision 5

### **Drawings**

E25-1004-19A-LT Revision C	E30-1003-04A-LT Revision G	M05-1002 Sh. 2, Revision P
E25-1004-20A-LT Revision G	E30-1002-01A-CO Revision G	M05-1002 Sh. 1, Revision T
E26-1004-05A-LT Revision C	E30-1002-04A-CP Revision H	M05-1079 Sh. 1, Revision AD
E26-1004-03A-LT Revision F	E30-1004-00A-EI, Revision F	M05-1079, Sh. 2, Revision AG
E26-1003-03A-LT Revision N	E02-1RS99, Sh. 107, Revision K	M05-1068, Sh. 2, Revision F
E26-1002-01A-LT Revision L	E02-1NB99, Sh. 225, Revision F	E02-1AP03, Revision S
E26-1002-04A-LT Revision L	E02-1RH99, Sh. 18, Revision Q	E02-1RI99, Sh. 505, Revision M
E26-1003-01A-LT Revision K	E02-1RH99, Sh. 16, Revision P	E02-1RI99, Sh. 504, Revision L
E26-1002-03A-LT Revision R	E02-1RH99, Sh. 514, Revision K	E02-1RI99, Sh. 12, Revision K
E26-1002-05A-LT Revision L	E02-1RH99, Sh. 504, Revision H	E02-1RI99, Sh. 7, Revision O
E28-1002-08A-LT Revision P	E02-1RH99, Sh. 503, Revision L	E03-1RS99, Sh. 106, Revision F
E28-1002-07A-LT Revision M	E02-1NB99, Sh. 3, Revision N	E03-0AP22E, Sh. 2, Revision P
E28-1002-05A-LT Revision H	E02-1NB99, Sh. 2, Revision K	E03-IP704B, Revision L
E-28-1002-02A-LT Revision F	E26-1000-01A-FP	E26-1002-01A-FP

E-28-1002-04A-LT Revision H	E26-1000-02A-FP	E26-1002-02A-FP
E-28-1002-06A-LT Revision E	E26-1000-03A-FP	E26-1002-03A-FP
E28-100203A-LT Revision K	E26-1000-04A-FP	E26-1002-04A-FP
E28-1002-01A-LT Revision G	E26-1000-05A-FP	E26-1002-05A-FP
E26-1003-05A-FP	E30-1003-01A	E30-1003-02A-FP
E26-1003-01A-FP	E30-1003-05A	ASP-15PA-2
E26-1003-02A-FP	E26-1003-03A-FP	ASP-15WP-3
E26-1003-04A-FP	E30-1003-04A-FP	ASP-ABCT-WP-1
A21-1062, Revision H		

### **Safety Evaluations**

<u>Number</u>	<u>Description</u>	<u>Rev/Date</u>
Safety Evaluation #94-0043	Monthly Fire Protection Valve Lineup	August 22, 1994
Safety Evaluation #95-023	Fire Protection CO2 System Valve Position Check	March 23, 1995
Safety Evaluation	Fire Protection Stand-Pipe Hose Visual Inspection	August 4, 1994

### **References**

<u>Number</u>	<u>Description</u>	<u>Rev/Date</u>
SLICE Ver. 7.6	Clinton Power Station Cable Tabulations	----
UL Document	Fire Resistance Directory January, 1985	December 31, 1984
CPS USAR	Appendix F1, F3	September 1991
Student Handbook	Remote Shutdown LP85433-02	November 7, 1998
IPEEE	Individual Plant Examination for External Events	September 1995
NFPA-10	Portable Fire Extinguishers	1981
NFPA-12A	Halogenated Extinguishing Agent Systems Halon 1301	1973
NFPA-13	Installation of Sprinkler Systems	1978
NFPA-15	Water Spray Fixed Systems	1973
NFPA-72E	Automatic Fire Detectors	1974

<u>Number</u>	<u>Description</u>	<u>Rev/Date</u>
EPRI NP-7332	Design Guide for Fire Protection of Grouped Electrical Cables	May 1991
	Factory Mutual System Technical Advisory Bulletin - Cable Flammability	November 1989
S&L K-2856	S&L Technical Requirements - Equipment Fire Protection Systems	May 27, 1977
Pyrotronics Catalog # 6135	Addressable Ionization Fire/Smoke Detector - Model DI-X3	August 1982
Pyrotronics Catalog # 6119	Ionization Smoke Detector - Model DI-3 and DI-A3	February 1983

**Other Documents**

<u>Description</u>	<u>Rev/Date</u>
CPS Fire Protection Self-Assessment Report	January 25, 2002
CPS Triennial Fire Protection Assessment Report	August 27, 2001