U. S. NUCLEAR REGULATORY COMMISSION
REGION III

Report No. 50-255/92006(DRP)

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

Licensee: Consumers Power Company
212 West Michigan Avenue
Jackson, MI 49201

Facility Name: Palisades Nuclear Generating Plant

Inspection At: Palisades Site, Covert, MI

Inspection Conducted: January 28 through March 9, 1992

Inspectors: J. K. Heller J. R. Roton
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Approved By: B. L. Jorgensen, Chief
Reactor Projects Section 2A DATE 3/20/92

Inspection Summary

Inspection from January 28 through March 9, 1992 (Report No. 50-255/92006(DRP))
Areas Inspected: Routine unannounced inspection by the resident inspectors of plant operations, maintenance, surveillance, radiological controls, security, outages, procedure review, safety evaluations, plant review committee, and plans for coping with a strike. No Safety Issues Management System (SIMS) items were reviewed.

Results: No violations or deviations were identified in the areas inspected.

The strengths, weaknesses, one Open Item, and an Unresolved Item are discussed in paragraph 12, "Management Interview."

DETAILS

1. Persons Contacted

Consumers Power Company

*G. B. Slade, Plant General Manager
*R. M. Rice, Plant Operations Manager
*R. D. Orosz, Nuclear Engineering & Maintenance Manager
*P. M. Donnelly, Safety & Licensing Director
*K. M. Haas, Radiological Services Manager
*J. L. Hanson, Operations Superintendent
*R. B. Kasper, Maintenance Superintendent
*K. E. Osborne, System Engineering Superintendent
D. D. Hice, Chemistry Superintendent
L. J. Kenaga, Health Physics Superintendent
C. S. Kozup, Technical Engineer
*T. J. Palmisano, Administrative & Planning Manager

Nuclear Regulatory Commission (NRC)

*J. K. Heller, Senior Resident Inspector
*J. R. Roton, Resident Inspector

*Denotes some of those present at the Management Interview on March 17, 1992.

Other members of the plant staff, and several members of the contract security force, were also contacted during the inspection period.

2. Operational Safety Verification (71707, 71710, 42700, TI 2515/113)

Routine facility operating activities were observed as conducted in the plant and from the main control room. Steady power operation, plant shutdown, refueling operations and system(s) lineup and operation were observed as applicable.

The performance of reactor operators and senior reactor operators, shift engineers, and auxiliary equipment operators was observed and evaluated. Included in the review were procedure use and adherence, records and logs, communications, shift/duty turnover, and the degree of professionalism of control room activities. Evaluation, corrective action, and response for off normal conditions were examined. This included compliance to any reporting requirements.

a. General

The unit began the reporting period at essentially full power. On February 5, 1992, the licensee started a power reduction in response to inoperable Main Steam Isolation Valve (MSIV) control

circuits. The power reduction was stopped and power returned to essentially full power when a Temporary Waiver of Compliance (documented in paragraph 2.b. "Temporary Waiver of Compliance") was approved by the NRC. The unit was removed from service on February 6, 1992, for a refueling and maintenance outage when the licensee determined an on-line repair was not practicable. The unit was in a refueling and maintenance outage at the end of the reporting period.

b. Temporary Waiver of Compliance

On February 5, 1992, the licensee verbally requested a Temporary Waiver of Compliance (TWOC) from the shutdown requirements of Technical Specifications 3.5.3. The TWOC was requested because reviews conducted by the licensee's configuration control group determined that the control circuity for the Main Steam Isolation Valves (MSIVs) had inadequate isolation between class 1E and non-class 1E circuits.

There is one MSIV installed on each main steam header. The MSIVs are check valves held open by a pneumatic cylinder. Both MSIVs close on a low pressure signal from either steam generator or a containment high pressure signal. The air supply for each MSIV is controlled by three pairs of solenoid operated air supply and vent valves. One set is located in the turbine building and two sets are located in the auxiliary building. Closure of any air supply valve and opening of any vent valve will close the associated MSIV.

The licensee determined that the control valves located in the auxiliary building were not qualified to survive a harsh environment subsequent to a main steam line break outside the containment. If the control valves located in the auxiliary building failed, the power supplies - which are common to the power supplies for the control valves located in the turbine building - could fail and preclude operation of the valves located in the turbine building. Based on this, the MSIVs were declared inoperable and the licensee entered a Technical Specification action statement that required the plant to be in hot standby in 6 hours, hot shutdown in the following 6 hours and cold shutdown in the following 24 hours.

The licensee evaluated the problem and verbally requested a 72 hour TWOC to permit continued evaluation and implementation of a repair. The NRC (Region III and NRR) verbally granted the TWOC at 6:49 p.m. on February 5. The licensee provided a written request within 24 hours following verbal authorization.

A provision of the TWOC required placement of a knowledgeable individual at the local panel for the turbine building control valves, to manually close the MSIVs if these valves did not automatically close when required. The inspectors verified that a

knowledgeable individual, who was in constant communication with the control room, was stationed at the control panel.

The inspectors also determined through interviews, review of logs and review of status boards, that the information contained in the TWOC was disseminated to the operating crews. The inspector found that the MSIVs were declared inoperable on the shift supervisor status board. The status board also stated that a TWOC was in effect for the next 72 hours.

Another provision of the TWOC required compliance with the action statement of Technical Specification 3.5.3 at any time it was determined that a repair was not practical. The licensee determined that a repair would require a power supply modification and a hardware modification to assure the control and logic circuits in the turbine building were redundant to the control and logic circuits in the auxiliary building. Another option was to move the control valves out of the auxiliary building. Based on this the licensee terminated the TWOC at 6:30 p.m. on February 6 and re-entered the shut down requirements of Technical Specification 3.5.3.

The written TWOC request was reviewed by Region III on February 6 and determined to be a quality submittal. A few minor enhancements were identified and discussed with the licensee. Most notable was the need to discuss 10 CFR 51.22 as the TWOC applies to exclusion from environmental review.

There appeared to be two causes for the control circuity problem. The first was a design change implemented in the early 1970s to install a second control circuit in the turbine building. This change did not duplicate the logic or power scheme in the turbine building. The second was a failure to assure that control circuity required to operate during and after an accident was qualified for the potentially harsh environment. These items were the subject of a special inspection documented in Inspection Report 255/92011(DRS).

c. Auxiliary Feedwater Pump Room

During a tour of the auxiliary feedwater pump room, the inspector noted that concrete was spalling from the north-west corner and ceiling. The inspector discussed this problem with system engineering and was informed that repairs would be implemented this outage. The inspector's interest was in the root cause evaluation. During feedwater heater replacement activities performed during a previous outage, a feedwater heater was moved over this area. In addition, a feedwater heater pedestal located in the general area required corrective action because it was settling. It was unclear if these activities were related or if other factors might be affecting the structural integrity of the auxiliary feedwater pump room. The licensee evaluation continued.

This is an open item pending completion of the licensee evaluation. (Open Item 255/92006-01(DRP)).

d. Plant Maneuvering

The inspector reviewed plant activities as they applied to the following activities.

(1) Power reduction, plant shutdown and plant cooldown per General Operating Procedure (GOP) 8 and 9.

(2) Shutdown cooling operations per GOP 14.

(3) Draining the Primary Coolant System (PCS) per step 7.1.6 of System Operating Procedure (SOP) 1.3.

e. Reduced Inventory Operations

The licensee started draining the primary coolant system (PCS) at the same time another power plant lost shutdown cooling during PCS draining activities. As a result of that event, the inspector reviewed the licensee activities during the draindown.

(1) The licensee had removed the pressurizer manway cover to establish a vent path.

(2) At least two independent level indicators were operable with the readings in agreement. The tygon-tube level indicator was functional, with an operator stationed at the indicator and in telephone communication with the control room.

(3) The level increase and draining of the primary system drain tank matched the drain rate from the PCS.

(4) The PCS drain was stopped every hour to assure that a vacuum was not being drawn on the PCS and that the level indicators matched.

(5) The equipment hatch was shut and refueling containment integrity established.

(6) The drain rate was controlled by gravity and not accelerated by use of a cover gas.

Evolutions involving PCS inventory reduction were conducted in a deliberate and meticulous fashion. Licensee management was extremely sensitive to issues involving reduced inventory operations.

The inspector monitored a session of the licensee's shutdown risk training class. The class was well structured and thorough. It is to be given to a broad spectrum of plant

personnel. Indepth interviews with a vertical slice of licensee personnel revealed an excellent knowledge of both shutdown risks and the windows work scheduling method as well as the particular risks involved with reduced inventory operations.

Additionally, the inspector obtained information, per the requirements of TI 2515/113, on licensee practices for maintaining reliable decay heat removal during outages and has no further comment. This information was provided to NRR.

f. FHSO-9 Movement of Fuel Pool Divider Gate

During the removal of the fuel pool divider gate, the gate pins bound against the bottom of the gate hooks while the lift continued. This resulted in a broken sling and a dropped fuel pool divider gate. This was the subject of an internal corrective action document. The rigging configuration was a two point lift directly attached to the spent fuel pool auxiliary crane. The inspector discussed potential corrective actions with the corrective action evaluator. The preliminary corrective action did not address the potential loading on the spent fuel pool auxiliary crane. The crane is rated at 15 tons. The procedure specified a minimum sling rating of 2 tons. If higher rated slings were used and the slings had a standard safety factor of 5 to 1, the potential exists that the rating of the crane was exceeded. This was discussed at the management interview.

The inspector reviewed the rigging requirements specified in Attachment 1 of FHSO-9 and recalculated the minimum rating requirements of the slings. The specified ratings were appropriate to lift the gate using the minimum specified sling length. The inspector noted that the rigging configuration did not require the use of a load cell or chain fall to assure that there was no unexpected binding when the initial lifted force was applied. This was discussed at the management interview.

g. Safety System Walkdown

The inspector verified the operability of the shutdown cooling system by verifying alignment using Palisades "Low Pressure Safety Injection System" (LPSI) check list and piping and instrumentation diagram M-204, Sheets A1, 1, 1A, and 1B. This walkdown included a verification that major flow path valves were in the correct position. During the walkdown, hanger EC1-H42 was found in a degraded condition. The inspector notified the system engineer who inspected the hanger and documented its condition on an internal corrective action document. The evaluation determined the LPSI was operable without the hanger installed. The hanger was restored prior to entering shutdown cooling conditions. No other items were found that degraded the system.

No violations, deviations, unresolved or open items were identified.

3. Maintenance (62703, 42700)

Maintenance activities in the plant were routinely inspected, including both corrective maintenance (repairs) and preventive maintenance. Mechanical, electrical, and instrument and control group maintenance activities were included as available.

The focus of the inspection was to assure the maintenance activities reviewed were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with Technical Specifications. The following items were considered during this review: the Limiting Conditions for Operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures; and post maintenance testing was performed as applicable.

The following work order (WO) activities were inspected:

a. WO 24103287, "Heater Drain Pump P-10A Suction Leaks By, Inspect and Repair."

b. WO 24105193, "Heater Drain Pump P-10A Discharge Check Valve, Disassemble, Inspect and Repair."

c. WO 24102071, "Emergency Diesel Generator 1-1, Replace Air Line Per SC-91-107."

d. WO 24102392, "High Pressure Turbine, Disassemble Upper Half HP Components."

e. WO 24104107, "High Pressure Turbine, Disassemble HP Pedestal and Rotor."

f. WO 24102407, "High Pressure Turbine, Clean and Inspect HP Upper Components."

g. WO 24102410, "High Pressure Turbine East Cross-Under, Inspect and Repair Pipe."

h. WO 24102411, "High Pressure Turbine West Cross-Under, Inspect and Repair Pipe."

i. WO 24102396, 24102398, 24102400, and 24102399; "Moisture Separator and Reheater Inspection."

j. WO 24001183, "Electro Hydro/Gov Control Cabinet DEH Modification. Installation and Checkout. (FC-844)."

k. WO 24103917, "Station Power Transformer 1-1, Region Repair and Testing."

l. WO 36100120, "Install Nozzle Dams Steam Generator "A" and "B"."

m. WO 24200633, "Events Recorder ER-2. Repair Taped Splices on Wires."

n. WO 24104323, "Remove Recorder on Feedwater Pump P-1A to Closeout TM-91-05B."

o. WO 62260340, "Main Feedwater Controls Upgrade, Remove Instruments, Hardware, Wire, Terminations in C-01 Panel."

p. WO 40250540, "Auxiliary Feedwater Controls Upgrade: Modify Internal Wiring Control Room C-01."

q. WO 24105720, "Alternate Steam Supply to P-8B From Steam Generator. Valve Sticking Closed."

r. WO 24100842, "Heater Drain Pump Rebuild." (Observed Removal).

s. WO 24104672, "Feedwater Pump, Miscellaneous Mechanical System Work."

t. WO 24101811, "Heater E-3A Drain Valve (CV-0613) Sticking. Rebuild."

u. WO 24105436, "Heater E-3B Level Control Valve (CV-0623) Disassemble, Inspect and Repair Valve and Actuator."

For several of the WOs listed above, the inspector noted that the mechanics or technicians involved in the repair or maintenance activity demonstrated a thorough understanding of the procedure. The procedures were clear and concise as to the work to be performed. Tools and other documentation required to complete the task appeared to be staged at the job site indicating a detailed pre-job review of the work order was performed prior to starting the task.

No violations, deviations, unresolved or open items were identified.

4. Surveillance (61726, 42700)

The inspector reviewed Technical Specifications required surveillance testing as described below and verified that testing was performed in accordance with adequate procedures. Additionally, test instrumentation was calibrated, Limiting Conditions for Operation were met, removal and restoration of the affected components were properly accomplished, and test results conformed with Technical Specifications and procedure requirements. The results were reviewed by personnel other than the individual directing the test and deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The following activities were inspected:

a. RI-59, "Calibration of PCS Over-pressure Protection."

b. QO-14, "Inservice Test Procedure: Service Water Pumps." (Partial for P-7B)

c. RI-67, "Functional Test of Fire Detection System, Inside Containment."

d. MO-26, "Fire Suppression System Valve Alignment and Fire Hose Station."

e. RI-86E, "Refueling Isolation Monitor Calibration."

f. QO-15, "Inservice Test Procedure: Component Cooling Water Pumps." (Partial for P-52C).

g. QO-13, "Iodine Removal Valve Stroke."

h. MO-7C, "Fuel Oil Transfer Pump." (Partial for P-18A)

i. RM-24, "Main Steam Safety Valve Setpoint Test."

j. SI-7, "Functional Safety Test of Fire Detection System Outside Containment."

k. RT-88, "Shutdown Cooling/ESS Pump Suction Line Test." (Partial Test for Containment Sump Lines to CV-3029 and CV-3030).

l. QE-9, "Diesel Fire Pump Battery Surveillance."

m. RI-77, "Pressure Relief Valve Monitoring System Calibration."

n. RE-83A, "Service Test - Battery No. D01."

o. RE-83B, "Service Test - Battery No. D02."

No violations, deviations, unresolved or open items were identified.

5. Radiological Controls (71707)

a. On February 6, the licensee shipped a spent fuel storage rack to a contractor for compaction. The rack had been removed from the spent fuel pool approximately ten years ago. When the truck stopped enroute, it was discovered that the shipping container was leaking water. Response groups from the Palisades plant, Cook plant, and local emergency teams responded. After surveys indicated that the water was not contaminated the shipment was returned to the site. This was the subject of a special NRC inspection documented in Inspection Report 255/92008(DRSS).

b. The inspector observed activities at the spent fuel pool and the exit area for the containment. The undressing area for the containment consisted of a double step off pad to minimize the spread of contamination. The first pad required removal of the potentially contaminated outer clothing prior to entering the general undressing area. The work area for fuel reconstitution was in the general undressing area. Fuel reconstitution required occasional removal of tools from the spent fuel pool. These activities were done using good radiological work practices. However the workers did not remove the potentially contaminated outer clothing while moving in the general undressing area. This potential compromise of contamination control for the general undressing area was discussed with the health physics (HP) superintendent.

c. The inspector observed activities at the auxiliary building access control point. One observation pertained to the duty HP technician's review of a contractor's reason for entry into the auxiliary building. The contractor stated he wanted to determine if a ladder or scaffolding was required to facilitate valve maintenance. Initially the contractor stated that he was not sure where the valve was located. Prior to permitting entry the HP technician required some assurance that the contractor knew the general location of the valve. A map was then found in the work order package. The inquiring nature of the technician assured that proper clothing was worn, and that the contractor's time in the area and possible dose were minimized.

No violations, deviations, unresolved or open items were identified.

6. Security (71707)

Routine facility security measures, including control of access for vehicles, packages and personnel, were observed. Performance of dedicated physical security equipment was verified during inspections in various plant areas. The activities of the professional security force in maintaining facility security protection were occasionally examined or reviewed, and interviews were occasionally conducted with security force members.

During this inspection period a fitness-for-duty and an access control problem occurred. The information was provide to Region III security and fitness-for-duty specialists. Any additional questions will be addressed by separate correspondence.

No violations, deviations, unresolved or open items were identified.

7. Outages (37700, 42700, 60705, 60710, 61701, 61715, 86700)

a. General

The refueling outage was started 17 days ahead of schedule when it

was determined that repairs to the control circuity for Main Steam Isolation Valves could not be completed within the 72 hour period granted by the Temporary Waiver of Compliance discussed in paragraph 2.b of this report. The following milestones have been achieved:

Major Outage Milestones	Date Completed
Open Generator Breakers	02/06/92
PCS in Hot Shutdown	02/07/92
PCS in Cold Shutdown	02/09/92
S/G Nozzle Dams Installed	02/26/92
S/G Commence Eddy Current Testing	02/29/92
Reactor Pressure Vessel Head Removed	02/27/92
Upper Guide Structure Removed	03/03/92
Commence Fuel Shuffle	03/07/92

Of the 1817 Work Orders (WO) scheduled to be completed during the outage, approximately 757 have been completed. Of the remaining 1060 WOs, 751 are in progress and 309 remain in the planning phase. Although not fully prepared to commence the outage early, the licensee did an outstanding job of adjusting its schedule to minimize the effect of the early start. Specific strengths were noted in the performance of the Outage Manager, the Operations Department Planning Coordinator and the Shift Managers. These people have been instrumental in ensuring work was performed only when requisite plant conditions were established. In addition, these individuals have maintained the global overview required to ensure the safety of the plant and personnel involved in the various repair and maintenance activities.

b. Fuel Assembly Attached to Bottom of Upper Guide Structure (UGS)

On February 29, 1992, licensee personnel observed that a fuel assembly remained firmly attached to the bottom of the UGS as the UGS was being lifted from the reactor vessel. The plant had been shut down since February 7 for a refueling and maintenance outage.

The stuck fuel assembly was from the periphery of the reactor core. During two previous operating cycles this fuel assembly had also been located in this position. The area above the reactor had been flooded to the refueling level which provided adequate radiation shielding.

The licensee declared an Unusual Event at 11:05 p.m. on February 29. Refueling containment integrity was established by closing the equipment hatch. After the initial 10 CFR 50.72 notification, three conference calls were conducted between the licensee and various members of the NRC (both Region III and NRR). In addition, telephone communications were maintained between Region III and the licensee whenever recovery activities were conducted. A fourth conference call to brief commissioner assistants was conducted by Region III.

The bottom of the fuel assembly was about four and one-half feet above the top of the reactor core. By 4:40 p.m. on March 1, a series of cables had been installed to form a web which would restrain the fuel bundle if it dislodged from the UGS. Evaluation of the worst case scenario by the licensee determined that if the bundle fell, offsite impact would be minor.

On March 1, the licensee prepared to free the fuel assembly. Palisades Nuclear Plant Fuel Handling Procedure 16 (FHSO-16) was written to recover the fuel assembly. The procedure consisted of two main phases. The first was removal of the fuel assembly from the UGS and stabilization of the assembly in the vertical position. The second was grappling the fuel assembly with the spent fuel pool auxiliary hoist handling tool and movement to the tilt pit transfer machine. FSHO-16 was approved, training was conducted and special recovery tools were fabricated and tested.

On March 2, the licensee lowered a grappling device through the UGS and connected it to the top of the fuel assembly. Additionally, a hydraulic "horseshoe" was attached to the fuel assembly and the series of restraining cables removed. The horseshoe was held in place by three cables attached in the south, east and west directions. Additionally, a containment entry was made by Westinghouse to prepare the laydown area for the UGS and engage a second grapple ("J-hook") to the top of the fuel assembly. Installation of the "J-hook" was not successful.

Following redesign and testing, a second grapple was successfully attached to the top of the fuel assembly. When tension was placed on the second grappling device the fuel assembly detached from the UGS. The licensee attempted to lower the assembly in this configuration; however, the original grappling device was too large in diameter to pass through the UGS flow hole. The licensee detached the original grappling device and lowered the fuel assembly with only the second grappling device attached and the hydraulic "horseshoe" to control the descent. This activity was completed leaving the fuel assembly resting on the core and leaning against the side of the core barrel. The second grapple was removed to facilitate removal of the UGS. The horseshoe provided assurance that the fuel assemble would not fall. On March 3, the UGS was removed.

At 12:30 p.m., on March 3, the final prejob briefing was conducted for the lifting and transport of the fuel assembly to the tilt machine. At 4:18 p.m., the fuel assembly was placed in the "west" side of the tilt machine and the licensee exited the Unusual Event.

A similar event occurred during the 1988 refueling outage. The fuel assembly was different but located in the same core position. One difference between this event and the previous event was the use of the second grappling device. In the previous event the

fuel assembly was freed after applying force from a removal tool. In this case, the bundle was freed after the second grapple was installed.

Initial inspection of the fuel assembly consisted of a visual inspection of the fuel bundle and a dimensional check of the top of the fuel bundle; no problems were identified. The licensee's corrective actions will continue with inspection of the UGS scheduled to begin after the fuel moves are completed. This event will be the subject of an LER and will be further reviewed during closeout of the LER.

c. Steam Generator Nozzle Dam Installation

On February 26, while installing nozzle dams in the hot leg of the "A" steam generator the licensee discovered that one of the eight pins used to hold the "dry" nozzle dam in position would not engage and lock-in. This particular pin was located in the number seven position. When hydrostatically tested, the "dry" nozzle dam failed the between-the-seals hydrostatic test (the seals themselves had passed their hydrostatic test). Based on previous experience with leaking nozzle dams, the license proceeded with flood-up of the cavity to support refueling operations.

The inspector questioned why a test fit of the nozzle dams during the steam generator replacement outage did not identify the fit-up problem. The inspector was informed that the dams were not test fit as part of the steam generator replacement project because of scheduling problems. It was additionally reported to the inspector that the same pin in the "dry" dam of the "B" steam generator hot leg would not fully engage and lock. Apparently the template used to machine/drill the holes for the "dry" dams was not properly bench marked.

d. Zebra Mussels

During this outage, the licensee performed an underwater inspection of the firewater and service water intake bay. This inspection revealed a significant number of zebra mussels firmly attached to the sides of the bay. The ambient water temperature was and remained below the zebra mussel dormancy temperature. During the previous summer, the licensee had treated the bay with Betz ClamTrol and chlorine in an attempt to prevent mussel growth. During this outage, the component cooling water heat exchangers, diesel generator heat exchangers, cooling towers, condensor and containment air coolers were inspected. A few dead mussels were found in the component cooling water heat exchangers and in the cooling towers; none were found in the other areas. These results indicated that the program prevented blockage caused by rampant growth and controlled the growth in the treated area. However, the number of mussels in the intake bay indicated a need to redefine the injection points for the Betz ClamTrol. This was

discussed with the system engineer who stated that the injection point was being reanalyzed. The dormant mussels are being mechanically removed from the suction bay.

The inspector expressed a concern in a previous inspection report that zebra mussels may have infected the firewater system and possibly the cross-connection to the Auxiliary Feedwater Pumps. Recently, the Zion Nuclear Power Plant reported a buildup of sand and zebra mussels in the emergency makeup line to the Auxiliary Feedwater Pumps. This information was shared with the licensee.

e. Procedure Review

The inspector reviewed the working and control copies of RVG-M-2 "Removal of Reactor Vessel Head" and RVI-M-1 "Removal of the Upper Guide Structure (UGS)," and made the following observations:

(1) RVG-M-2 at Table 1 specified the sequence for stud detensioning using three stud tensioners. The sequence specified that the tensioners be placed on the 18th stud. Step 8 contained an obvious typographical error by stating the wrong stud in the sequence. A pen and ink change was made and the evolution continued. The editorial change was not approved by a member of the plant staff nor was a document issued to assure that the editorial change be made permanent.

(2) RVG-M-2 at step 3.7.2 and RVI-M-1 at step 3.2.2 required use of a calibrated load cell and required that the calibration due date, calibration date and serial number be documented in the procedure. These steps were marked "N/A" with no explanation or signatures provided. The inspector interviewed the contractor manager who indicated that the installed load cell for the polar crane was used. The inspector reviewed the plant records and found that the installed load cell was not included in the plant calibration program.

(3) RVG-M-2 at step 5.9.15 specified a maximum head removal weight of 135 tons. The procedure also specified that if this weight is exceeded the lift shall be stopped and evaluated for interference. The recorded weight was 159 tons which exceeded the maximum weight by 24 tons. The inspector interviewed the contractor supervisor responsible for the head lift and found that the evaluation was performed on the spot by visually observing that only the head was being removed. This evaluation was not documented or discussed with any member of the plant staff. The inspector noted that the procedure required an evaluation and did not grant permission to continue once the evaluation was performed. In addition, it was unclear how an

evaluation can be performed since the weight was exceeded prior to movement of the head above the seating surface.

The recorded weight exceeded the containment polar crane rating of 135 tons by 24 tons. The inspector also questioned why a crane operator continued with a lift that exceeded the crane rating. When this item was identified to the licensee the crane manufacturer was contacted. He performed a visual and dimensional check of the critical points of the crane and documented that the crane was acceptable for continued use and had not been damaged due to a 159 ton lift.

(4) RVI-M-1 specified a maximum lift weight of 34.5 tons and required an evaluation if that weight was exceeded. The recorded weight was 38 tons. As in the head removal procedure, the evaluation was performed on the spot by the contractor, was not documented, reviewed, or approved by a plant employee, and the procedure did not permit the operation to continue with the weight exceeded.

In this case a Senior Reactor Operator (SRO) for refueling operations was in the area to observe the UGS removal and to verify that a fuel bundle did not remain attached to the bottom of the UGS. The inspector interviewed the SRO, who indicated that he was not consulted when the maximum weights were reached and exceeded. The licensee had previously identified this item and documented the problem on an internal correction document.

The inspector has reviewed each item listed above. Collectively they indicate a procedure compliance problem or a contractor oversight problem. These are considered an unresolved item pending additional review by the inspector to determine if enforcement action is appropriate.
(Unresolved Item 255/92006-02(DRP)).

8. Technical Procedure Review (46500)

a. RVG-M-5 "Reactor Head Installation."
The inspector performed a technical review of RVG-M-5 using vendor manual M-I-B SH-929, "Reactor Vessel Assembly" as a reference. The inspector found that the technical instructions of the vendor manual were incorporated into the procedure.

The inspector also found a provision at several procedure steps that permitted a supervisor to waive Q.C. notification points if Q.C. was not available. The Q.C. hold points did not contain a similar provision. This procedure and others with similar provisions are used by contractors. This means that a contractor who may have contractual requirements to meet or exceed a schedule has permission to waive a Q.C. notification without any oversight

by plant personnel. The inspector has not identified a problem; however, the inspector has noted that problems may occur if a new contractor with no previous work history at Palisades uses the procedures. This was discussed at the exit interview.

b. RVI-M-1 "Removal and Storage of the Upper Guide Structure (UGS)"

The inspector attempted to perform a technical review of the procedure using vendor file M-I-B-E(2), "Internal-Upper Guide Structure" as a reference. This file did not contain a written instruction; therefore, the technical review was limited.

The inspector could not find a procedural requirement to verify that the UGS removal rig was leveled with respect to the UGS seating surface. The UGS is a three leg lift, each leg with a leveling device. A review of the UGS work order history file identified one attempt (WO 24905884) to level the UGS. This was aborted because the leveling nuts were stripped. The inspector interviewed personnel involved with this evolution. Some indicated that leveling was attempted with the refueling deck as a reference. The nuts were replaced (WO 24005555), however, no attempt was made to level the UGS.

The inspector identified that it may be more appropriate to level the UGS removal rig with respect to the seating surface of the UGS instead of the refueling deck. Levelness of the UGS removal fixture may have contributed to the stuck fuel assembly discussed in paragraph 7.b, "Fuel Assembly Attached to Bottom of Upper Guide Structure (UGS)."

No violations, deviations, unresolved or open items were identified.

9. Safety Evaluations (42700)

The inspector performed a review of Palisades Nuclear Plant Administrative Procedure No. 3.07, "Safety Evaluations." This review was conducted to assess plant control of the 10 CFR 50.59 safety evaluation process. The following observations were identified and discussed with the licensee.

a. The procedure was well detailed and provided clear directions on performing the safety evaluation checklists. Definitions were extensive and informative. The procedure referenced the plant capability to perform full text computer searches of the FSAR, the Technical Specifications, the Standing Orders, and Safety Evaluation Reports. This method was considered a useful tool in ensuring that subtle changes to the facility were not overlooked by missing an FSAR reference to a component or system. The procedure stated that if the computer search method was employed, the search phrases should be listed on the SE checklist. The inspector noted that either the computer search was not being used

or the procedure requirement to document the search method used was not implemented, since a review of approximately 25 safety evaluations did not reveal any use of the computer search method. Listing the search phrases could assist management review of the comprehensiveness of the safety evaluation. The inspector discussed this aspect with the appropriate supervisor.

b. Section 5.2.5.d of the procedure required that any "direct or indirect conflict with TS" be identified as an item which can not be changed per 10 CFR 50.59. The procedure lists two excellent examples of indirect TS conflicts which should be conservatively flagged as requiring a TS change. One example was replacement of an instrument with another model which cannot be surveillance tested in the manner stated in TS. The inspector questioned if this guidance was used when determining if the reactor protection system modification could be performed under 10 CFR 50.59. The modification replaced a flow selector setpoint switch and initially did not identify the need to request a TS change. The issue was discussed with the unit supervisor and resolved.

c. Section 5.4.2.c of the procedure stated that one condition requiring an FSAR update was safety evaluations which justify alternative means of satisfying licensing bases when those means conflict with existing TS or FSAR descriptions. The inspector pointed out that a safety evaluation cannot conflict with an existing TS. A TS change must be requested first. The unit supervisor committed to change the procedure, stating that the reference to TS should be "TS basis".

d. The safety evaluation procedure required that an Unreviewed Safety Question (USQ) determination be made on a package that has already been marked for a TS change. The inspector questioned the logic of this process, since the determination of no significant hazards (covered by Proc. No. 3.06) is required for a TS change. Performing a USQ determination is conservative for proposed TS changes. However, this process could contribute to one of the following:

   (1) Implementation of a modification, requiring a TS change and not constituting an USQ, without NRC approval.

   (2) Undue pressure on the preparer to evaluate the change as not having any reduction in event probability or any reduction in a margin of safety (when the TS change process allows for example, slight reductions in a margin of safety).

   The inspector discussed this with the appropriate supervisor, who referenced an existing TS which required Plant Review Committee review of TS change USQ determinations.

e. The inspector reviewed more than 25 safety evaluation packages, consisting of a sampling of facility changes, temporary

modifications, and procedure changes from 1991 and 1992. In general, the changes were comprehensive and well documented. The following are specific comments:

(1) Two temporary modification packages were properly "checked" as changes to the facility, requiring an unreviewed safety question determination.

(2) A change to GOP-3 properly referenced the existing TS requirement for operable source range detectors.

(3) An FSAR update package was processed on a recently issued NRC safety evaluation regarding seismic design. The plant properly recognized this as applicable to the licensing basis and added the information to the FSAR.

(4) Two packages involving TS changes had completion dates that preceded the official TS issue date issued. The inspector cautioned the plant to ensure that procedure changes do not precede the implementation date of the TS. No such inappropriate procedure changes were found, but it appeared that the potential for such a mistake existed.

No violations, deviations, unresolved or open items were identified.

10. Plant Review Committee (PRC) (37700)

The inspector reviewed the meeting minutes from the following regularly scheduled PRC meetings: 91-040, 91-050, and 92-002. The inspector had previously attended PRC meeting 91-040 and documented his observations in Inspection Report No. 50-255/92002. The meeting minutes accurately represented the meeting discussion.

The inspector had previously expressed concern with the extent and content of PRC discussions of items approved for the committee by the Plant Safety & Licensing (PS&L) "subcommittee". The PS&L group does not review items in a committee format. The inspector had questioned whether an adequate sampling of these safety evaluations were being discussed by the PRC to ensure the effectiveness of the subgroup's review. A review of the PRC meeting minutes showed that approximately 20% of the issues received discussion. Additionally, the PS&L chairman keeps statistics on the number of items processed, forwarded for PRC review, and rejected. This tracking of performance is considered a strength and appears to resolve the inspector concern.

11. Licensee Plans For Coping With Strikes (92709)

The company-wide union contract expires on June 31, 1992. The personnel represented by the union are maintenance (mechanical and electrical) and operations. The inspector and Region III management have discussed the planning and potential consequences of a long term strike. The licensee has agreed to discuss with Region III plans for

coping with a strike, implementation of the strike plan and resumption of normal operation after the strike when authorization is granted to prepare for a strike.

12. Management Interview (71707)

The inspectors met with licensee representatives - denoted in Paragraph 1 - on March 17, 1992, to discuss the scope and findings of the inspection. In addition, the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection was also discussed. The licensee did not identify any such documents or processes as proprietary.

Highlights of the inspection report and items discussed at the exit interview are discussed below:

a. Strengths noted:

(1) Communications to the NRC.

(a) Written and oral presentation of the request for the Temporary Waiver of Compliance (paragraph 2.b, "Temporary Waiver of Compliance").

(b) Oral presentation pertaining to the stuck fuel bundle (paragraph 7.b, "Outages - Fuel Assembly Attached to Bottom of Upper Guide Structure").

(2) Management sensitivity to reduced inventory operations (paragraph 2.e, "Operations - Reduced Inventory Operations").

(3) Inquiring nature of the H.P. Technician stationed at the access control point (paragraph 5.c, "Radiological Controls").

(4) Performance of outage and shift managers (paragraph 7.a, "Outages - General").

(5) Response and recovery from a fuel assembly attached to the bottom of the Upper Guide Structure (paragraph 7.b, "Outages - Fuel Assembly Attached to Bottom of Upper Guide Structure").

(6) Use of a computer search of documents to find references to components when performing safety evaluations (paragraph 9.a, "Safety Evaluations").

(7) Consideration of indirect Technical Specification conflicts when performing Safety Evaluations (paragraph 9.b, "Safety Evaluations").

(8) Comprehensive and well documented changes to the facility, temporary modifications and procedures. (paragraph 9.e, "Safety Evaluations").

b. Weaknesses noted:

(1) Inadequate design change (performed in the early 1970s) to place a portion of the MSIV control circuity in the turbine building (paragraph 2.b, "Temporary Waiver of Compliance").

(2) Failure to confirm that control circuitry would survive a harsh environment (paragraph 2.b, "Temporary Waiver of Compliance").

(3) Imprecise processes and controls for rigging and rigging configuration (paragraph 2.f, "FHSO-9 Movement of Fuel Pool Divider Gate" and paragraph 7.e, "Outages - Procedure Review").

(4) Permitting a Radwaste shipment to leave the site that had been leaking water. Compensatory measures had been implemented but the consequences, if the measures had failed, were not understood (paragraph 5.a, "Radiological Controls").

(5) Potential compromise of contamination control in the general undressing area for the containment undressing area during fuel reconstitution activities (paragraph 5.b, "Radiological Controls").

(6) The licensee never fit-tested the hot- and cold-leg nozzle dams during the steam generator replacement project (paragraph 7.c, "Steam Generator Nozzle Dam Installation").

c. The open item pertaining to concrete spalling in the Auxiliary Feedwater Pump room was discussed. The inspector asked if recent activities had affected the integrity of the walls (paragraph 2.c, "Auxiliary Feedwater Pump Room").

d. Zebra mussel infestation was discussed. The result of an inspection performed at another plant indicated the backup piping for auxiliary feedwater may be contaminated with zebra mussels (paragraph 7.d, "Outages - Zebra Mussels").

e. A potential problem was discussed as it pertains to performing safety evaluations to identify Unreviewed Safety Questions versus determinations of No Significant Hazards (paragraph 9.d, "Safety Evaluations").

f. The verbal commitment to discuss strike plans with Region III was discussed (paragraph 11, "Licensee Plans For Coping With Strikes").

g. The Unresolved Item pertaining to procedure compliance was discussed (paragraph 2.f, "FHSO-9, Movement of Fuel Pool Divider Gate," and paragraph 7.e, "Outages - Procedure Review").