October 2, 2001

Mr. Oliver D. Kingsley, President
and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION
NRC INSPECTION REPORT 50-461/01-11(DRS)

Dear Mr. Kingsley:

On September 20, 2001, the NRC completed an inspection at your Clinton Power Station. The enclosed report documents the inspection findings which were discussed on September 20, 2001, 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 design and performance capability of the shutdown service water and diesel-generator fuel oil and transfer systems to ensure they were capable of performing their required post-accident functions.

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).

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/

John M. Jacobson, Chief
Mechanical Engineering Branch
Division of Reactor Safety

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

Enclosure: Inspection Report 50-461/01-11(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
R. Krich, Director - Licensing
J. Skolds, Chief Operating Officer
C. Crane, Senior Vice President -
Mid-West Regional Operating Group
J. Benjamin, Vice President - Licensing
And Regulatory Affairs
H. Stanley, Operations Vice President
R. Helfrich, Senior Counsel, Nuclear
Mid-West Regional Operating Group
W. Illiff, Regulatory Assurance Manager
Document Control Desk-Licensing
Illinois Department of Nuclear Safety

Mr. Oliver D. Kingsley, President
and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION
NRC INSPECTION REPORT 50-461/01-11(DRS)

Dear Mr. Kingsley:

On September 20, 2001, the NRC completed an inspection at your Clinton Power Station. The enclosed report documents the inspection findings which were discussed on September 20, 2001, 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 design and performance capability of the shutdown service water and diesel-generator fuel oil and transfer systems to ensure they were capable of performing their required post-accident functions.

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).

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/
John M. Jacobson, Chief
Mechanical Engineering Branch
Division of Reactor Safety

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

Enclosure: Inspection Report 50-461/01-11(DRS)

See Attached Distribution

DOCUMENT NAME: C:\Program Files\Adobe\Acrobat 4.0\PDF Output\cli01-11drs.wpd
To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RIII		RIII		RIII			
NAME	MHolmberg:sd		CLipa		JJacobson			
DATE	09/28/01		10/02/01		10/02/01			

OFFICIAL RECORD COPY

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
R. Krich, Director - Licensing
J. Skolds, Chief Operating Officer
C. Crane, Senior Vice President -
Mid-West Regional Operating Group
J. Benjamin, Vice President - Licensing
And Regulatory Affairs
H. Stanley, Operations Vice President
R. Helfrich, Senior Counsel, Nuclear
Mid-West Regional Operating Group
W. Illiff, Regulatory Assurance Manager
Document Control Desk-Licensing
Illinois Department of Nuclear Safety

ADAMS Distribution:
AJM
DFT
JBH1
RidsNrrDipmIipb
GEG
HBC
PLL
C. Ariano (hard copy)
DRPIII
DRSIII
PLB1
JRK1

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-461
License Nos:	NPF-62
Report No:	50-461/01-11(DRS)
Licensee:	Exelon Generation Company, LLC
Facility:	Clinton Generating Station
Location:	Route 54 West Clinton, IL 61727
Dates:	August 27 through September 20, 2001
Inspectors:	M. Holmberg, Reactor Engineer P. Lougheed, Reactor Engineer J. Gavula, Reactor Engineer S. Sheldon, Reactor Engineer R. Winter, Reactor Engineer R. Cooney, Contract Engineer
Approved by:	John M. Jacobson, Chief Mechanical Engineering Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000461-01-11(DRS), on 08/27-09/20/2001, Exelon Generation Company LLC, Clinton Power Station. Safety System Design and Performance Capability Inspection.

This inspection was conducted by a team comprised of five region based engineers and a contract engineer. 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 violation.

A. Inspector Identified Findings

No findings of significance were identified.

B. Licensee Identified Findings

No findings of significance were identified.

Report Details

Summary of Plant Status

The plant operated near 100 percent power throughout the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R21 Safety System Design and Performance Capability

Introduction

As plants age, their design bases may be lost, such that an important design feature may be altered or disabled. The purpose of the safety system design and performance inspection is to verify that the design basis of the selected systems have been correctly implemented such that the systems can be relied on to meet functional requirements. This inspectable area verifies aspects of the mitigating systems and barrier integrity cornerstones for which there are no indicators to measure performance.

The objective of this safety system design and performance capability inspection was to assess the adequacy of calculations, analyses, other engineering documents, and operational and testing practices that were used to support the performance of the shutdown service water (SX) and diesel-generator fuel oil and transfer (DO) systems during normal, abnormal, and accident conditions.

The SX and DO systems were selected for this inspection, based upon:

- Having relatively high risk achievement worth and Fussel Vessely importance ranking in the Clinton Power Station probabilistic risk assessment
- Not having received recent NRC review
- Systems support many other safety related mitigating systems
- Systems complemented each other because both are needed to achieve safe shutdown in the event off-site power is lost

a. Inspection Scope

The team conducted walkdowns of the DO and SX systems, performed on-site review of system procedures, records, and interviewed licensee personnel.

The team's review focused on the following DO and SX system attributes:

- System Process Medium - water or fuel oil
- System Energy Source - electrical power
- System Control System - initiation, control, and shutdown actions
- Installed Configuration - elevation and flow path operation
- System Design - calculations and procedures
- Testing - flowrate, pressure, temperature, voltage, and current

The team's review included verification of component design (inputs/outputs), component testing and trending of component degradation for the following system components:

- DO system: the fuel oil storage tanks, the fuel oil day tanks, the fuel oil transfer pumps, the motor driven diesel generator fuel oil pumps, the electric diesel generator fuel oil pumps, and the diesel generators.

- SX system: the SX pumps, SX pump discharge strainers, emergency diesel generator heat exchangers, residual heat removal heat exchangers, and automatic motor operated valves used to realign the SX system.

The criteria used by the team to determine the acceptability of the system's performance included the applicable Technical Specification sections, applicable Updated Safety Analysis Report (USAR) sections and applicable system design specifications/ standards.

b. Findings

SX System Spent Fuel Pool Makeup Line Flow Function Not Confirmed

The USAR Section 9.2.1.2 states that the SX system is capable of providing makeup water to the suppression pool. Further, Section 9.1.3.3 states that the makeup SX flow to the spent fuel pool is 100 gallons per minute. However, the team identified that this function had not been demonstrated by calculation nor confirmed through surveillance activities such as periodic line flushing or flow testing. The team was concerned that silt or biological growth accumulating in the dead legs of the SX makeup lines could block the lines and prevent this system function. The licensee documented this issue in condition report 00073116 and initiated work orders 357520 and 357522 to perform radiographic examination of these lines to identify blockage. This issue is considered an unresolved item pending the licensee determination that the SX makeup lines for the spent fuel pool are functional (URI 50-461/01-11-01).

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The team performed an on-site review of self-assessments and condition reports associated with DO and SX system design issues to verify that the licensee had an appropriate threshold for identifying design issues adverse to quality. The team also evaluated the effectiveness of the corrective actions for design issues, including the engineering justification for operability, as applicable. The requirements of 10 CFR 50 Appendix B Criterion XVI "Corrective Action" were used by the team to determine the acceptability of these activities.

b. Findings

No findings of significance were identified.

4OA6 Meetings

Exit Meeting

The inspectors presented the inspection results to Mr. Heffley and other members of licensee management and staff at the conclusion of the inspection on September 20, 2001. The licensee acknowledged the information presented. No proprietary information was identified.

KEY POINTS OF CONTACT

Licensee

K. Baker, Senior Manager Design Engineering
C. Culp, Shutdown Service Water System Manager
C. Dieckmann, Shift Operations Superintendent
E. Halverson, Mechanical/Structural Design Engineering Supervisor
J. Heffley, Site Vice President
A. Ho, Diesel Generator Senior Engineer – Canterra
G. Hughes, Mechanical/Structural Design Engineer
J. Hunsicker, Instrumentation and Control Design Engineer
S. Lakebrink, Mechanical/Structural Design Engineering Supervisor (Acting)
M. McMenamin, Electrical Design Engineer
T. Mohammed, Electrical Design Engineer
M. Pacilio, Plant Manager
T. Parrent, Mechanical/Structural Design Engineer
R. Peak, Senior Manager Plant Engineering
E. Tiedemann, Senior Licensing Engineer
R. Weber, Design Engineering Project Engineer
M. Wilkinson, Electrical Design Engineering Supervisor (Acting)
J. Williams, Site Engineering Director

NRC

P. Louden, Senior Resident Inspector

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

50-461/01-11-01	URI	SX Spent Fuel Pool Makeup Line Flow Function Not Confirmed

Closed

None

Discussed

None

LIST OF ACRONYMS USED

ADAMS	Agency wide Documents Access and Management System
CFR	Code of Federal Regulations
DO	Diesel-Generator Fuel Oil and Transfer
DRS	Division of Reactor Safety
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OA	Other Activities
SX	Shutdown Service Water
URI	Unresolved Item
USAR	Updated Safety Analysis Report

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the inspection, including documents prepared by others for the licensee.

Calculations

19-AQ-02	Attachments 0.3 & 21 AC Voltage Calculation	Revision 4
19-D-27	Volume F, Attachment 12 DC Voltage Calculation	Revision 9
19-AK-02	LOCA Block Starting	Revision 12
19-AK-05	Diesel Generator Load Monitoring	Revision 5
19-AK-06	ELMS AC-Plus Load Flow Model	Revision 1
19-AQ-02	Evaluation of Voltages for LOCA Block Motor Start	Revision 4
19-AQ-02 attachment 21	Voltage at MOV Terminals at Degraded Voltage Setpoint	April 28, 2000
EAD-DG-01	Starting KVA During LOOP/LOCA for Diesel Generator 1A &1B Volumes B&C	Revision 2
IP-M-0241	Stem Torque Capability for GL 89-10 Butterfly Valves at Degraded Voltage Volume C	Revision 1
IP-M-0242	MOV Butterfly Valves Requirements Volume B	Revision 2
IP-M-0563	Determination of Allowable Leak Rate & Loss of UHS Volume From SX System	Revision 1
01DO006	Diesel Fuel Oil Storage Requirements	Revision 5
85-504	Diesel Generator Storage Tank Curves	August 1, 1985
85-0528	Independent Review of MAD 85-522	July 22, 1985
CI-01.00	Instrument Setpoint Calculation Methodology	Revision 2
CI-CPS-008	Instr. 1LY-DO001A Setpoint	Revision 5
CI-CPS-009	Instr. 1LY-DO001B Setpoint	Revision 5
CI-CPS-010	Instr. 1LY-DO004A Setpoint	Revision 5
CI-CPS-011	Instr. 1LY-DO004B Setpoint	Revision 5
CI-CPS-012	Instr. 1LY-DO008A Setpoint	Revision 5
CI-CPS-013	Instr. 1LY-DO008B Setpoint	Revision 5

CI-CPS-026	1PY-SX028 Setpoint	Revision 3
CI-CPS-027	1PY-SX030 Setpoint	Revision 3
CI-CPS-028	1PY-SX032 Setpoint	Revision 3
IP-C-0006	Diesel Fuel Oil Storage Tanks Div I, II, & III Tank Volume Calculation	Revision 0
IP-C-0012	Instrument Setpoint Calculation for Diesel Fuel Oil Storage Tank Level Div I	Revision 0
IP-C-0013	Instrument Setpoint Calculation for Diesel Fuel Oil Storage Tank Level Div III	Revision 0
IP-O-0108	Tech Spec. Indicator Loop Uncertainty Evaluation for Day Tank Volume SR 3.8.1.4, 3.8.2.1	Revision 0
IP-O-0121	Tech Spec Indicator Loop Uncertainty Evaluation for Fuel Oil Testing Program-Specific Gravity, SR 3.8.3.3	Revision 0
01DO3	Line Sizing Diesel Fuel Oil System	Revision 1
1188	Thermal Analysis for "CPK" Heat Exchanger 17084	August 2, 1990
75-464	Predicted Clinton Lake Temperature From Shutdown Service Water Discharge	Revision 0
IP-M-0354	Evaluation of Essential Service Water Pump Inservice Testing Acceptance Criteria from ATD-218 (i.e., Low Flows Due to Addition of Raw Water Treatment System)	Revision 0
IP-M-0499	Required Flow Rate of Shutdown Service Water to Residual Heat Removal Heat Exchanger under Normal Non-safety Operating Conditions	Revision 0
CMED-056026	Oil Storage Tank Under Sloshing Load Conditions	Revision 00A
IP-M-0133	Vortexing in Fuel Oil Storage Tank	Revision 0
IP-M-0336	Internal Flooding in the SX Pump Rooms and SX Tunnel with Div II Pump Room Hatch Cover Off	Revision 00
IP-M-0486	SX Flow Balance Acceptance Criteria	Revision 5
IP-M-0273	Verification of Water Hammer Assumption	Revision 02
IP-M-0542	Shutdown Service Water Piping Vibration Evaluation	Revision 0

IP-M-308	SX Pressure Transients for CR 1-93-05-011	Revision 00
IP-M-0457	Water Hammer Potential of SX System Division 3	Revision 0

Condition Reports Initiated as a Result of Inspection

74622	ASTM D2276-88 Compliance Review Incomplete
74203	SSDI Related, DO Fill line Cathodic Protection USAR Conflict
73009	SX Flow Balance Acceptance Criteria Calculation IP-M-0486
73116	No PM Exists to Flush SX to Spent Fuel Pool
73209	Inappropriate Assumption Used in 7 Day Fuel Oil Supply
73227	Calculation 065-017and 065-019 References are Incorrect
73234	Failure to Perform Evaluation Prior to Rescheduling
73602	No Calculation to Verify USAR Required Flow to Fuel Pool from SX
73608	DO Tank Loop Calibrations Less Frequent Than Setpoint Calculation
73729	PassPort Discrepancy on DG-1A Fuel Pump Fuse F9 Rating
73738	Portion of Diesel Fuel Oil System not Located in Vital Area
73775	9080.01 on Div 2 DG, Approved with Bad Acceptance Data
73873	Condition Report Not Generated in a Timely Manner
73952	Diesel Fuel Oil Sample Volume Requirements (ASTM D2276-88)
74006	SSDI- DO Flame Arrester Subject to Icing
74019	DO Fuel Tank Rooms at a Vacuum

74097	Sample From Middle of Fuel Oil Tank Not Defined in Procedure
74203	SSDI Related, DO Fill Lines Cathodic Protection USAR Conflict
74461	SSDI Base Calculation 19-AJ-74 Missed 95-SX2D and 95-SX2M
74622	ASTM D2276-88 Compliance Review Incomplete
74645	Inaccurate DO Day Tank Volume vs. Level Table
74516	Technical Specification Change re; DG Frequency
74882	Incomplete Technical Evaluation CR 2-01-03-201-VD Damper
74853	M15 Drawing Discrepancies
74887	Lost Design Input Documentation For Safety Related Calculation
75013	Performance of WO 23473/CPS 8751.05
75721	SX Water Hammer not Succinctly Articulated in Design Documents
75761	Spreadsheet Has One Value and NSED Instruction Has a Different Value
75647	Diesel Fuel Oil Sample Labeling Requirements of D270 Not Met
75826	Written to address the error in the calc

Condition Reports

2-00-02-100-01	Wrong Die Used to Crimp Lugs on Spare SX Motor
2-00-09-076	As Found Measurements Below Minimum Values Specified in CPS 2700.13 Calculation Attachment
48106-29	Processing Oil Samples Meeting
1-92-03-031	Div II Diesel Generator Fuel Oil Storage Tank Missing Internal Coatings
1-93-08-029	Div II Fuel Oil Storage Tank Out of Specification

1-99-03-096	Division 1 Diesel Generator Fail to Start Per 2802.00
1-99-03-097	Division 1 Diesel Generator Start Times per CPS 2802.00 Unacceptable
1-03-096	Division 2 Diesel Engine Pressure Switch Reset Time
1-98-02-453	Discrepancy between ORM and Schematic Diagram for 1SX014A/B/C
1-99-12-073	(CLB) Erroneous Information in USAR
2-01-03-016	1SX014C Failed to Stroke Full Shut During 9069.01 SX Pump Operability
2-01-04-085	Failure to Initiate an Operability Impact Review of a Cat A Instrument Failure
1-98-04-047	Lack of Flow Balance to Demonstrate Operability to All Shutdown Service Water Loads under Design Basis Accident Conditions
1-98-12-274	With Lake below 40°, Heat Exchanger Temperature Would Be Outside Allowable Operating Temperature Range
1-98-12-275	Use of Residual Heat Removal Heat Exchanger to Maintain Minimum Flow Conditions for Shutdown Service Water Pump
2-01-03-167	Excel Spreadsheet Calculated Different Uncertainty Allowable for Heat Exchanger Test Results
2-01-03-178	Proceduralized Temperature Limit Exceeded During the Performance of Several Diesel Generator Heat Exchanger Performance Tests
2-01-03-180	Unstable Test Conditions Invalidated Division 3 Diesel Generator Heat Exchanger Performance Test Performed in November 2000
2-01-03-186	Failure to Complete Calculation Revision Based on Engineering Evaluations
2-01-05-332	Diesel Fuel Oil Transfer Pump 1D001PB Flow in Alert Range
2-01-05-422	Biological Growth Within Safety Related Heat Exchanger

2-01-06-064	1D001PB Removed from Increased Surveillance Frequency Without Inservice Inspection Engineer Concurrence
2-00-06-093	SX Design Bases Calculation Leads to Wrong Conclusion
1-97-07-282	Repeat of Pressure Transients Div III SX

Completed Surveillance Tests

9281.05C001	Emergency Diesel Fuel Oil Storage Tank Cleaning Checklist	April 25, 1995
9061.06C007	Div 1 SX to Fuel Pool HX Valve Operability (SX in service) Checklist	November2, 2000
9061.06C008	Div 1 Fuel Pool Makeup Valve Operability (SX in service) Checklist Review Sheet	November 2, 2000
9843.02	Generic Class 2 and 3 Operational Pressure Test Data Sheet (DO-CB-310)	November 29, 1996
9843.02	Generic Class 2 and 3 Operational Pressure Test Data Sheet (DO-CB-210)	September 19, 1996
9843.02	Generic Class 2 and 3 Operational Pressure Test Data Sheet (DO-CB-110)	September 13, 1996
9080.01	Diesel Generator 1A (1B) Operability	July 30, 2001
9080.01	Diesel Generator 1A (1B) Operability	August 8, 2001
9080.02	Diesel Generator 1C Operability	August 1, 2001
9080.12	Diesel Generator Fuel Oil Transfer Pump Operability	July 26, 2001
9080.12	Diesel Generator Fuel Oil Transfer Pump Operability (Div III)	May 29, 2001
9080.23	Diesel Generator Division 3 Operability	October 24, 2000
9061.04	SX Initiation Due to LOCA	November 4, 2000
9080.21D001	ECCS Integrated Test	October 20, 2000
8751.05	SX Strainer High D/P Verification	January 26, 2001
8751.05A20	SX Strainer High D/P Verification	March 12, 2001
9051.02	HPCS Valve Operability Test	May 30, 2001

9061.04	Containment/Drywell Isolation Auto Actuation	November 4, 2000
9069.01	Shutdown Service Water Operability Test	March 13, 1999
9069.01	Shutdown Service Water Operability Test	November 21, 2000
9069.01	Shutdown Service Water Operability Test	January 26, 2001
9069.01	Shutdown Service Water Operability Test	March 1, 2001
9069.01	Shutdown Service Water Operability Test	March 3, 2001
9069.01	Shutdown Service Water Operability Test	May 31, 2001
9069.01	Shutdown Service Water Operability Test	June 14, 2001
9080.12	Diesel Generator Fuel Oil Transfer Pump Operability	July 26, 2001
9080.23	Diesel Generator 1C - ECCS Integrated	October 24, 2000
9861.09	Leakage Test on Valve 1SX014A	October 19, 2000
9861.09	Leakage Test on Valve 1SX014B	October 24, 2000
9861.09D011	Leakage Test on Valve 1SX014C	October 21, 2000
9080.12	Diesel Generator Fuel Oil Transfer Pump Operability Division I Pump Baseline	October 11, 1995
9080.12	Diesel Generator Fuel Oil Transfer Pump Operability Division II Pump Baseline	October 18, 1995
9080.12	Diesel Generator Fuel Oil Transfer Pump Operability	July 26, 2001
9069.01	SX System Operability Data Sheet	June 14, 2001
9069.01	SX System Operability Data Sheet	July 27, 2001
9069.01	SX System Operability Data Sheet	August 27, 2001

Design Changes

ECN 29092	Amended Coating System CS-1000	Revision 0
ECN 30250	Diesel Generator Air Start System	August 1, 1997
ECN 31555	Division 1 Voltage Regulator	April 15, 1999
ECN 32363	Install Syncheck Relay for Division 1 DG Output Breaker	February 14, 2001
ECN 31055	SX Valves OL Bypass Relay	November 5, 1996

ECN 31162	System SX, RS&AP Improve Supply Voltage	January 22, 1999
ECN 31388	Division 3 Diesel Generator Frequency Meter	January 22, 1999
DOF001	To Correct Seismic Classification of Flex Connections on Diesel Skid	November 11, 1988
DOF002	Revision to the Fuel Oil Transfer Pump Low Level Settings	November 10, 1990
ECN 9170	Add Provisions for Division 2 Remote Shutdown	May 24, 1988
ECN 9654	Provide Additional Margin to DG Fuel Day Tank Levels	October 8, 1990
ECN 27821	Change Seismic Classification of Instrument	April 23, 1993
ECN 29448	Relocate SX Taps	November 25, 1995
ECN 30881	Timing Relay Calibration Revision	August 24, 1998
FECN 27244	Revised Fuel Oil Specific Gravity	November 31, 1992
SX-013	Reverse Direction of SX/WS Crosstie Valves - Canceled	June 22, 1987
29249	Revise Essential Service Water Flow Through Residual Heat Removal Heat Exchanger as Result of Installing Water Treatment System	September 27, 1995
30860	Install New Orifice in Essential Service Water System So That Essential Service Water Flow Through the Residual Heat Removal Heat Exchanger Can Be Returned to Original Value	August 21, 1998
31650	Document Change of Residual Heat Removal Flow Rate From 5050 to 4550 Gallons Per Minute	May 19, 2000
DG025	Allow up to 30 Tubes (9%) of Division III Heat Exchanger to Be Plugged	Revision 0
DG042	Determine Limit of Tube Plugging Allowed on Division I & II	Revision 0
ECN 9525	Add Vacuum Breaker Valves	June 13, 1990
ECN 31092	Modify 1SX01 By Adding Orifice on Div 1 Strainer	November 6, 1998
ECN 31405	SX System Logic Change to Establish An Alternate Minimum Flow Path	February 18, 1999
ECN 30903	Install Orifice in SX/RHR Bypass Line	August 19, 1998

Drawings

61090	Unit 1 Emergency Diesel Generator Material List	Revision H
E02-1DG99	DC schematic Emergency Diesel Generator	Revision L
E03-1PL12JB	Diesel Generator 1B Control Panel 1PL12JB	Revision H
E02-1DG99, sh 004	DG 1A Circ Oil Pumps & Turbo Soakback Pumps	Revision M
E02-1DG99, sh 005	DG 1A Immersion Heater HI & HIA	Revision H
E02-1HP99	HPCI Div III Diesel Generator (1E22-S001A)	Revision G
E02-1HP99	HPCI Div III DG CT/PT Cubicle (1E22-S001C)	Revision J
E02-1E22-S001A	Div III Diesel Generator Skid (1E22-S001A)	Revision M
E02-1E22-S001B	Div III Diesel Gen Control Panel (1E22-S001A)	Revision F
M06-1036	Diesel Generator Fuel Oil Piping	Revision M
M07-1036	Diesel Generator Fuel Oil Piping 2" and Under	Revision AC
D-77-265	Diesel Generator Oil Storage Tank	Revision 7
D-77-267	Diesel Generator Fuel Oil Day Tank	Revision 5
E02-1SX99 sh 001	Shutdown Service Water Pump 1A	Revision AC
E02-1SX99 sh 002	Shutdown Service Water Pump 1B	Revision Z
E02-1SX99 sh 003	Shutdown Service Water Pump 1C	Revision W
E02-1SX99 sh 004	SSW Strainer 1A Basket Motor 1A	Revision V
E02-1SX99 sh 005	SSW Strainer 1B Basket Motor 1B	Revision M
E02-1SX99 sh 006	SSW Strainer 1C Basket Motor 1C	Revision M
E02-1SX99 sh 007	SSW Strainer 1A Inlet Valve 1SX003A	Revision M
E02-1SX99 sh 008	SSW Strainer 1A Bypass Valve 1SX008A	Revision P

E02-1SX99 sh 009	SSW Strainer 1B Inlet Valve 1SX003B	Revision H
E02-1SX99 sh 010	SSW Strainer 1B Bypass Valve 1SX008B	Revision J
E02-1SX99 sh 011	SSW Strainer 1C Inlet Valve 1SX003C	Revision G
E02-1SX99 sh 012	SSW Strainer 1C Bypass Valve 1SX008C	Revision G
E02-1SX99 sh 013	DG 1A Heat Exchanger Outlet Valve 1SX063A	Revision Z
E02-1SX99 sh 014 DG 1B	Heat Exchanger Outlet Valve 1SX063B	Revision P
E02-1SX99 sh 016	SSW System 1A Isolation Valve 1SX014A	Revision U
E02-1SX99 sh 017	SSW System 1B Isolation Valve 1SX014B	Revision R
E02-1SX99 sh 018	SSW System 1C Isolation Valve 1SX014C	Revision F
E02-1SX99 sh 019	SSW Division 1 Cross Tie Valve 1SX011A	Revision T
E02-1SX99 sh 020	SSW Division 2 Cross Tie Valve 1SX011B	Revision J
E02-1SX99 sh 028	SSW Division 1 MOV Overload Indications & Bypass Relays	Revision T
E02-1LV99 sh 009	120 volt Aux Power Feeds to Panel 1H13-PB51	Revision P
E02-1LV99 sh 013	120 volt Aux Power Feeds to Panel 1H13 –PB61	Revision N
E02-1VH99 sh 001	SSW Pump 1A Supply Fan	Revision Y
E02-1VH99 sh 002	SSW Pump 1B Supply Fan	Revision Z
E02-1VH99 sh 003	SSW Pump 1C Supply Fan	Revision V
E02-1DO99 sh 001	Diesel Generator Fuel Oil Transfer Pump 1A	Revision S

E02-1DO99 sh 002	Diesel Generator Fuel Oil Transfer Pump 1B	Revision L
E02-1D099 sh 005	Diesel Generator Fuel Oil Transfer Pump 1C	Revision G
M15-1036 sh 1	Diesel Fuel Oil	Revision C
M15-1036 sh 2	Diesel Fuel Oil	Revision A
M15-1052 sh 1	Shutdown Service Water System	Revision E
M15-1052 sh 2	Shutdown Service Water System	Revision C
M15-1052 sh 3	Shutdown Service Water System	Revision G
M15-1052 sh 4	Shutdown Service Water System	Revision H
M15-1052 sh 5	Shutdown Service Water System	Revision E
M15-1052 sh 6	Shutdown Service Water System	Revision D
M15-1052 sh 7	Shutdown Service Water System	Revision C
M15-1068 sh 1	Remote Shutdown System	Revision D
M15-1068 sh 2	Remote Shutdown System	Revision B
M15-1068 sh 3	Remote Shutdown System	Revision D
AE-CLT6-1DO001	Diesel Generator Day Tank 1DG01TA Level	Revision 0
AE-CLT6-1DO004	Diesel Generator Day Tank 1DG01TB Level	Revision 0
AE-CLT6-1DO008	Diesel Generator Day Tank 1DG01TC Level	Revision 0
AE-CLT6-1DO011	Diesel Generator Fuel Oil Storage Tank 1DG01TA Level	Revision 0
AE-CLT6-1DO012	Diesel Generator Fuel Oil Storage Tank 1DG01TB Level	Revision 0
AE-CLT6-1DO013	Diesel Generator Fuel Oil Storage Tank 1DG01TB Level	Revision 0
E02-1RS99 sh 2	Remote Shutdown System (RS) Transfer Switches - Part 2	Revision G
E02-1RS99 sh. 4	Remote Shutdown System (RS) Transfer Switches - Part 4	Revision E
E02-1AP01 sh 1	Single Line Diagram Part 1	Revision N
E02-1AP01 sh 2	Single Line Diagram Part 2	Revision C
E02-1AP01 sh 3	Single Line Diagram Part 3	Revision C

E02-1AP01 sh 4	Single Line Diagram Part 4	Revision H
E02-1AP01 sh 5	Single Line Diagram Part 5	Revision G
E02-1SX99 sh 1	Shutdown Service Water Pump 1A	Revision AC
E02-1SX99 sh 2	Shutdown Service Water Pump 1B	Revision Z
E02-1SX99 sh 3	Shutdown Service Water Pump 1C	Revision W
E02-1SX99 sh 4	SSW Strainer 1A Basket Motor 1A	Revision V
E02-1SX99 sh 5	SSW Strainer 1B Basket Motor 1B	Revision M
E02-1SX99 sh 7	SSW Strainer 1A Inlet Valve 1SX003A	Revision M
E02-1SX99 SH. 8	SSW Strainer 1A Bypass Valve 1SX008A & Backwash Valve 1SX013D	Revision P
E02-1SX99 sh 15	DG 1C Heat Exchanger Outlet Valve 1SX006C	Revision J
E02-1SX99 sh 16	SSW System 1A Isolation Valve 1SX014A SSW Containment Isolation Valve 1SX097A	Revision U
E02-1SX99 sh 17	SSW System 1B Isolation Valve 1SX014B SSW Containment O.B. Isol. Vlv. (1SX097B)(2E)	Revision R
E02-1SX99 sh 18	SSW System 1C Isolation Valve 1SX014C	Revision F
E02-1SX99 sh 28	Div. 1 MOV Overload Indications & Bypass Relays	Revision T
E02-1SX99 sh 30	Div. 3 MOV Overload Ind. & Bypass Relays	Revision S
E02-1SX99 sh 47	Division 1 & 2 Service Not Available Alarms & Indications	Revision Y
E03-1PL64J	HPCS Pump Room Panel 1 PL64J	Revision N
DO-01	Instrument Setpoint Log	Revision D
LI002	Instrument Data Sheet	Revision K
LI011	Instrument Data Sheet	Revision K
LI012	Instrument Data Sheet	Revision J
M10-9036 sh 1	C&ID Diesel Fuel Oil (DO) (& Transfer)	Revision C
M10-9036 sh 2	C&ID Diesel Fuel Oil (DO) (& Transfer)	Revision E
M10-9052 sh 1	C&ID Shut-Down Service Water System (SX)	Revision D
M10-9052 sh 2	C&ID Shut-Down Service Water System (SX)	Revision A
M10-9052 sh 3	C&ID Shut-Down Service Water System (SX)	Revision C

M15-1052 sh 1	Logic Diagrams Shutdown Service Water	Revision E
M15-1052 sh 3	Logic Diagrams Shutdown Service Water	Revision G
M15-1052 sh 5	Logic Diagrams Shutdown Service Water	Revision E
M15-1052 sh 6	Logic Diagrams Shutdown Service Water	Revision D
M15-1068 sh 1	Logic Diagrams Remote Shutdown System	Revision D
M15-1068 sh 2	Logic Diagrams Remote Shutdown System	Revision B
M15-1068 sh 3	Logic Diagrams Remote Shutdown System	Revision D
SC822A	Instrument Data Sheet	Revision K
SC852A	Instrument Data Sheet	Revision L
SC862A	Instrument Data Sheet	Revision K
5-046-17-084-003	Division III Diesel Generator Jacket Water Cooler "CPK" Exchanger	Revision A
DO-756, sh 1	Diesel Generator Fuel Oil Isometric, Division II	Revision 20
DO-756, sh 2	Diesel Generator Fuel Oil Isometric, Division II	Revision 1
DO-757	Diesel Generator Fuel Oil Isometric, Division II	Revision 17
DO-758	Diesel Generator Fuel Oil Isometric, Division II	Revision 15
M05-1036, sh 1	P&ID Diesel Generator Fuel Oil System	Revision S
M05-1036, sh 2	P&ID Diesel Generator Fuel Oil System	Revision T
M05-1052, sh 1	P&ID Shutdown Service Water	Revision AF
M05-1052, sh 2	P&ID Shutdown Service Water	Revision AG
40097	R.P. Adams Co. 8"VWS-NS 200# Strainer	Revision 6
40075	R.P. Adams Co. 30" Strainer 200# ASME III	Revision 6
MSK-RWTP SX	Shutdown Service Water Flow Balance Div 1	Revision 0
2E-2548	Byron Jackson Outline 37KXL 2 STG VLT	Revision D
SX-26	Southwest Fabricators Isometric	9H

Other Documents

	Safety Design and Functional Validation 1998 System SX	5/13/1998

Field Observation Report 2000-030-011	Lugging Motor Leads for Div II Replacement SX Pump Motor	
Field Observation Report 2000-010-027	Division 2 SX Flow Balance	
Field Observation Report 2000-020-004	CR 02-00-01-150 Disposition	
Field Observation Report 2001-030-020	Maintenance Activities on Div 1 Diesel Generator, Shutdown Service Water and Standby Gas Treatment	
Field Observation Report PS-007	Sampling and Analysis of Diesel Fuel Oil, Reactor Water and Feedwater Metals	
NRC IN 89-50	Inadequate Emergency Diesel Generator Fuel Supply	May 30, 1989
NRC IN 94-19	Emergency Diesel Generator Vulnerability to Failure from Cold Fuel Oil	March 16, 1994
NRC IN 91-46	Degradation of Emergency Diesel Generator Fuel Oil delivery Systems	July 18, 1991
NRC IN 91-34	Potential Problems in Identifying Causes of Emergency Diesel Generator Malfunctions	June 3, 1991
LER 46199001	SX Pump 1A & 1B Guide Bearing	
LER 200100100	Diesel Generator Division 2 Bearing	
LER 2000-002-01	Out of Phase Synchronization of Division 3 Diesel Generator	
Memorandum	Diesel Generator Trend Data	
Memorandum	Stored Fuel Particulate 1/1/96-6/3/01	
Memorandum	DG 1A Lube Oil Pressure 7/95-7/01	
Memorandum	DG 1A Fuel Oil Pressure 7/95-7/01	
Memorandum	DG 1A Jacket Water Temperature 7/95-7/01	
Memorandum	DG 1A Starting Time 8/95-2/01	

1-99-02-077-OD-1 95	Relays Not In Circuit When Valve Is Considered Operable	
92E2	Barton Model 227A Differential Pressure Indicator	1992
MAN 4302	Model 1153 Series B Alphaline Pressure Transmitter for Nuclear Service	May 1993
	Diesel Oil Room Differential Pressure Data	August 30, 2001
EB-LH1-99010	Revision to Containment Spray Cooling Delay Evaluation Letter Report	February 3, 1999
GENE-E12-00145-23-1	Clinton Residual Heat Removal Heat Exchanger Minimum Design Temperature Evaluation Closure	February 3, 1999
332066	Division II Diesel Generator Jacket Water Cooler Data and Performance Evaluation 1DG11AB, 12 Cylinder	Revision 0
332133	Division II Diesel Generator Jacket Water Cooler Data and Performance Evaluation 1DG12AB, 16 Cylinder	Revision 0
CPS 2700.19	Division III Diesel Generator Jacket Water Cooler Data and Performance Evaluation 1DG13A, 16 Cylinder	Revision 1
EE-00-007	Residual Heat Removal Heat Exchangers - Division II Data and Performance Evaluation 1E12-B001B	Revision 0
EE-00-018	Residual Heat Removal Heat Exchangers - Division II Data and Performance Evaluation 1E12-B001A	Revision 0
EE-00-079	Division I Diesel Generator Jacket Water Cooler Data and Performance Evaluation 1DG11AA, 12 Cylinder	Revision 0
EE-00-080	Division I Diesel Generator Jacket Water Cooler Data and Performance Evaluation 1DG12AA, 16 Cylinder	Revision 0
HPP-DO-01	Diesel Generator 1A Fuel Oil System	Revision 2
SLMI-24455	Evaluation of Sensitivity of the Shutdown Service Water System to Waterhammer	February 1, 1993
SLMI-23721	SX Water Hammer	June 14, 1990
Y-102490	SX Div I and III Transient Testing	July 9, 1993

Procedures

3506.01	Diesel Generator Operations	Revision 27b
3317.01	Fuel Pool Cooling and Cleanup System	Revision 20e
4411.03	RHR Injection/Flooding Flow Paths	Revision 6
9080.12	Diesel Generator Fuel Oil Transfer Pump Operability	Revision 31b
OP-CL-101-301-1001	General Operating Requirements	Revision 0
D-77-265	Diesel Generator Oil Storage Tank	Revision 7
D-77-267	Diesel Generator Fuel Oil Day Tank	Revision 5
8801.01	Instrument Calibration	Revision 12d
8801.02	Loop Calibration	Revision 11c

Safety Evaluations

1-98-02-376	Acceptance Criteria for Leakage of SX valves 1SX014 A/B/C	Revision 0
1005.06F003	ECN 31406 - SX Valve Control Circuit Changes	Revision 0
98-134	Normal Operation with Residual Heat Removal Heat Exchanger Service Water Inlet and Outlet Valves Open	Revision 0
99-001	Residual Heat Removal Heat Exchanger Shell Side Temperature Range	Revision 0

Specifications & Vendor Manuals

DC-SX-01-CP	Shutdown Service Water System Design Criteria Clinton Power Station - Unit 1 Illinois Power Company	Revision 6
DC-DO-01-CP	Diesel Fuel Oil Storage and Transfer System Design Criteria Clinton Power Station - Unit 1 Illinois Power Company	Revision 5
K-2895	Field Coating Work Clinton Power Station-Unit 1 Illinois Power Company	6/27/1978

K-2838B	Field Erected Tanks (Quality Group Classification D) Clinton Power Station Units 1 and 2 Illinois Power Company	5/27/1992
Vendor Manual K2861-0002A	Diesel Generator System Components	Section 7 & 11, various dates
CBI Report 73011	Safety Related Dynamic Qualification of Diesel Fuel Oil Storage Tank 001TA and 001TB	1/23/1989
Vendor Information Sheet	Rust -Ban EX 5704 and EX 5705 Interline 850	Faxed 8/29/2001
DC-DO-01-CP	Diesel Fuel Oil Storage and Transfer System	Revision 5
65-019	Specifications and Acceptance Criteria for Residual Heat Removal and Diesel Generator Heat Exchanger Tests	September 1,1998
DC-ME-09-CP	Equipment Environmental Design Conditions	Revision 11
DO55-MCC-7601A	Pump Performance Curve for Fuel Oil Transfer Pump 1DO01PA	June 12, 1980
DO55-MCC-7601B	Pump Performance Curve for Fuel Oil Transfer Pump 1DO01PB	June 12, 1980
DO55-MCC-7601C	Pump Performance Curve for Fuel Oil Transfer Pump 1DO01PC	June 12, 1980
21A9425AL	Residual Heat Removal Heat Exchanger Purchase Specification Data Sheet	Revision 0
22A3139	Residual Heat Removal Design Specification	Revision 6
22A3139AN	Residual Heat Removal Design Specification Data Sheet	Revision 17
22A4206	Residual Heat Removal Heat Exchanger Design Specification	Revision 1
22A4206AL	Residual Heat Removal Heat Exchanger Design Specification Post-accident Suppression Pool Cooling Requirements	Revision 3
C63287	Diesel Generator Heat Exchanger Specification Data Sheet, 12 Cylinder Engine, Division I and II	Revision 1
C63288	Diesel Generator Heat Exchanger Specification Data Sheet, 16 Cylinder Engine, Division I and II	Revision 1
ECN 31050, PAGE 4	Diesel Generator Heat Exchanger Specification Data Sheet, 16 Cylinder Engine, Division III	Revision 1

K2841-0001	Graph of Division I, II, and III Day Tank: Gallons versus Gauge	August 13, 1986
MPR-065-019-1	Specification for Residual Heat Removal Heat Exchanger Test	Revision 2
GEK-83438	Residual Heat Removal System Heat Exchangers Operation and Maintenance Instructions	September 1993

Standards, Guides, and Codes

ANSI N195-1976	Fuel Oil Systems for Standby Diesel Generators
Regulatory Guide 1.137	Fuel Oil Systems for Standby Diesel Generators
ASTM D2274-94	Standard Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)
ASTM D975-89	Standard Specification for Diesel Fuel Oils
ASTM D2276-88	Standard Test Method for Particulate Contamination in Aviation Fuel
ASTM D270-65 (Reapproved 1975)	Standard Method of Sampling Petroleum and Petroleum Products

System Descriptions

	System Description for Shutdown Service Water System	Revision 4
	System Description for Diesel Generators (DG)	Revision 3
	Residual Heat Removal	Revision 5

Technical Specifications

5.5.9	Diesel Fuel Oil Testing Program	Amendment No. 95
3.8.3	Diesel Fuel Oil, Lube Oil, and Starting Air	Amendment No. 95
3.8.1	AC Sources- Operating	Amendment No. 95
3.8.2	AC Sources- Shutdown	Amendment No. 99

3.7.1	Division 1 and 2 Shutdown Service Water (SX) Subsystems and Ultimate Heat Sink (UHS)	Amendment No. 95
3.7.2	Division 3 Shutdown Service Water (SX) Subsystem	Amendment No. 95

Work Orders

D25351	Clean, Inspect, Repair DO Tank Coating for Tank 1D001TA	April 20, 1995
000214646	OP Flush SX to RHR Cross Tie Line	August 22, 2001
523001	Clean & Inspect Flame Arrester 1DG01TA	March 13, 1998
523001	Clean & Inspect Flame Arrester 1D008MB	July 31, 1998
523001	Clean & Inspect Flame Arrester Div III Diesel Generator Day Tank	July 30, 2001
00019018	Disassemble, Inspect, Clean 1D008MB Flame Arrester	July 30, 2001
00019016	Disassemble, Inspect, Clean Div III Diesel Generator Fuel Oil Storage Tank Flame Arrester	July 30, 2001
00211143 01	CI Perform Calibration (8801.01)	March 12, 2001
00211145 01	Perform Loop Calibration (8801.02)	January 17, 2001
00211228 01	DG Fuel Oil 1B Level Loop Calibration	January 16, 2001
PMMDGM019	Change Fuel Pump Coupling	May 15, 1998
PEMDGA021	Clean & Inspect Fuel Prime Motor/Starters	August 16, 2001
PMMDGM043	Replace Fuel Pump	September 26, 1991
PCIDOM007	Div I DG Day Tank Level Indication	August 16, 2000
PCIDOM008	Div II DG Day Tank Level Indication	January 17, 2001
PCIDOM010	Div III DG Day Tank Level Indicator	November 28, 2000
PCIDOM500	Div I DG Fuel Oil Storage Tk 1A Level Transmitter	August 16, 2000
PCIDOM501	Fuel Oil Storage Tank 1B Level Loop	January 17, 2001
PCIDOM502	Div I DG Day Tank Level Transmitter	August 16, 2000
PCIDOM503	DG Day Tank 1B Level Loop	January 17, 2001
PCIDOM504	DG Day Tank 1C Level Loop	January 28, 2001

PCIDOM505	DG Fuel Oil Storage Tank 1C Level Loop	October 26, 1999

Updated Final Safety Analysis Report Sections

9.2.1.2	Shutdown Service Water System	Revision 8
9.5.4	Diesel Generator Fuel Oil Storage and Transfer System	Revision 7
Figure 3.6-1 Sheet 42 or 111	Divisional Separation and High Energy P&ID's- Diesel Generator Fuel Oil System	Revision 2
9.5.5	Diesel Generator Cooling Water System	Revision 5

LIST OF DOCUMENTS REQUESTED

Please provide a copy of the following records for on-site NRC review at Clinton Power Station by August 27, 2001, to support the NRC Safety System Design Team Inspection.

Diesel Generator fuel Oil Storage Tanks
- Design Specification documents for diesel fuel oil storage tanks (S. Sheldon)
- Installation and elevation drawings for tanks and tank level instruments (S. Sheldon)
- Latest maintenance and calibration procedure and work order for tank level instrumentation (S. Sheldon)
- Calculations

01DO06	Diesel Fuel Oil Storage Requirements (S. Sheldon).
01DO03	Line Sizing Diesel Fuel Oil System (S. Sheldon).
IP-C-0013	Instrument Setpoint Calculation for Diesel Fuel Oil Storage Tank Level Div II (S. Sheldon).
IP-M-0133	Vortexing in Fuel Oil Storage Tank (S. Sheldon).

017142, Equipment nozzle load diesel generator fuel oil storage tank 1DO01TA/B/C (Gavula).
Seismic analysis of fuel oil day tanks and storage tanks. This may include calc 028115, Seismic analysis of fuel oil tank per NCMR #1-1194 (Gavula).
056026, Evaluation of diesel fuel oil storage tank under sloshing load conditions (Gavula).
300095, Fuel oil tank (Gavula).

- Modifications

FECN 24963	Revised Trip Unit Scale Ranges... (S. Sheldon).
FECN 27244	Changes the DG Fuel Oil Specific Gravity... (S. Sheldon).

ECN 29092 and/or others) and completed work order which modified or installed new diesel fuel oil storage tank coatings (M. Holmberg).
- Documents which qualified the temperature ranges and service life for each type of internal coating used in the DO system (Holmberg).
- Condition Report and corrective actions documented for failed fuel oil storage tank coatings (Holmberg).
- Work order documenting the last preventative maintenance inspection and cleaning for the division 1 fuel oil storage tank (M. Holmberg).
- Latest completed tests confirming fuel oil quality and any trend data or suitability evaluations done related to changes in fuel oil vendors or specifications (FECN 27244) (Holmberg).
- Standards ASTM D975, ASTM-D2276, ASTM-D2274 and ANSI N195 (Holmberg).
- Most recent completed surveillance tests for the division 1 fuel oil storage tank including the last periodic pressure test (Holmberg).
-Condition Reports: 2-01-07-107-0 (Holmberg), 2-01-06-064-0(Holmberg), 2-01-05-332-0 (Gavula), 2-01-04-085(Sheldon), 1-99-12-073 -OE (Sheldon), 1-99-03-281-OE (Winter), 1-97-10-363-OE (Winter)
- Pre-operational tests - HTP-DO-01 (Holmberg), PTP-DG/DO-01 (Cooney).

Diesel Generator Fuel Oil Day Tanks
- Design Specification documents for diesel fuel oil day tanks (S. Sheldon)
- Installation and elevation drawings for day tanks and tank level instruments (S. Sheldon)
- Calculations:

CI-CPS-011 Setpoint Calculation for Instrument 1LY-DO004B (S. Sheldon).
IP-O-0108 TS Indicator Loop Uncertainty - Volume (S. Sheldon).
IP-O-0121 TS Indicator Loop Uncertainty - Specific Gravity (S. Sheldon).

- Modifications:
  ECN 9654 Allow additional Margin to DG Fuel Day Tank Level (S. Sheldon).
  FALT DOF002 Instrument Setpoint Change... (S. Sheldon).
  FALT DOF001 No Title (S. Sheldon).
- Condition Report(s) and corrective actions documented for failed fuel oil day tank coatings - if any (Holmberg).

Diesel Generator Fuel Oil Transfer Pumps
- Calculation 01D003 (Lougheed).
- Calculations supporting the total dynamic head value for fuel oil pumps described in USAR Table 9.5-1 (Lougheed).
- Condition Reports 2-01-05-332 &2-01-06-064 (Lougheed).
- Isometrics of Diesel Fuel Oil System (Lougheed).
- Pump Curves (if not previously provided) (Lougheed).
- Preventative Maintenance schedule for for Fuel Oil Transfer Pumps (Winter)
- Most recent completed Work Order for Corrective Action or Preventative Maintenance on Fuel Oil Transfer Pumps (Winter).
- Most recent surveillance test on actuation instruments and circuits for Fuel Oil Transfer Pumps (Winter).

Fuel Oil System Filters & Strainers
- Preventative Maintenance schedule for fuel oil system filters and strainers (Winter).

Diesel Driven Fuel Oil Pumps
- Design specification documents for the Diesel Driven Fuel Oil Pumps (Winter).
- Vendor Manual for Diesel Driven Fuel Oil Pumps (Winter).
- Preventative Maintenance schedule for Diesel Driven Fuel Oil Pumps (Winter).
- Most recent completed Work Order for Corrective Action and Preventative maintenance activities for the Diesel Driven Fuel Oil Pumps (Winter).
- Most recent completed Technical Specification Surveillance Test covering Diesel Driven Fuel Oil Pumps (Winter).
- Most recent surveillance testing on actuation instruments and circuits for Diesel Driven Fuel Oil Pumps (Winter).
- Calculations of required and available NPSH for Diesel Driven Fuel Oil Pumps (Winter).
- Most recent Inservice Tests on Diesel Driven Fuel Oil Pumps including trend data (Winter).

DC Motor Driven Fuel Oil Pumps
- Design specification for DC Motor Fuel Oil Pumps (Winter).
- Vendor Manual for DC Motor Fuel Oil Pumps (Winter).
- Preventative Maintenance schedule for DC Motor Fuel Oil Pumps (Winter).
- Most recent completed Work Order for Corrective Action or Preventative Maintenance on the DC Motor Fuel Oil Pumps (Winter).
- Most recently completed Technical Specification Surveillance Test covering DC Motor Fuel Oil Pumps (Winter).
- Calculation(s) establishing required and available NPSH for DC Motor Fuel Oil Pumps (Winter).

- Most recent surveillance tests on actuation instruments and circuits for DC Motor Fuel Oil Pumps (Winter).
- Most recent Inservice Tests of DC Motor Fuel Oil Pumps including trend data (Winter).

Emergency Diesel Generator
- EDG Design Specification and Vendor Manual Div 1(Cooney).
- Latest completed Technical Specification surveillance test that show the ability of carrying full load (SR 3.8.1.3) and related EDG surveillance tests (Cooney).
- Preventative maintenance schedule and copy of work orders documenting recently completed activities on the EDGs (Cooney).
- Work order for last corrective maintenance on EDG output breaker (Cooney).
Diesel generator trending data (Cooney).
- Calculations:
    19-AK-02 LOCA Block Starting latest rev (Cooney).
    19-AK-05 Diesel Generator Load Monitoring (Cooney).
    19-AK-06 Aux Power System Analysis down to and including 120 volt system under degraded voltage conditions (Cooney).
    19-AQ-08 Starting time for Div 3 SX pump at non rated voltage (Cooney).
    EAD-DG-1 Starting KVA during LOOP and LOCA (Cooney).
    Calculation(s) of EDG fuel consumption rates with maximum post accident loads updated to reflect current equipment loading and operating times which were used to establish minimum volume requirements for fuel oil storage tanks and day tank (Holmberg).
-Modifications:
    ECN 29095 Div 3 DG repair (Cooney).
    ECN 31555 Issued to establish steady state voltage range (Cooney).
    ECN 32363 Install a new Synchrocheck Relay (Cooney).

(SX) Motor Operated Valves Functioning Automatically to Realign System (1SX014A, B & C, 1SX010A &B, 1SX006C, 1SX041A&B)
- Vendor information on valves listed above (S. Sheldon).
- Latest surveillance/IST test results confirming safety function and operability of these valves (S. Sheldon).
- Modifications:
    ECN 27821 Revise Instrument Classification to Non-Seismic (S. Sheldon)
    ECN 29448 Relocate SX Taps (S. Sheldon)
    ECN 30881 Revise 1SX01PA Timing Relay Calibration Data (S. Sheldon)
    Any other mods on the listed valves or their operators (S. Sheldon)
    ECN 30881 Revise 1SX01PA Timing Relay Calibration Dats (Cooney).
    ECN 32119 & ECN 31957 Install 1SX01PA Motor (Cooney).
    ECN 30708 replace motor for MOV 1SX014A (CR 1-98-09-292) (Cooney).
    AP033 & AP034 EC N31405 & 31406 Degraded Voltage (Cooney).
- Calculations:
    IP-M-0399 Differential Pressure Calculation for Select SX System Butterfly MOVs (S. Sheldon).
    CI-CPS-026 Setpoint Calculation for Instrument 1PY-SX028 (S. Sheldon).
    Not Identified Setpoint Calculation for Instrument 1PY-SX030 (S. Sheldon).
    CI-CPS-028 Setpoint Calculation for Instrument 1PY-SX032 (S. Sheldon).
- Condition Report: 2-01-03-088-0 (Cooney)

Diesel Generator Heat Exchangers
- As-built Data Sheets for Diesel Generator Heat Exchangers (Lougheed).
- Calculations Supporting Heat Transfer Capability of Diesel Generator Heat Exchangers (Lougheed).
- Drawings Showing Details of Diesel Generator Heat Exchangers (Lougheed).
- Modifications:
  165091 (CPS 1003), 168345 (DG F025), 168360 & 161990 (DG F042), 250912 (DG F044), 163211 (DGF047) and 169210 (SX F019) (Lougheed).
- Operability Evaluation 1-97-10-787 (Lougheed).
- Eddy current examination data reports and plugging documents for the most recent inspection and plugging completed on the emergency diesel (EDG) heat exchangers (Holmberg).
- Procedures for control of micro-biologically induced corrosion in the shutdown service water (SX) system including heat exchangers (Holmberg).
- Work order or other documentation including pictures for the last cleaning and inspection of the EDG heat exchangers (Holmberg).
- Condition Reports 2-01-03-180, 2-01-03-178 (Lougheed).

Residual Heat Removal (RHR) Heat Exchangers
- Work order or other documentation including pictures for the last cleaning and inspection of the RHR heat exchangers (Holmberg).
- As-built Data Sheets for RHR Heat Exchangers (Lougheed).
- Calculation IP-M-0499 (Lougheed).
- Calculation Supporting RHR Heat Exchanger Post Accident Heat Load (e.g. basis for information in USAR pages 9.2-18 through 21) (Lougheed).
- Drawings with detailed as-built and design information for the RHR Heat Exchanger (Lougheed).

SX System Containment Flood and Fuel Pool Makeup Lines
- Procedure used to align SX system for containment/drywell flooding or spent fuel pool makeup (Holmberg).
- Preventative maintenance schedule and a copy of last completed work order or test for exercising normally shut isolation valves in flow paths for SX functions of containment flooding and spent fuel pool makeup (Holmberg).
- Preventative maintenance schedule and copy of last completed work order or test to check for silt/biological buildup in dead legs in flow path for SX functions of containment flooding and spent fuel pool makeup (Holmberg).
- Calculation of available and required system flowrates to support containment flooding and fuel pool makeup (Holmberg).

SX Pumps, Strainers and General System Information
- Drawings:
  Elevation drawings showing SX pumps, piping and ultimate heat sink elevations (Gavula).
  Vendor drawings of backwash strainers (Gavula).
- Calculations:
  IP-M-0486, Shutdown Service Water System Hydraulic Network Analysis Model (Gavula).
  011856, Nozzle loading analysis for shutdown service water strainers (Gavula).
  018895, Equipment nozzle reactions shutdown service water strainer (Gavula).

01ME077, Calculations for Flooding - Safe Shutdown Analysis (Gavula).
066222, Load Reduction factor for 1SX-15 (buckled strut 1SX15009R) (Gavula).
IP-M-0336, Internal flooding in the SX pmp rms & tunnel w/ Div II pmp rm hatch off (Gavula).
IP-M-0542, Shutdown service water piping vibration evaluation (Gavula).
IP-S-0132, Accept criteria for allowable sediment depth in the circ water screenhouse (Gavula).
VZ-38, Performance evaluation of HVAC system and cooling coils SX Div III (Gavula).
3C10-0785-003, 75-464, 84-178, ATD-0218, INSME005,VZ-28, & VZ-39 (Lougheed).

- Modifications:

ECN 9525, Add vacuum breaker valves (Gavula).
ECN 30860, Resize orifice 1SX12MA (Gavula).
ECN 30903, RHR/SX bypass orifice Div 1 (Gavula).
ECN 30905, Div 1 SX flow balance (Gavula).
ECN 30954, Service water vacuum breakers (Gavula).
ECN 31092, Modify 1SX01 by adding orifice on Div 1 strainer (Gavula).
ECN 31759, Requirement to limit leakage from SX system (Gavula).
ECN 31882, Div 2 SX motor lube oil cooler replacement (Gavula).
ECN 31030, Add additional vertical/lateral restraints for each.. (Gavula).
ECN31931, Work with ECN 31882 new pipe support for SX lines (Gavula).
FALT —F076, Document flow rate limits required to properly flow... (Gavula).
FALT SXF009, Install vacuum breakers in SX lines downstream of ... (Gavula).
165619 (MAR. D8553), 165816 (MAR. D841) & 166006 (AR F09985) (Lougheed).

- Condition reports and associated operability determinations (as applicable):

CR # 02-01-05-422-0 (Holmberg), 2-01-03-209 (Holmberg), 2-01-03-209-0 (Gavula), 2-01-01-191-0 (Gavula), 2-01-03-016-0 (Sheldon), 2-01-02-027-0 (Gavula), 2-01-03-124-0 (Lougheed), 2-01-03-167 (Lougheed), 2-01-03-186 (Lougheed), 2-01-03-193 (Lougheed) & 2-01-05-422 (Lougheed), 2-00-02-101-OE (Sheldon), 1-99-02-077-OE-1(Cooney), 1-98-12-275-OE (Lougheed), 1-98-12-274-OE (Lougheed), 1-98-09-390-OE (Winter), 1-98-09-292-OE (Sheldon), 1-98-09-201-OE (Sheldon), 1-98-04-047-OE (Lougheed), 1-98-03-271-OE (Gavula), 1-98-01-291-OE (Gavula), 1-97-10-487-OE (Lougheed), 1-98-10-232-OE (Gavula), 1-97-10-054-OE (Holmberg).

- Pre-operational tests:

HTP-SX-01 (Winter), HTP-SX-02 (Winter), HTP-SX-03 (Winter), HTP-SX-04(Winter), HTP-SX-05 (Winter), HTP-SX-06 (Winter).