

May 31, 2000

Mr. Thomas J. Palmisano
Site Vice President and General Manager
Palisades Nuclear Generating Plant
Consumers Energy Company
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES INSPECTION REPORT 50-255/2000005(DRS)

Dear Mr. Palmisano:

On May 11, 2000, the NRC completed a baseline biennial Safety System Design and Performance Capability inspection at your Palisades Nuclear Generating Plant. The results of this inspection were discussed with you and other members of your staff at the end of the inspection. The enclosed report presents the risk-significant results of this inspection.

The inspection was an examination of activities conducted under your license as they related to ensuring that the high pressure safety injection system and the high pressure control air system were capable of performing their required post-accident functions, and to verify compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel.

During this inspection, one Non-Cited Violation of NRC regulations was identified. This violation involved a deficiency in your Emergency Operating Procedure for Loss of Coolant Accident Recovery. The procedure was not appropriate to the circumstances in that a specific manual action, needed to ensure that the high pressure recirculation function of the high pressure safety injection and containment spray systems was maintained, was not included in the procedure. This deficiency had very low risk significance because it hypothesized the extremely low probability, simultaneous occurrence of a Loss of Coolant Accident, Loss of Offsite Power, and the loss of the specific diesel generator which supplied power for two of the three containment spray pumps. Because your staff identified this issue and took aggressive action to address it, no response is required.

If you contest the violation or the severity level of the Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-001, with a copy to the Regional Administrator, Region III, Resident Inspector and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-001.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Electronic Reading Room (PERR) link at the NRC home page, <http://www.nrc.gov/NRC/ADAMS/index.html>.

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

Sincerely,

/RA/

John A. Grobe, Director
Division of Reactor Safety

Docket No. 50-255
License No. DPR-20

Enclosure: Inspection Report 50-255/2000005(DRS)

cc w/encl: R. Fenech, Senior Vice President, Nuclear,
Fossil, and Hydro Operations
N. Haskell, Director, Licensing and Performance Assessment
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Department of Attorney General (MI)
Emergency Management Division, MI Department
of State Police

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Electronic Reading Room (PERR) link at the NRC home page, <http://www.nrc.gov/NRC/ADAMS/index.html>.

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

Sincerely,

/RA/

John A. Grobe, Director
Division of Reactor Safety

Docket No. 50-255
License No. DPR-20

Enclosure: Inspection Report 50-255/2000005(DRS)

cc w/encl: R. Fenech, Senior Vice President, Nuclear,
Fossil, and Hydro Operations
N. Haskell, Director, Licensing and Performance Assessment
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Department of Attorney General (MI)
Emergency Management Division, MI Department
of State Police

Distribution:

- CMC1
- WES
- DSH (Project Mgr.)
- J. Caldwell, RIII w/encl
- B. Clayton, RIII w/encl
- SRI Palisades w/encl
- DRP w/encl
- DRS w/encl
- RIII PERR w/encl
- PUBLIC IE-01 w/encl
- Docket File w/encl
- GREENS
- RIII_IRTS
- DOCDESK
- JRK1
- BAH3

DOCUMENT NAME: G:\DRS\PAL2000005 DRS.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	RIII
NAME	MFarber:jp	JGrobe for RGardner	TTongue for MJordan	JGrobe
DATE	05/31/00	05/31/00	05/31/00	05/31/00

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-255
License No: DPR-20

Report No: 50-255/2000005(DRS)

Licensee: Consumers Energy Company

Facility: Palisades Nuclear Generating Plant

Location: 27780 Blue Star Memorial Highway
Covert, MI 49043-9530

Dates: April 17 - May 11, 2000

Inspectors: Haywood Anderson, Consultant
Zelig Falevitz, Reactor Engineer
Martin Farber, Reactor Engineer, Team Leader
Gerard O'Dwyer, Reactor Engineer
Tirupataiah Tella, Reactor Engineer

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

SUMMARY OF FINDINGS

Palisades Nuclear Generating Plant NRC Inspection Report 50-255/2000005(DRS)

This was an announced biennial baseline inspection of safety system design and performance capability of the high pressure safety injection and high pressure control air systems. The inspection objective was to verify that the design basis was correctly implemented to ensure that the system can be relied upon to meet its functional requirements.

Cornerstone: Mitigating Systems

- Green: The failure to include steps required to ensure operability of the high pressure recirculation function of emergency core cooling systems in Emergency Operating Procedure (EOP) 4.0 (Loss of Coolant Accident Recovery) rendered the procedure inappropriate to the circumstances (i.e., mitigation of a design basis accident). This is a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V. This violation was identified by the licensee and entered in the corrective action program as CPAL0001274.

This deficiency had a very low risk significance because it hypothesized the extremely low probability, simultaneous occurrence of a Loss of Coolant Accident, Loss of Offsite Power, and the loss of the specific diesel generator which supplied power for two of the three containment spray pumps.

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
<ul style="list-style-type: none">● Initiating Events● Mitigating Systems● Barrier Integrity● Emergency Preparedness	<ul style="list-style-type: none">● Occupational● Public	<ul style="list-style-type: none">● Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent little effect on safety. WHITE findings indicate issues with some increased importance to safety, which may require additional NRC inspections. YELLOW findings are more serious issues with an even higher potential to affect safety and would require the NRC to take additional actions. RED findings represent an unacceptable loss of safety margin and would result in the NRC taking significant actions that could include ordering the plant to shut down.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. The color for an indicator corresponds to levels of performance that may result in increased NRC oversight (WHITE), performance that results in definitive, required action by the NRC (YELLOW), and performance that is unacceptable but still provides adequate protection to public health and safety (RED). GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, as described in the matrix. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

Report Details

1. REACTOR SAFETY

Cornerstone: Mitigating Systems

1R21 Safety System Design and Performance Capability

a. Inspection Scope

Two systems were selected for this inspection: the high pressure control air system (HPA) and the high pressure safety injection (HPSI) system. These systems were selected based upon:

- performing a mitigating system function;
- having high safety significant maintenance rule functions;
- having high risk achievement worths in the probabilistic risk assessment;
- not having received recent NRC review (for HPSI); and
- supporting multiple systems (high pressure control air).

The systems were considered complementary in that high pressure control air operates valves in the emergency core cooling system.

For the HPSI system, the following inspection attributes were reviewed in detail:

System Needs	
Attributes	Inspection Activity
Process Medium • water	Verify that process medium will be available and unimpeded during accident/event conditions • sufficient inventory available before/after recirculation actuation • check consideration for alternate water supplies
Energy Source • electricity • air	Verify energy sources, including those used for control functions, will be available and adequate during accident/event conditions • Verify that pump motor voltage will be at least 70% of rated voltage (.7X2400=1680) • review capability to accelerate to full speed in 4 seconds at 70% rated voltage • Verify acceptability of load shed/degraded voltage setpoint • Verify adequate air pressure for air-operated valves (AOV) or availability of backup N ₂ accumulators

System Needs	
Attributes	Inspection Activity
Controls <ul style="list-style-type: none"> • initiation actions • control actions • shutdown actions 	Verify control system will be functional and provide desired control during accident/event conditions <ul style="list-style-type: none"> • Review Safety Injection Signal (SIS) to HPSI pump motor breaker • Review logic/schematic for recirc actuation signal • Review logic/schematic for pump controls
Operator Actions <ul style="list-style-type: none"> • initiation • monitoring • control • shutdown 	Verify operating procedures (normal, abnormal, or emergency) are consistent with operator actions for accident/event conditions <ul style="list-style-type: none"> • review that operator actions for recirc actuation (swap-over can be accomplished within desired time frame) Verify instrumentation and alarms are available to operators for making necessary decisions <ul style="list-style-type: none"> • review for adequate instrumentation for monitoring recirc actuation (swap-over)
Heat Removal <ul style="list-style-type: none"> • cooling water • ventilation 	Verify that heat will be adequately removed from system <ul style="list-style-type: none"> • review logic/schematics for safeguards room ventilation system actuation • review sizing of safeguards room coolers • review service water flow requirements to coolers • review component cooling water availability to HPSI pumps' seal packages

System Condition and Capability	
Attributes	Inspection Activity
Installed Configuration <ul style="list-style-type: none"> • elevations • flowpath components • restraints/supports • cable runs/separation 	Verify, by walkdown or other means, that system-installed configuration will support system function under accident/event conditions <ul style="list-style-type: none"> • review sump screen cleanliness controls • review overall containment foreign material exclusion programs • review cable tray loading • review bolting on mechanical piping connections • review bolting on supports/restraints Verify that component configurations have been maintained to be consistent with design assumptions <ul style="list-style-type: none"> • review system line-up changes
Operation	Verify that operation and system alignments are consistent with design and licensing basis assumptions <ul style="list-style-type: none"> • review system operating line-up to ensure functions are maintained • review off-normal procedures to ensure operability of components is maintained during alternate system line-ups
Design <ul style="list-style-type: none"> • calculations • drawings • procedures 	Verify that design bases and design assumptions have been appropriately translated into design calculations, drawings, and procedures <ul style="list-style-type: none"> • review voltage calculations to ensure adequate voltage is available to components during an accident • cable separation/routing, sizing, ampacity • review net positive suction head calculations • review vortexing calculations

System Condition and Capability	
Attributes	Inspection Activity
Testing <ul style="list-style-type: none"> • flowrate • pressure • temperature • valve stroking • valve leakage 	Verify that acceptance criteria for tested parameters are supported by calculations or other engineering documents to ensure that design and licensing bases are met <ul style="list-style-type: none"> • review system surveillances to ensure Technical Specification requirements are met • review pump inservice test data • review valve (motor-operated valve and AOV) testing • review flow testing for balancing/50-50 split/minimum total flow Verify that individual tests and/or analyses validate integrated system operation under accident/event conditions <ul style="list-style-type: none"> • review leak testing of valves which isolate Emergency Core Cooling System recirculation flow from Safety Injection Refueling Water (SIRW) tank

For the HPA system, the following inspection attributes were reviewed in detail:

System Needs	
Attributes	Inspection Activity
Process Medium <ul style="list-style-type: none"> • air 	Verify that process medium will be available and unimpeded during accident/event conditions. <ul style="list-style-type: none"> • review seismic qualification of receiver and downstream piping
Energy Source <ul style="list-style-type: none"> • electricity 	Verify energy sources, including those used for control functions, will be available and adequate during accident/event conditions <ul style="list-style-type: none"> • review procedures to ensure that power can be restored to the compressors following load shed • review availability of safety-related power to valve operating solenoids
Controls <ul style="list-style-type: none"> • control actions • shutdown actions 	Verify control system will be functional and provide desired control during accident/event conditions. <ul style="list-style-type: none"> • review instrumentation associated with process controls

System Needs	
Attributes	Inspection Activity
Operator Actions <ul style="list-style-type: none"> • initiation • monitoring • control • shutdown 	Verify operating procedures (normal, abnormal, or emergency) are consistent with operator actions for accident/event conditions <ul style="list-style-type: none"> • review system operating procedure • identify instrumentation needed during accident scenario • review calibrations of necessary instrumentation Verify instrumentation and alarms are available to operators for making necessary decisions <ul style="list-style-type: none"> • review setpoints for pressure switches • review alarm setpoints • review location and availability of air receiver pressure • review location and availability of instrumentation for monitoring air pressure at AOVs

System Condition and Capability	
Attributes	Inspection Activity
Installed Configuration <ul style="list-style-type: none"> • restraints/supports • flowpath components 	Verify, by walkdown or other means, that system-installed configuration will support system function under accident/event conditions <ul style="list-style-type: none"> • review bolting of mechanical joints • review bolting of restraints/supports • review installation of instrumentation Verify that component configurations have been maintained to be consistent with design assumptions. <ul style="list-style-type: none"> • review a sample of modifications
Operation	Verify that operation and system alignments are consistent with design and licensing basis assumptions <ul style="list-style-type: none"> • review system operating procedures to ensure proper system lineup • review pressure switch setpoints to ensure receiver pressure is maintained >Final Safety Analysis Report (FSAR) allowable

System Condition and Capability	
Attributes	Inspection Activity
Design <ul style="list-style-type: none"> • calculations • drawings • procedures 	Verify that design bases and design assumptions have been appropriately translated into design calculations, drawings, and procedures <ul style="list-style-type: none"> • check system lineup in procedure against FSAR • check P&IDs against FSAR • review calcs for receiver capacity
Testing <ul style="list-style-type: none"> • flowrate • pressure • dewpoint • valve stroking 	Verify that acceptance criteria for tested parameters are supported by calculations or other engineering documents to ensure that design and licensing bases are met <ul style="list-style-type: none"> • check availability of calc for receiver size • review records of dewpoint testing Verify that individual tests and/or analyses validate integrated system operation under accident/event conditions <ul style="list-style-type: none"> • check test initial conditions to ensure consistency with FSAR

Discharge Check Valves and Receivers	
Attributes	Component Inspection Activity
Component Degradation	Verify that potential degradation is monitored or prevented <ul style="list-style-type: none"> • check equipment trending • determine if check valve is tested for back-leakage
Equipment/ Environmental Qualification <ul style="list-style-type: none"> • Temperature • Humidity • Radiation 	Verify that equipment qualification is suitable for the environment expected under all conditions

Discharge Check Valves and Receivers	
Attributes	Component Inspection Activity
Equipment Protection <ul style="list-style-type: none"> • missile • high energy line break 	Verify equipment is adequately protected <ul style="list-style-type: none"> • review susceptibility of check valves and receivers to missile impact • review susceptibility of check valves and receivers to high energy line break
Component Inputs/Outputs	Verify that component inputs and outputs are suitable for application and will be acceptable under accident/event conditions
Operating Experience	Verify that applicable insights from operating experience have been applied to the selected components <ul style="list-style-type: none"> • review operating experience for air system issues

In the area of corrective actions, the team reviewed condition reports concerning HPSI and HPA issues to verify that the licensee had an appropriate threshold for identifying issues. The team also evaluated the effectiveness of the corrective actions for the identified issues.

b. Issues and Findings

.1 Procedural Deficiency

During the inspection, the licensee conducted a review of Emergency Operating Procedure (EOP) 4.0, Loss of Coolant Accident Recovery, and identified a condition where a manual action, required to ensure the operability of the high pressure recirculation function of the emergency core cooling systems, was not proscribed in the procedure. During recovery from a loss of coolant accident, with a loss of offsite power and failure of the 1-1 diesel generator, after recirculation actuation, the one operating containment spray pump would be attempting to supply two containment spray headers and suction for the HPSI pump. This would exceed the capacity of the pump, forcing it into runout and loss of net positive suction head. The required response would be to isolate one containment spray header; however, with a containment high pressure signal still in place, this could not be accomplished without the installation of a jumper. This was not proscribed in the procedure. This deficiency had very low risk significance because it hypothesized the extremely low probability, simultaneous occurrence of a Loss of Coolant Accident, Loss of Offsite Power, and the loss of the specific diesel generator which supplied power for two of the three containment spray pumps.

Failure to include the steps required to ensure operability of the high pressure recirculation function in EOP 4.0 rendered the procedure inappropriate to the circumstances (i.e., mitigation of a design basis accident). This is a violation of 10 CFR 50, Appendix B, Criterion V. This violation is considered a Non-Cited Violation (50-255/20005-01), consistent with the General Statement of Policy and Procedure for

NRC Enforcement Actions (NUREG 1600) (Enforcement Policy), Section VI.A.1. This violation was entered in the licensee's corrective action program as CPAL0001274. This violation is closed.

.2 High Pressure Safety Injection System

No findings were identified during this inspection.

.3 High Pressure Control Air System

No findings were identified during this inspection.

4. OTHER ACTIVITIES

4OA4 Other

.1 (Closed) Inspection Follow-up Item (IFI) 50-255/97201-21: DC Loading Analysis

The team reviewed the following calculations and determined that the issues were appropriately addressed:

- EA-CPAL-97-1620A-01, "Formalize a Bounding Calculation for the 125 Vdc System, for Worst Case Voltage Levels at the Loads Based upon Battery Degraded Voltage During Station Blackout," Revision 0, October 9, 1998.
- EA-ELEC-LDTAB-009, "Battery Sizing for the Palisades Class IE Station Batteries DO1 and DO2," Revision 3, January 20, 2000.
- EA-ELEC-VOLT-001, "Determination of Worst Case Low Voltage at Engineered Safeguards Direct Current Solenoid Valves when Station Battery is at 105 Volts," Revision 1, November 2, 1992.

This item is closed.

.2 (Closed) IFI 50-255/97201-23: DC Calculations

The item was included in the review discussed in .1 above and is closed.

.3 (Closed) IFI 50-255/97201-24: DC Load Terminal Calculation

This item was included in the review discussed in .1 above and is closed.

4OA5 Management Meetings

.1 Exit Meeting Summary

The team leader presented the inspection results to Mr. Thomas J. Palmisano, Site Vice President and General Manager, and other members of licensee management in an exit meeting on May 11, 2000. The licensee acknowledged the information and the finding presented. The team leader asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

B. Bauer, Operations
G. Baustian, Nuclear Engineering
E. Bogue, Chemistry and Radiological Services
G. Boss, Operations
S. Brain, Nuclear Performance Assessment Department
D. Cooper, Plant Manager
B. Dotson, Licensing
J. Ford, Engineering Programs
G. Foster, Engineering Programs
R. Gerling, Engineering
K. Haas, Engineering Director
P. Harden, Design Engineering Manager
N. Haskell, Licensing Director
H. Heavin, Controller
R. Kasper, Construction
C. Krugh, Design Engineering
D. Malone, Licensing
H. Nixon, Engineering Programs
T. Palmisano, Site Vice President
W. Reetz, Business Operations
C. Ritt, Plant Support
S. Salgia, Design Engineering
J. Schwan, System Engineering
J. Slinkard, System Engineering
D. Sonnenberg, Design Engineering
K. Speicher, System Engineering
H. Stacks, Design Engineering
T. Swiecicki, Design Engineering
R. Vincent, Licensing
S. Wawro, Maintenance and Planning

NRC

M. Jordan, Chief, Branch 3, Division of Reactor Projects
R. Krsek, Resident Inspector
J. Lennartz, Senior Resident Inspector
T. Tongue, Project Engineer

LIST OF BASELINE INSPECTIONS PERFORMED

IP 71111.21 Safety System Design and Performance Capability

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed during this Inspection

50-255/20005-01	NCV	Failure to include required steps in EOP-4.0, Loss of Coolant Accident Recovery
-----------------	-----	---

Previous Items Closed

50-255/97201-21	IFI	DC Loading Analysis
50-255/97201-23	IFI	DC Load Calculations
500255/97201-24	IFI	DC Load Terminal Calculations

Previous Items Discussed

None

LIST OF ACRONYMS USED

AOV	Air Operated Valve
CFR	Code of Federal Regulations
DC	Direct Current
DPR	Demonstration Power Reactor
DRS	Division of Reactor Safety
ECCS	Emergency Core Cooling Systems
EOP	Emergency Operating Procedure
FSAR	Final Safety Analysis Report
HPA	High Pressure Control Air
HPSI	High Pressure Safety Injection
IFI	Inspection Follow-up Item
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
PERR	NRC Public Electronic Reading Room
SIRW	Safety Injection Refueling Water
SIS	Safety Injection System

LIST OF DOCUMENTS REVIEWED

Procedures

- Palisades Nuclear Plant System Operating Procedure SOP-3, "Safety Injection and Shutdown Cooling System," Revision 43, dtd April 12, 2000
- Palisades Nuclear Plant Emergency Operating Procedure EOP-4.0, "Loss of Coolant Accident Recovery," Revision 10, dtd February 26, 1999
- EOP-1.0, Revision 9, "Standard Post-Trip Actions"
- EOP-4.0, Loss of Coolant Accident Recovery Basis, Revision 9, February 26, 1999
- EOP-8.0, Revision 11, "LOOP/Forced Circulation Recovery"
- EOP Setpoint Basis
- RE-63B, "Service Test - Battery No. ED-02," completed October 25, 1999
- RE-83A, "Service Test- Battery No. ED-01," completed October 17, 1999
- RI-18, "SIRW Tank Temperature Indicator Calibration Procedure," Revision 12, completed February 7, 2000
- RI-38, "SIRW Tank Level Instrument Calibration," Revision 11, completed November 5, 1999
- SPS-E-1, "2400 Volt and 4160 Volt Allis Chalmers Circuit Breaker Auxiliary Switch Adjustments," Revision 9, February 27, 1998
- SPS-E-4, "Maintenance for 4160/2400 Volt Switchgear," Revision 8, February 27, 1998
- SPS-E-10, "Maintenance for 4160/2400 Volt Switchgear Siemens MA-250C1 and MA-350C1 Breakers," Revision 0, February 27, 1998
- WI-SPS-E-02, "Insulation Resistance Testing of Electrical Equipment," Revision 1, November 5, 1997
- MSI-1-12, "Maintaining Environmental Qualification for Rosemount Transmitters," Revision 3, September 10, 1996
- EM-09-02, Inservice Testing of Plant Valves, Revision 20, August 28, 1998
- EM-09-04, Inservice Testing of Selected Safety-Related Pumps, Revision 19, May 4, 1999
- APR-7, Pg. 17-19, Alarm and Response Procedure - Auxiliary Systems Scheme EK-11, Revision 60
- EM-27, Engineering Manual Procedure - Lubrication Analysis and Monitoring, Revision 3
- 1.09, Self-Assessment Report - Review of Palisades Lubrication Analysis Program Basis, Sample Frequencies, Scope, Sampling Techniques and Training
- T-255, Special Test Procedure - SIS Detection Circuitry Test, April 27, 1998
- 3.16, Industry Experience Review Program, February 18, 2000
- 5.04, Control of Installed Plant Instrumentation (IPI), March 15, 1999
- 9.11, Engineering Analysis, Revision 10
- RI-7, Tech Spec Surveillance Test Procedure Basis Document RI-7 "Low Pressure SIS Initiation Logic," December 7, 1994
- RI-7, Low Pressure SIS Initiation Logic Surveillance, Performed, November 3, 1999
- RI-68, Containment Water Level and Sump Level Monitor Calibration - Basis Document, April 14, 1993
- RI-14, SIRW Tank Level Switch Interlock Test, November 9, 1999
- RT-8D, Engineered Safeguards Systems Right Channel Test, October 29, 1999
- ARP-7, Revision 60, "Auxiliary Systems Scheme EK-11 (C-13)"
- ONP-7.1, Revision 13, "Loss of Instrument Air," October 26, 1999

- RO-119, Revision 7, Inservice Testing of Engineered Safeguards Valves CV-3027 and CV-3056
- RT-71L, Revision 8, CTS 6.5.2 Pressure Test of ESS Pump Suction Piping
- RT-71L, Basis for TS Pressure Test of ESS Pump Suction Piping
- T-205-A, Revision 1, "East Engineering Safeguards High Pressure Air System Performance Verification"
- T-205-B, Revision 2, "West Engineering Safeguards High Pressure Air System Performance Verification"
- T-278-9C, Revision 1, HPA CK-CA476 Seat Leakage Test
- ESS-M-8, Revision 17, "Periodic Preventive Maintenance of RAS Valves"
- SOP-20, Revision 15, "High Pressure Control Air System," Performed April 14, 2000

Drawings

- VEN-M107-SH2246-Revision 3, 03378, Sheet 2 of 4, Stress Isometric, H.P. Safety Injection Pump Discharge, Revision 3, dtd November 2, 1992
- VEN-M107-SH2283, 03319, Sheet 6, Stress Isometric, Safety Injection, Ctmt. Spray, and Shutdown Cooling System, Revision 6, dtd November 6, 1995
- VEN-M107-SH3925, CC6-H203.2, Revision 0, dtd November 7, 1992
- M74, Sh. 1, Revision 12 - Underground Piping, Reactor Building
- M201, Sht. No. 1, Revision 67 - P&ID Primary Coolant System
- M203, Sh. A, Revision 5, System Diagram, Safety Injection, Containment Spray & Shutdown Cooling System
- M203, Sht. No. 1, Revision 44 - P&ID Safety Injection, Containment Spray, and Shutdown Cooling System
- M203, Sht. No. 2, Revision 18 - P&ID Safety Injection, Containment Spray, and Shutdown Cooling System
- M204, Sht. No. A, Revision 6 - System Diagram, Safety Injection, Containment Spray & Shutdown Cooling System
- M204, Sht. No. 1, Revision 70 - P&ID Safety Injection, Containment Spray and Shutdown Cooling System
- M204, Sht. No. 1A, Revision 25 - P&ID Safety Injection, Containment Spray and Shutdown Cooling System
- M204, Sht. No. 1B, Revision 30 - P&ID Safety Injection, Containment Spray
- M225, Sheet 1, Revision 42, Sheet 2, Revision 31, P&ID for HPA Operated Valves
- M-398, Sheet 18, Revision 5 - Level Setting Diagram, Safety Inj. & Refueling Water Tank T-58
- M-398, Sheet 30, Revision 2 - Level Setting Diagram, Containment Level Instrumentation
- M-510, Revision 2 - Guard Pipes for Recirculation from Containment Sump
- 03319, Sh. 1, Revision 8 - Safety Injection, Ctmt. Spray & Shutdown Cooling System
- 03319, Sh. 4, Revision 8 - Safety Injection, Ctmt. Spray & Shutdown Cooling System
- VEN-M107-Sh. 2454, Revision 5 - Stress Isometric, Long Term Cooling Modification
- VEN-M-107, Sht. No 2455, Revision 5 - Stress Isometric, Long Term Cooling Modification
- VEN-95073, Sh. 71, Revision 9 - Vertical and Horizontal Tendons Schematic Layout at Wall Penetrations Between Buttress CL's B&C
- E17 Sh.4, Logic Diagram - Safety Injection Actuation, June 24, 1998

- WD 950, Sh. 1 (E-1 SH.1), Single Line Meter & Relay Diagram - 480V MCC, April 20, 1999
- WD 950, Sh. 4 (E-3, Sh-1), Single Line Meter & Relay Diagram 2400V System, November 3, 1999
- WD 950, Sh. 12 & 12A (E-S, Sh1), Single Line Meter & Relay Diagram 480V MCCs, December 1, 1999
- E249, Schematic Diagram - High Pressure Safety Injection Pumps P66A&B, August 1, 1995
- E605, Sh. 47, Connection Diagram - 2400V Swgr #ID Unit 207, November 18, 1992
- VEN-M201, Sh. 22, Wiring diagrams - Section C03R, June 3, 1999
- VEN-M201, Sh. 38, Wiring Diagram - Console Section C13-IL and C13-IR (Partial), May 20, 1998
- VEN-M201, Sh. 41, Wiring Diagram - Term. Blocks & Misc. Equip. Section C13-1R, June 16, 1999
- VEN-M201, Sh. 43, Sub Panel for Vertical Section C13R (C13-5), May 4, 1998
- VEN E5, Sh. 64, Wiring Diagram - 2400V Swgr Bus ID, Bkr 152-207, December 1, 1992
- E-93, Sh. 1 & 1A, Schematic Diagrams - Safety Injection Line Flow Instrumentation, December 12, 1993
- E87, Schematic Diagram - Level Ind & Alarm Instr, September 21, 1993
- E93, Sh. 1 & 1A, Schematic Diagram - Safety Injection Line Flow Inst, December 12, 1993

Reports

- NRC Inspection Report No. 50-255/86029, "Safety System Functional Inspection," dtd December 22, 1986
- NRC Inspection Report No. 50-255/99009, dtd September 3, 1999

Calculations/Analyses

- EA-SP-03319-01, Engineering Analysis, Piping Stress Analysis for Safety Injection, Containment Spray & Shutdown Cooling System, Revision 1, dtd August 23, 1995
- EA-SO-03378-CC6-H203.2, Pipe Support Qualification for Support Mark # CC6-H203.2, Revision 1, dtd November 3, 1992
- EA-A-PAL-94-304-01, "Worst Case Operating Conditions for MO-3080 and MO-3081," Revision 1
- EA-CPAL-97-1620A-01, "Formalize a Bounding Calculation for the 125 Vdc System, for Worst Case Voltage Levels at the Loads Based Upon Battery Degraded Voltage During Station Blackout," Revision 0, October 9, 1998
- EA-ELEC-LDTAB-009, "Battery Sizing for the Palisades Class IE Station Batteries DO1 and DO2," Revision 3, January 20, 2000
- EA-ELEC-VOLT-001, "Determination of Worst Case Low Voltage at Engineered Safeguards Direct Current Solenoid Valves when Station Battery is at 105 Volts," Revision 1, November 2, 1992
- EA-SC-87-342-001, "Replacement of Motors and Belleville Springs Assemblies for Limitorque Operators VOP-3082 and VOP-3083," Revision 0, October 30, 1987
- EA-SC-90-022-02, "Operator Sizing Requirements for MO-3082 and MO-3083 Replacement," Revision 0, November 30, 1990

- EA-ELEC-VOLT-037, Palisades Degraded Voltage Calculation for the Safety-Related MOV's, October 29, 1999
- EA-ELEC-VOLT-13, Palisades Loss of Coolant Accident with Off-Site Power Available, June 11, 1993
- EA-CPAL-97, Bounding Calculation that Provides Worst Case Voltage Levels at Preferred AC Loads, May 7, 1998
- EA-ELEC 08-97-02, Uncertainty Calculation - Pressurizer Pressure Loops, June 21, 1999
- EA-ELEC-Volt-026, Voltage Drop Model for the Palisades Class 1E Station Batteries DO1 and DO2, January 26, 2000
- EA-ELEC-Amp-040, Ampacity Evaluation for Duct Runs Containing Continuously Energized Power Cables, November 10, 1998
- EA-ELEC-08-97-02, Uncertainty Calculation - Pressurizer Pressure Loops, June 21, 1999
- EA ELEC-VOLT-017, Verification that the Second Level Undervoltage Relays are Properly Set to Adequately Protect 2400V and 480V Safety-Related Equipment from Sustained Degraded Voltages, September 1, 1994
- ID/207/150-151, HP Safety Injection Pump P-66A, June 19, 1992
- EA-A-NL-92 170-01, Performance Testing of 100 Kohms Resistors Used as Isolators, October 19, 1992
- EA-GAW-89, EQ-01, Inst. Loop Error Evaluations for EEQ Listed Transmitter Loop, January 10, 1992
- EA-SC-95-052-01, Revise Setpoints for HPSI, September 30, 1995
- EAR 1999-0232 to 0234, Operator Workaround Due to Design Deficiency, September 9, 1999
- EAR 1998-0384, Replace High and Low Level Switches With a More Reliable Design, June 11, 1998
- EA-AIR 92-03601, Dynamic Response of EDGs to Simultaneously Start of the Two Largest Motors, October 6, 1997
- EAR 99-0046, High Pressure Air Pressure Switches Replacement, October 20, 1999
- EAR 99-020, Replace SIRW Tank T-58 Level Control Valve Position Indication Switches, June 29, 1999
- EAR-99-03329, CK-CA476 Failed T-278-9C, November 2, 1999
- EAR-2000-0150, In Line Filter (F-978) May Be Insufficient to Eliminate Water in Line, March 2, 2000
- EAR-2000-0267, Add Air Regulator to CV-3055 Air Supply (Similar to RAS Valves), April 10, 2000
- EAR - 98-0008, Containment Sump Vent Screen, Provide Permanent Fix for Containment Sump Vent to Allow Removal of TM-97-046, Closeout Concurrence May 2, 1998
- EAR-1999-0232, Operator Workaround Due to Design Deficiency - CV-3027 & CV-3056
- P-CE-5627, Palisades Long Term Cooling Performance Evaluation, May 8, 1981
- EA-A-PAL-96-003, ECCS Evaluation in Post-RAS Recirculation Modes Using Pipe-Flo, Revision 1, November 1996
- EA-C-PAL-94-0016A-01, Containment Flood Analysis, Revision 1, December 4, 1996
- EA-C-PAL-95-0877D, Evaluation of the Potential for Excessive Air Entrainment Caused by Vortexing in the SIRWT During a LOCA, Revision 0, October 12, 1995
- EA-DMK-99-001, Revised Minimum Acceptable HPSI Pump Surveillance Test Differential Pressure, Revision 0, October 11, 1999

- EA-PIPEFLO-ESS-01, Integrated Pipe-Flo Hydraulic Model of the Containment Spray, High and Low Pressure Safety Injection Systems, Revision 2, April 19, 1996
- EA-PIPEFLO-HPSI-L, HPSI & LPSI System Flow Model Using Pipe-Flo, Revision 1, June 5, 1995
- EA-PPD-98-001, Palisades Cycle 15 Principal Plant Parameters, Revision 1
- EA-SC-90-201-1, Evaluation of GC-9 Class Piping Due to Increase in RV-3161 Set Pressure, Revision 0, September 19, 1990
- EA-SDW-95-001, Generation of Minimum and Maximum HPSI/LPSI System Performance Curves Using Pipe-Flo, Revision 2, November 1996
- EA-TAM-95-05, Radiological Consequences for the Palisades Hypothetical Accident & Loss of Coolant Accident, December 14, 1995
- P-PEC-170, Head Losses and Flow Requirements for the Hot Leg Injection Line for Palisades, Revision 0, January 16, 1979
- EA-AOVCAP-ESS-01, Revision 2, HPA System Design Basis Review
- Engineering Analysis for DBD-1.05 Open Item 5, Revision 0, HPA Receivers Have Sufficient Capacity

10 CFR 50.59 Safety Analyses

- Log No. 98-0324, HP Air to ESS Valves Setpoints Changes to PCV's, Solenoid Valves Replacement and Installation of Drain Lines, April 6, 1998
- Log No. 98-1197, Add Two Valves to List of Low Point Drains (HPCA)
- Log No. 98-0798, Setpoint Changes for Time Delay Relays 62L/SIS and 62R/SIS, April 24, 1998
- Log No. SDR 99-1334, HP Air System - Replacement of System Pressure Switches, October 20, 1999
- Log No. SDR 98-1641, High Pressure Air System Valve MV-CA548, August 10, 1998
- Log No. SDR 98-1402, Evaluate Missing Manual Drain Valve MV-CA548 in Turbine Building High Pressure Air System, June 30, 1998
- Log No. SDR-98-2235, Revision 0, "FSAR-1732, Revision 22, Rewrite of FSAR Chapter 9.5, Compressed Air and High-Pressure Air System"

Design Change Packages

- SC-95-052-01, "Setpoint Changes for HPSI Pump Discharge Thermal Relief Valves," Revision 0
- FES-97-159, "2400 Vac Circuit Breaker for High Pressure Safety Injection Pump P-66B. Implement TM 96-027, Permanently," December 19, 1997
- SC-97-001-01, "Instrument Accuracy Evaluation SIRW Tank Temperature Instrument Channels," Revision 0, September 4, 1997
- SC-97-041, "Decrease Pressure on PCV-3055 From 100 PSIG to 95 PSIG," June 17, 1999
- SC-98-007, "Setpoint Change for Time Delay Relays 62L/S/S and 62R/S/S," April 27, 1998
- SC-97-001, SIRW Tank Low Temperature Alarm Setpoint Change, March 20, 1998
- SC-98-008, Reversed Power Feeds for High Pressure Compressors, May 23, 1998
- SC-98-007, Setpoint Change for Time Delay Relays 626/SIS and 62R/SIS, June 30, 1998

- SC 98-005, Revision 0, HP Air System Modification: Phase 2
- FES-97-147, Safety Injection Tank T-82 Valves Control Fuse Replacement, November 24, 1997
- FES-97-147, Replace FU 2/S46-1, November 24, 1997
- FES-99-020, Replace SIRW Tank T-58 Level Control Valve Position Ind Sw's Pos 3030B and Pos-3031B with New Model, June 28, 1999

Operability Determinations

- Operability Determination for No Calculations to Support FSAR Statements, CPAL-97-0196, February 11, 1997
- Operability Determination for HPA Compressors' EDG Crossfeed, CPAL-97-1840, December 17, 1997
- Operability Determination for HPA Compressor Lack of Calculation, CPAL-97-1841, March 6, 1998
- Operability Determination for SV-3031B's Design Pressure Exceeded, CPAL97-0134C, January 31, 1997
- Operability Determination for CK-CA476 Failed Leak Check, CPAL-99-2216, October 30, 1999
- Operability Determination for PI-3031B Out-of-Spec, CPAL0001203, April 16, 2000
- Operability Determination for N₂ Station 3B 2 PSIG Out-of-Spec, CPAL0001224, April 18, 2000
- Operability Determination for Discrepancies in FSAR, DBD, etc., CPAL0001251, April 19, 2000
- Operability Determination for CV-0824 Air Line Vibrations, CPAL0001276, April 21, 2000
- Operability Determination for CV-3018 HP Air Pressure Low, CPAL0001290, April 23, 2000
- Operability Determination for Adverse C-6B Lubricant Performance, CPAL0001316, April 25, 2000
- Operability Determination for Nitrogen Station 3A Pressure Low, CPAL0001341, April 27, 2000

Miscellaneous Documents

- Instructor Lesson Plan ASDB, Module - 99G, "M-9C Air Dryer Modification," Revision 0, dtd March 2, 2000
- Student Handout, ASDB, Module - 99G, "M-9C Air Dryer Modification," Revision 0, dtd March 2, 2000
- Instructor Lesson Plan ISDF, Module - Secondary Auxiliary Systems, "Compressed Air Systems," Revision 18, dtd March 14, 2000
- Student Handout, ISDF, Module - Secondary Auxiliary Systems, "Compressed Air Systems," Revision 18, dtd March 14, 2000
- Instructor Lesson Plan ISGD, Module - Engineered Safeguards Systems, "Safety Injection System," Revision 12, dtd March 2, 2000
- Student Handout ISGD, Module - Engineered Safeguards Systems, "Safety Injection System," Revision 12, dtd March 2, 2000
- Instructor Lesson Plan ASBD, Module - Auxiliary Cooling Systems, "High Pressure Control Air System," Revision 5, dtd June 11, 1998

- Student Handout, ASBD, Module - Auxiliary Cooling Systems, "High Pressure Control Air System," Revision 5, dtd June 11, 1998
- Instructor Lesson Plan ASHA, Module - Engineered Safeguards Systems, "Safety Injection System," Revision 9, dtd July 14, 1998
- Student Handout, ASHA, Module - Engineered Safeguards Systems, "Safety Injection System," Revision 9, dtd July 14, 1998
- Final Safety Analysis Report, Section 6.1, "Safety Injection System," Revision 21
- Final Safety Analysis Report, Section 6.1, "Safety Injection System," Revision 22
- Final Safety Analysis Report, Section 9.5, "Compressed Air System," Revision 21
- Final Safety Analysis Report, Section 9.5, "Compressed Air System," Revision 22
- Final Safety Analysis Report, Section 7.3, Instrumentation and Controls - Safety Injection System Control Circuits and Equipment Initiation, Revision 21
- Final Safety Analysis Report, Section 9.5, Auxiliary Systems - Compressed Air Systems, Revision 22
- Final Safety Analysis Report, Section 8.5, Electrical Systems - Raceway and Cabling System, Revision 21
- FSAR Change: FSAR-1732, Revision 22, "Rewrite of FSAR Chapter 9.5, "Compressed Air and High-Pressure Air System"
- Palisades Plant - Operating Requirements Manual, "Standing Order 54," Revision 53, dtd March 2, 2000
- Palisades Plant - Operating Requirements Manual, "Standing Order 62," Revision 48, dtd September 23, 1999
- Executive Summary - Individual Plant Examination for Severe Accident Vulnerabilities (IPE), dtd January 29, 1993
- Summary of Palisades Nuclear Power Plant PSAR1 Results
- Palisades Technical Specifications and Bases, Amendment No. 189
- Palisades Technical Specifications - 6.5.2 Primary Coolant Sources Outside Containment, Amendment No. 174
- "System Health Report, 4160/2400 Volt AC Power Systems," 3rd/4th Quarter, 1999
- "System Health Report, HPA System & Nitrogen Station # 3A," 3rd/4th Quarter, 1999
- "System Health Report, Engineering Safeguards Systems," 3rd/4th Quarter, 1999
- Palisades Nuclear Plant Action Plan 39, Revision 0, Plant Air System Improvement Plan
- Palisades Nuclear Plant Action Plan 46, Revision 2, HPA System Improvement Plan
- "ABB Refurbishment Report of Allis Chalmers Type MA-250B," November 29, 1996
- "Allis Chalmers Instruction Book No. BWX-6631-6, for MA-250B Power Circuit Breakers," August 1968
- DBD-2.02, - High Pressure Safety Injection System Design Basis Document, Revision 5, August 24, 1999
- QO-19 Technical Specification Surveillance Procedure Basis Document - Inservice Test Procedure HPSI Pumps and ESS Check Valve Operability Test
- RO-65 Technical Specification Surveillance Procedure Basis Document - High Pressure Safety Injection (HPSI) Trains 1 and 2, and Hot Leg Injection (HLI) Check Valve Test and Cold Leg/Hot Leg Flow Balance Test
- RO-119 Technical Specification Surveillance Procedure Basis Document - Inservice Testing of Engineered Safeguards Valves CV-3027 and CV-3056
- QO-19, Inservice Test Procedure - HPSI Pumps and ESS Check Valve Operability Test for P-66A, Revision 20, February 15, 2000 - Technical Review Acceptance completed April 4, 2000

- QO-19, Inservice Test Procedure - HPSI Pumps and ESS Check Valve Operability Test for P-66B, Revision 20, February 15, 2000 - Technical Review Acceptance completed January 18, 2000
- RO-65, High Pressure Safety Injection (HPSI) Trains 1 and 2, and Hot Leg Injection (HLI) Check Valve Test and Cold Leg/Hot Leg Flow Balance Test, Revision 18, October 13, 1999 - Technical Review Acceptance completed November 15, 1999
- RO-119, Inservice Testing of Engineered Safeguards Valves CV-3027 and CV-3056, Revision 7, November 19, 1999 - Technical Review Acceptance completed November 22, 1999
- RT-71L, - Technical Specification 6.5.2 Pressure Test of ESS Sump Suction Piping, Revision 8, November 5, 1999 - Technical Review Acceptance completed November 19, 1999
- Special Test Procedure No. T-279, - High Pressure Safety Injection Pumps P-66A and P-66B Performance Test, Revision 3, July 21, 1995 - completed July 26, 1995 (P-66A) and November 16, 1995 (P-66B)
- Special Test Procedure No. T-356, - Hot Leg Injection MOVs MO-3082, 3083 Differential Pressure Test, Revision 1, March 26, 1998 - Technical Review Acceptance completed May 12, 1998
- OE 8335, Safety Injection Tank Test Line Redundant High Pressure Injection Isolation Valve, March 18, 1997
- OE 8815, Air Operator Pressure, March 7, 1998
- OE 9823, ECCS Recirc Sump Plugging with Fire Stop Material, May 12, 1999
- 7-040, Nitrogen Accumulation From Backleakage From Safety Injection Tanks, April 17, 1997
- Vendor Report, Oil Analysis for P66A Motor EMA-1207, March 23, 1998
- Vendor Manual, M0001GA, Sh. 8001, Bingham Pump Co Installation, Operation and Maintenance Instructions for Centrifugal Pumps
- RI - 68, Tech. Spec. Surv. Proc Basis Document for Containment Water Level and Sump Level Monitor Calibration, April 30, 1991
- Specification J-465(Q), Technical Spec J-465(Q) for Installation of Safety-Related Instrumentation for Nuclear Service for CPC (Palisades), November 4, 1994
- EDAD-ELEC-08, Design and Maintenance Guide on Instrument Setpoint Methodology, October 29, 1997
- EGAD-ELEC-10, Sizing of Control and Power Fuses, March 4, 1997
- GAW-89-EQ-01, Inst. Loop Error Evaluation for EEQ Listed Transmitter Loops, January 10, 1992
- SOP-20, Add Two Valves to List of Low Point Drain, May 23, 1998
- Instrument Calibration Records for FI-0317B, FT-0316, and FT-0317, January 22, 1997
- PS-0441 & PS-0442, Instrument Calibration Sheets for West Eng Safeguards Air Comp C-6B Press Switches, April 14, 2000
- RT-71B, HPSI Train 1 and 2 and SIT System, Class 2 System Functional/Inservice Test, October 6, 1999
- LER 05000255-98-006-00, Manual Actions Not Adequately Addressed in Procedures, April 6, 1998
- ESS268, Preventive Maintenance of RAS Valves; completed May 28, 1998

Work Orders

- 24710883, "PM -Breaker/Starter 52-2339 (MO-3190), Clean & Inspect Breaker & Motor Starter," June 3, 1997
- 24714317, "Decrease Pressure on PCV-3055 from 100 PSIG to 95 PSIG per SC-97-041 and Replace Gauge per EAR-98-0432," June 17, 1999
- 24711301, "Calibrate Miscellaneous ISI Test Gauges for HPSI, LPSI, Containment Spray & Service Water Pumps," June 3, 1997
- 24711385, "Calibrate Transmitters and Indicators for LPSI Pump Discharge Pressure, HPSI Pumps Discharge Pressures, and Shutdown Cooling Inlet Pressure," September 11, 1997
- 24712460, "Calibrate Miscellaneous ISI Test gauges for HPSI, LPSI, Containment Spray & Service Water Pumps," August 27, 1997
- 24712584, "Perform a Calibration Check of TE-0328 to Determine Actual Resistance Values at 0°F, 30°F, 60°F, 75°F, 95°F, 120°F, 150°F, for SC-97-001," September 4, 1997
- 24712585, "Perform a Calibration Check of TE-0332 to Determine Actual Resistance Values at 0°F, 30°F, 60°F, 75°F, 95°F, 120°F, 150°F, for SC-97-001," September 3, 1997
- 24712591, "Change the Low Temperature Alarm Setpoints of TIA-0328 from 45°F to 75°F per SC-97-001," November 19, 1997
- 24712592, "SIRW Tank T-58 Low Temperature Alarm, Change Setpoints of TIA-0332 from 45° F to 75° F per SC-97-001," November 21, 1997
- 24712836, "Calibrate and Test the Containment Sump Level Switches," May 22, 1998
- 24712995, "PPAC on Valve CV-3057," May 28, 1998
- 24713231, "Install CV-3018 Modifications Per SC 98-005," August 10, 1999
- 24713066, "PM 152-213, Check, Clean, Lube and Test Switchgear and Cubicle," March 18, 1998
- 24713232, "Move Filter Upstream of PCV-3037, Replace PCV-3037, Install New Valve MV-CA60008 and Test and Install New Relief Valve RV-3037 Per SC-98-005," September 3, 1999
- 24713654, "Calibrate Miscellaneous ISI Test Gauges for HPSI, LPSI, Containment Spray & Service Water Pumps," November 25, 1997
- 24713878, "Calibrate LPSI Pump ISI Test Gauges," March 13, 1998
- 24713987, "HPSI Pump P-66A Motor, Megger, Inspect and Clean," March 20, 1998
- 24714142, "PM 152-207 Breaker, Check, Clean, Lube and Test Switchgear and Cubicle," March 20, 1998
- 24714746, "Calibrate Miscellaneous ISI Test Gauges for HPSI, LPSI, Containment Spray, & Service Water Pumps," February 25, 1998
- 24810321, "PM 152-113, Check, Clean, Lube, and Test Switchgear and Cubicle," October 6, 1998
- 24810418, "PM Breaker 52-107, Check, Clean, Lube and Test Switchgear and Cubicle," April 7, 1998
- 24810926, "PPAC on Valve CV-3031," May 28, 1998
- 24810930, "PPAC on Valve CV-3029," May 28, 1998
- 24811000, "Calibrate Transmitters, and Indicators for LPSI Pump Discharge Pressure, HPSI Pumps Discharge Pressures, and Shutdown Cooling Inlet Pressure," February 3, 1998
- 24811714, "P-66B, Motor has Soft-Foot and Elevated Vibration Levels," May 25, 1998

- 24813281, "Pressure Gauge (PI-0322A) Possibly Over-Range During QO-20. Calibrate Pressure Gauge Per I & C Calibration Sheet," March 9, 1999
- 24813325, "Calibrate Containment Spray (P-54B & C) Interlock Switches," May 24, 1999
- 24813554, "Calibrate LPSI Pump ISI Test Gauges," March 9, 1999
- 24814083, "Clean & Inspect Breaker, Motor Starter, and Current Test Breaker," October 16, 1999
- 24814154, "Calibrate and Test the Containment Sump Level Switches, Transmitters, and Alarms," November 14, 1999
- 24814158, "HPSI Hot Leg Flow Train 1," November 3, 1999
- 24814160, "Instrument Calibration Records for FI-316A/B, FT-316 HPSI Hot Leg Train 2," November 4, 1999
- 24910686, "PM. Safeguards Motor Space Heater Check," July 28, 1999
- 24910801, "Calibrate Miscellaneous ISI Test Gauges for Containment Spray & Service Water Pumps," May 5, 1999
- 24910936, "Calibrate Transmitters, and Indicators for LPSI Pump Discharge Pressure, HPSI Pumps Discharge Pressures, and Shutdown Cooling Inlet Pressure," August 29, 1999
- 24911106, "Calibrate and Test the "A" Feedwater Regulation Control Instruments, Interlocks, and Alarms," November 8, 1999
- 24911153, "P-66A Motor, Gather Additional Data," June 23, 1999
- 24911747, "Found No Indications on M-98, West Safeguards High Pressure Control Air Dryer," June 16, 1999
- 24912687, "PS 0442 High Press Air Compressor C-6B Press Switches," April 14, 2000
- 24912688, "PS 0442 High Press Air Compressor C-6B Press Switches," April 14, 2000
- 24912777, "Thermal Scan of P-66A Motor/Breaker," March 16, 2000
- 24912780, "Calibrate LPSI Pump ISI Test Gauges," December 4, 1999
- 24913158, "Calibrate Miscellaneous ISI Test Gauges for Containment Spray & Service Water Pumps," January 13, 2000
- 24010443, "D/G Breaker 152-107 Needs Alignment," February 2, 2000
- 24010681, "LIA-0358 Reads High," February 19, 2000
- 00289291, HPA PCV-3031B Out of Spec High, April 16, 2000

Condition Reports

- CPAL-95-0247, Pump Discharge Thermal Relief Valves (RV-3266 and 3267), August 30, 1995
- CPAL-97-00111, Procedure T-205 Revision Package Problems, January 24, 1996
- CPAL-97-00196, No Calculations to Support FSAR Functional Statements, February 11, 1997
- CPAL-97-00134, SV-3031B's Design Pressure Exceeded, January 31, 1997
- CPAL-97-01840, Compressors C-6A & C-6B are Cross-Powered on the Diesels, December 17, 1997
- CPAL-97-01841, No Calculation for Time Period for HPA After Compressor Loss, December 16, 1997
- CPAL-97-01838, Missing or Deficient Engineering Analyses for HPA System DBD, December 16, 1997
- CPAL-98-0198, "S/U Power Breaker to Bus 1D, 152-202 Failed to Close," February 7, 1998

- CPAL-98-0293, "DPI-0319A As-Founds Were Out of Tolerance, Adjusted DPI Within Final Tolerance," February 23, 1998
- CPAL-98-0359, "M-9C Exchanger Temperature Setpoint Found at 138° F. Correct Setpoint was 46° F," March 9, 1998
- CPAL-98-0394, "Lack of Over Pressure Protection Vulnerability in HP Air System to ESS Valves," March 12, 1998
- CPAL-98-704, "Breaker 152-211 Failed to Close Locally," April 27, 1998
- CPAL-98-0914, HPSI Hot Leg/Cold Leg Flow Found Out of Balance During Conduct of T-356, May 8, 1998
- CPAL-98-1026, "PCV-3029A Regulator Not Maintaining the Setpoint," May 16, 1998
- CPAL-98-1317, "Pressure Transmitters/Flow Indicators Bounce with Zero Flow in the Line," June 18, 1998
- CPAL-98-1408, Adequacy of ECCS Pump NPSH Under Increased Screen Blockage, July 20, 1998
- CPAL 98-1993, "Nitrogen Station 3A Found Inoperable with PCS Temperature More than 300° F," December 24, 1998
- CPAL-99-0302, "Temporary Modification Inadequacies," March 15, 1999
- CPAL-99-564, "HPSI Pump P-66B Suction Gauge PI-0326B Was Found Out of Tolerance," May 5, 1999
- CPAL-99-0887, "M-9B Air Dryer Failure Due to Electrical Control Problems," June 12, 1999
- CPAL-99-0984, "Performance Improvement of the High Pressure Air System," June 29, 1999
- CPAL-99-1199, "C-6B was Noted Vibrating," August 2, 1999
- CPAL-99-1249, "C-6B Air Compressor Tripped on Thermals," August 12, 1999
- CPAL-99-1383, Black Oil Leaking From East Safeguards Secondary Containment Around Containment Sump Isolation Control Valve CV-3029, August 31, 1999
- CPAL-99-2216, CK-CA476 Failed to Meet T-278-9C Acceptance Criteria, October 20, 1999
- CPAL-99-2218, "P-69A Trips Upon Being Started During RT-8D," October 10, 1999
- CPAL-99-2493, "Relief Valves RV-3029A, RV-3030A, and RV-3057A Failed to Meet Their As-Found Acceptance Criteria," November 9, 1999
- CPAL-99-2533, Minor Bearing Fault Indication Found During Vibration Data Analysis From RO-98, November 8, 1999
- CPAL-99-02867, "During Performance of ESS 043, PI-0323 and DPI-0323 Had As-Found Data Out of the As-found Tolerance," December 4, 1999
- CPAL-99-2944, "HP Air to CV-3018 Out of Spec. Low," December 12, 1999
- CPAL000330, "Problems Identified on Diesel Generator Output Breaker, 152-107," February 1, 2000
- CPAL0000625, "Aux. Feedwater Pump P-8A Outboard Motor Bearing Oil Contained Metal Shavings," February 23, 2000
- CPAL0000963, "PI 3055 Found Hi Out of Spec. During AO Rounds," March 26, 2000
- CPAL0000964, "Shutdown Cooling Inlet Control Valve CV-3055 Failed to Operate," March 22, 2000
- CPAL0001193, "Questionable Data in High Pressure Safety Injection (HPSI) System Testing," April 14, 2000
- CPAL0001203, "Pressure Regulator Found Out of Spec.," April 16, 2000
- CPAL0001213, "Air Leak on C-6BS Aftercooler Coils," dtd April 17, 2000

- CPAL0001224, "Nitrogen Station 3B Pressure Out-of-Spec. Low by 2 psig," April 18, 2000
- CPAL0001251, "Discrepancy Discovered between FSAR, DBD, and AOV Capability Calculation Regarding Importance of N2 Station," dtd April 19, 2000
- CPAL0001276, "CV-0824 Instrument Air Line High Vibrations," dtd April 21, 2000
- CPAP0001290, "CV-3018 HP Air Pressure Low," dtd April 23, 2000
- CPAL0001301, "Technical Specification Surveillance Test Procedure Basis Document not Revised or Made Inactive in Accordance with Admin. 9.20," dtd April 25, 2000
- CPAL0001316, "Adverse Indications of C-6B and Associated Lubricant Performance," dtd April 25, 2000
- CPAL0001332, "ESS Hydraulic Model does not Accurately Model LPSI Pump Recirculation Line Flow Rates," dtd April 26, 2000
- CPAL0001341, "Nitrogen Station #3B As-found Reading Below 75 psig," dtd April 27, 2000
- CPAL0001345, "Inadequate Interim Guidance Given to Operators for Post-RAS Actions," dtd April 26, 2000
- CPAL0001352, "Updated Motor Acceleration Times Not Included in DBA Sequence Timing Study," dtd April 28, 2000
- CPAL0001367, "Service Water Pump P-7A Failed to Start During QO-1, Safety Injection System," April 28, 2000
- CPAL0001378, "Post -aintenance PMT," dtd May 1, 2000
- CPAL0001388, "Periodic and Predetermined Activity (PPAC) ESS044 Initiation Form, Basis Statement is Incomplete," May 2, 2000
- CPAL0001397, "Evaluation of Combined Loading on CV-3018 Actuator 1" Tie Bolts Not Documented in EA and Spring Can Angle from Vertical Incorrectly Identified," dtd May 1, 2000
- CPAL0001398, "Review of Last HPSI Pump Outboard Bearing Oil Sample," dtd March 20, 1998. Identified High Ferrous Particulate and High Iron Content, May 3, 2000
- CPAL0001401, "Contaminant Found in Bottom of P-66A Outboard Bearing Oiler," May 3, 2000
- CPAL0001407, "Source of Leaking Oil not Confirmed by Laboratory Analysis," May 4, 2000
- CPAL0001408, "Lack of Documentation for Consumable Items," May 4, 2000
- CPAL0001421, "Palisades 2400/4160 Volt Breaker Refurbishment/Replacement Practices Potential Outlier in Industry," May 5, 2000
- CPAL0001426, "Lack of Documentation Supporting Completed Action of Commitment CMT952010205," May 5, 2000
- CPAL0001427, "Weakness in Basis for the Frequency of Safety-Related Pump Oil Changes," May 5, 2000