U.S NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/89029(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, Michigan

Inspection Conducted: October 6 through November 13, 1989

Inspectors: E. R. Swanson

J. K. Heller

E. R. Schweibinz

Approved By: B. L. Burgess, Chief
Reactor Projects Section 2A

11/29/89
Date

Inspection Summary

Inspection on October 6 through November 13, 1989 (Report No. 50-255/89029(DRP))
Areas Inspected: Routine unannounced inspection by the resident inspectors of: actions on previously identified items; plant operations; maintenance; surveillance; fire protection; security; quality program activities; reportable events; bulletins, 10 CFR 21 reports; and, NRC Region III requests. No Safety Issues Management System (SIMS) items were reviewed.
Results: Of the eleven areas inspected, no violations or deviations were identified.

The inspection disclosed weaknesses in: the licensee's excessive use of Engineering Design Changes during modification work, fire protection, and containment cleanup.

The inspection noted strengths in the licensee's maintenance of general cleanliness during the outage, completion of the "model room" for evaluation, aggressive implementation of Fitness for Duty Program, and the system engineer program.

One new Unresolved Item was identified concerning fire protection program implementation and is discussed in Paragraph 7.

DETAILS

1. Persons Contacted

Consumers Power Company

G. B. Slade, Plant General Manager
*R. M. Rice, Plant Operations Manager
J. G. Lewis, Technical Director
*R. D. Orosz, Engineering and Maintenance Manager
#*W. L. Beckman, Radiological Services Manager
*J. L. Hanson, Operations Superintendent
R. B. Kasper, Mechanical Maintenance Superintendent
K. E. Osborne, System Engineering Superintendent
*H. M. Esch, Acting I&C Engineering and Maintenance Superintendent
L. J. Kenaga, Health Physics Superintendent
*C. S. Kozup, Technical Engineer
*J. R. Brunet, Licensing Analyst
D. J. Malone, Senior Licensing Analyst
W. L. Roberts, Supervisory Engineer
K. A. Toner, Plant Projects Superintendent
D. W. Joos, SG Replacement Project Manager
W. Clark, SG Replacement Project Engineer
G. Brown, Engineer, Bechtel
M. L. Lesinski, SG Replacement Project, Radiation Protection
M. C. Sniegowski, SG Replacement Engineer
J. C. Kuemin, Licensing Engineer

Nuclear Regulatory Commission (NRC)

J. O. Thoma, Director, Project Directorate III-2
W. L. Axelson,Chief, Reactor Projects Branch 2
B. L. Burgess, Chief, Projects Section 2A
#*E. R. Swanson, Senior Resident Inspector
#*J. K. Heller, Resident Inspector
E. R. Schweibinz, Project Engineer
A. W. DeAgazio, Project Manager, NRR
C. F. Gill, Senior Radiation Specialist
D. E. Miller, Senior Radiation Specialist
D. H. Danielson, Chief, Materials and Processes Section
J. M. Jacobsen, Reactor Inspector

#Indicates some of those attending the Steam Generator Replacement briefing on November 9, 1989.

*Denotes those present at the Management Interview on November 13, 1989.

Other members of the Plant staff, and several members of the Contract Security Force, were also contacted during the inspection period.

2. Actions on Previously Identified Items (92701, 92702)

(Closed) Inspection Report 50-255/89018 (no number assigned), on pages 15 and 16, asked the licensee to review two cases that may not be properly described in the FSAR. The first pertained to the position of safeguards room ventilation supply/exhaust dampers following a containment high pressure/radiation signal. The second pertained to flow capability of the containment spray nozzles. For each case the reviewer determined that the plant design was correct and the FSAR description could be enhanced. The reviewer initiated a FSAR change request.

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

3. Operational Safety Verification (71707, 71710, 42700)

Routine facility operating activities were observed as conducted in the plant and from the main control rooms. Plant startup, steady power operation, plant shutdown, and system(s) lineup and operation were observed as applicable.

The performance of licensed Reactor Operators and Senior Reactor Operators, of Shift Technical Advisors, and of auxiliary equipment operators was observed and evaluated including 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 or events, if any, were examined. This included compliance to any reporting requirements.

Observations of the control room monitors, indicators, and recorders were made to verify the operability of emergency systems, radiation monitoring systems and nuclear reactor protection systems, as applicable. Reviews of surveillance, equipment condition, and tagout logs were conducted. Proper return to service of selected components was verified.

a. General

The unit began the reporting period in a preplanned maintenance and surveillance outage, that began on October 1, 1989. During this outage two potential startup issues were identified, that resulted in numerous conference calls between the NRC (Region III and Washington) and Consumers Power Company (Plant and Jackson). The first issue pertained to the findings and scope of the Steam Generator Eddy Current Testing (ECT). This issue was resolved on November 3 when the NRC agreed that ECT equipment could be removed from the Steam Generators. ECT results will be discussed in Inspection Report No. 50-255/89032(DRS).

The second issue pertains to NRC review of seismic calculations performed by the licensee related to NRC Bulletin 79-14. In addition to the conference calls, this was the subject of a meeting held in Washington D.C. on October 30, 1989 and a site visit on November 7-9, 1989. At the close of this report this startup issue had not been resolved. The seismic concerns will be discussed in Inspection Report No. 50-255/89024(DRS).

b. Plant Tours

During plant tours, the following were noted and discussed with plant personnel.

(1) PIC 0201 "Changing Pump Discharge Pressure" is a local pressure gauge and was indicating a discharge pressure greater than the pump capability. This was identified to the Shift Supervisor, who indicated a W.R. had just been written.

(2) Remote flow indicator FI-307B "Loop 1A Shutdown Cooling Flow" was reading approximately 600 to 800 gpm less then control room indicator FI-307A. This was identified to the Shift Supervisor, who initiated a W.R.

(3) The "A" service water pump appeared to have abnormally high vibration. This was identified to the Shift Supervisor. The next day the pump was declared inoperable due to a high vibration.

(4) On November 8 the inspector toured the containment, and observed the following on or near the Safety Injection bottle catwalk.

- A couple of bottles of snoop
- A cigarette butt
- A note pad
- A number of magic markers
- A monkey wrench
- A torn workman's glove
- Work order package 24806369 and a associated container of weld rod. A check of the computer shows that this work activity was performed in October of 1988.

The catwalk is a low traffic area and requires considerable effort to get to. As such, some of the items were left from previous outages. The inspector discussed these items at the exit interview, noting that these are additional examples of a weak containment cleanliness standard.

(5) During a containment tour, the inspector noted that the majority of the wall graffiti has been removed.

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

4. 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 activities were inspected:

a. VOTES testing of MOV-2089 (W.O. 2490595 and 24905152).

b. Hydrogen Monitor heat trace calibration (W.O. 24905058).

c. Replacement of Alnor Meter TI-1479 (W.O. 24901441).

d. Installation of D/G service water flow meters (W.O. 24904052).

e. Rebuild of Auxiliary Feedwater Pump P-8C (W.O. 24903217).

f. Boric Acid Pump flow instrumentation and heat tracing (W.O. 24904634 and 24904638, FC 847). It was noted, that over fifty engineering design changes were made in the completion of this minor modification.

g. Installation of PIC-0202/HIC-2122 instrument upgrade program (W.O. 24904801, FC-817).

h. Removal of P-54C and P-66B motors for rebuild (W.O. 24901667, 24901671).

i. Installation of power cross-ties for P-55A and B (W.O. 24903903, RWP-890399).

j. Service Water Pump P-7A rebuild (W.O. 24904386)

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

5. Radiological Controls (71707)

During routine tours of radiologically controlled plant facilities or areas, the inspector observed occupational radiation safety practices by the radiation protection staff and other workers.

Effluent releases were routinely checked, including examination of on-line recorder traces and proper operation of automatic monitoring equipment.

Independent surveys were performed in various radiologically controlled areas.

a. A hand help frisker, located in a hallway of the 590 level of the Auxiliary Building, appeared to have failed low. This was identified to the Duty H.P. Technician. During subsequent tours, the inspector noted that the frisker had been replaced.

b. During the process of touring the containment sump, the inspector participated in the pre-job ALARA briefing which was fairly comprehensive. While dressing for the entry the inspector tried to obtain the plastic booties specified on the RWP, but was told by the RP Technician providing coverage that they were not needed as the poly suit (fish skins) had attached boots. This was the case, but the inspector was concerned after entering the sump and finding that the water was deeper than the rubber shoe covers. A second layer of waterproof protection was recommended to RP management for future entries. None of the personnel entering the sump were contaminated, and exposure was very low.

6. 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, that test instrumentation was calibrated, that Limiting Conditions for Operation were met, that removal and restoration of the affected components were properly accomplished, that test results conformed with Technical Specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The following activities were inspected:

a. RO 32-56 Local Leak Rate Test - containment sump level instrument (LT-0383)

b. QO-8B ESS Check Valve Operability Test (Cold Shutdown)

d. DWO-1 Daily Control Room Surveillance.

e. SHO-1 Operators Shift Surveillance.

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

7. Fire Protection (71707, 64704)

Fire protection program activities, including fire prevention and other activities associated with maintaining capability for early detection and suppression of postulated fires, were examined. Plant cleanliness, with a focus on control of combustibles and on maintaining continuous ready access to fire fighting equipment and materials, was included in the items evaluated.

During this outage, the inspectors observed a number of maintenance activities involving hot work activities. The inspector verified that with the exception listed below: that hot work permits were approved and posted; that fire fighting equipment, in addition to the equipment permanently stationed in the area, was available; that a firewatch was assigned; and, that the hot work activity was controlled in accordance with plant administrative procedures.

a. An LP gas bottle (approximately 80 pounds) was being stored in a tool chest, located at the south end of the 590 level of the turbine deck. The fire protection coordinator was informed and had the bottle removed.

b. The doorway, from the 590 level of the Auxiliary Building to the Turbine Building, was blocked with circuit breakers on the Turbine Building side. Both sides of the door were marked "Fire Door". The Auxiliary building side was labeled "emergency exit". This was identified to the Shift Outage Manager, who had the area cleaned up.

c. On November 9, the inspector observed hot work activities, per W.O. 24903693, in the component cooling water room. The inspector identified to the crew that a fire extinguisher was not present during the grinding activity. The work supervisor stopped the activity until a fire extinguisher was obtained.

Although most findings were favorable, the above items raise concerns about the licensee's implementation of the Fire Protection Program and therefore the corrective actions to the above will be tracked as an Unresolved Item (No. 255/89029-01 (DRP)).

One unresolved item and no violations, deviations, or open items were identified.

8. 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.

The inspector observed two maintenance activities that involved a modification of the vital barrier. The inspector verified that compensatory measures were implemented while the barrier was modified, and was restored following the activity.

The licensee's Fitness for Duty Program was observed to be functioning properly during the outage. Three contractor individuals were tested for cause and found to have alcohol levels in the action range. Two of these were identified by Security Officers prior to the individuals entering the protected area.

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

9. Safety Assessment/Quality Verification (35502, 40500)

The effectiveness of management controls, verification and oversight activities, in the conduct of jobs observed during this inspection, was evaluated.

The inspector frequently attended management and supervisory meetings involving plant status and plans and focusing on proper coordination among Departments.

The results of licensee auditing and corrective action programs were routinely monitored by attendance at Corrective Action Review Board (CARB) meetings and by review of Deviation Reports, Event Reports, Radiological Incident Reports, and security incident reports. As applicable, corrective action program documents were forwarded to NRC Region III technical specialists for information and possible followup evaluation.

After a Corrective Action Review Board (CARB), the inspector attended an informal discussion pertaining to the threshold for issuing a Deviation Report (DR), an internal corrective action document. Some problems were discussed, for which a DR had been prepared but not entered into the corrective action system. The supervisor questioned the need for the DR, since corrective action was implemented at the time of discovery and there did not appear to be generic concerns or long range corrective actions. After that meeting, the inspector interviewed some other engineers, operators and technicians and found that similar opinions were expressed. Some indicated that they have been encouraged to use their judgement and not write so many. The inspector reviewed administrative documents pertaining to DRs and found that the instructions were open to interpretation pertaining to when a DR was actually required. At the exit interview, the inspector expressed concern that allowing management decisions to be made by their employees could lead toward ineffective repairs and repetitive events. The DR assures that management is involved in the decision making process to resolve the conditions and ensure that the event is put in the perspective of recurring or generic problems, that reporting requirements are reviewed, and that effective and lasting corrective actions are taken. "Isolated occurrences" that are not documented on a DR may be precursors to serious equipment failures or personnel errors. The inspector noted that the licensee

trends the number of open DRs and recommended that if the review load is too great that a means be devised to deal with a larger number effectively. It was also recommended that the licensee make better use of their DR database by developing a means to conduct "key word" searches and trending.

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

10. Reportable Events (92700, 92720)

The inspector reviewed the following Licensee Event Reports (LERs) by means of direct observation, discussions with licensee personnel, and review of records. The review addressed compliance to reporting requirements and, as applicable, that immediate corrective action and appropriate action to prevent recurrence had been accomplished.

a. (Closed) LER 255/85028 Revision 1: Safety Injection System Actuation: The licensee reissued the report to document probable causes of the right channel actuating, but could identify no definitive cause, and therefore, specified no additional corrective measures.

b. (Closed) LER 255/86031 Revision 1: Inoperable Containment Air Coolers.

c. (Closed) LER 255/88015 and Revision 1: Fuel bundle removed from core during upper guide structure lift. Corrective actions taken, to prevent recurrence, are appropriate and extensive. Nearly all avenues, which were being evaluated, are planned for implementation before the next refueling outage.

d. (Closed) LER 255/88018: Inadvertent containment isolation signal during plant modifications. Review of the three previous LERs involving containment isolation (88014, 88016, and 88017) and the one subsequent LER (88019) indicate no common causes. Licensee corrective action appears appropriate and no other reportable containment isolations have occurred since October 1, 1988.

e. (Closed) LER 255/88019: Inadvertent containment isolation actuation during post-modification testing. Review indicates that the root cause could not be absolutely identified nor could it be repeated. The licensee has not had any subsequent reportable containment isolations since this event.

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

11. NRC Compliance Bulletin (92703)

The inspector reviewed the NRC communication listed below and verified that: the licensee has received the correspondence; the correspondence was reviewed by appropriate management representatives; a written response was submitted if required; and, plant-specific actions were taken as described in the licensee's response.

NRC Compliance Bulletin 87-02 "Fastener Testing to Determine Conformance with Applicable Material Specifications". As requested by Temporary Instruction TI-2500/27, the inspector reviewed the adequacy of the root cause analysis and corrective action taken by the licensee in regard to sample PAL-10. The 1/2" by 2 1/4" stud had a Rockwell hardness of 41 HRC as compared to the acceptance range of 24 to 37 HRC. The stud was evaluated as acceptable for use and no further action was taken. Nonconforming Material Report NMR-QP-88-024 was written to document the acceptability of the studs obtained on the same purchase order.

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

12. 10 CFR 21 Report

(Closed) Part 21 No. 255/88014-06: Ashcroft pressure gauges failed at pressures within their operating range. The original 10 CFR 21 Report was submitted on May 25, 1988. After further testing and evaluation, the licensee has concluded that the gauges were failing as a result of high frequence pressure pulses, which caused fatigue failure of the bourdon tube in the gauge. The licensee is planning to replace the 0-100 psi range gauges with 0-200 psi range devices, which have a throttling screw to dampen the pulsation. This is in accordance with the vendor's (Dresser Industries) recommendation. Although some of the gauges appeared to be defective, the root cause was misapplication of the gauges.

(Closed) Part 21 No. 255/88025-02: Unauthorized supplier sold parts represented as genuine Masoneilan parts. Details of the suspect parts issue was documented by licensee correspondence on October 21, 1988 and updated on December 22, 1988. It was determined that parts made by the former subsidiary, as well as a small percentage of Masoneilan parts, were nonconforming in some aspects.

(Closed) Part 21 No. 255/89029-02: On November 7, 1989, the licensee reported a mis-wiring of a 2400 volt breaker by Siemans Energy and Automation of Milwaukee, Wisconsin. The breaker was found to be mis-wired when it was tested by the licensee prior to use, and blew a fuse in the control power circuit. The licensee determined that it had not been rewired according to the drawings. The vendor was again provided the correct drawings and rebuilt the breaker properly. The condition was concluded to be an isolated case of personnel error. The vendor has stated that they do not service any other nuclear power plants. This issue is closed (No. 255/89029-02 (DRP))

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

13. Region III Requests (92705)

a. NUREG/CR-5078

Mr. E. G. Greenman memorandum of April 16, 1989, requested verification by the resident inspector that the licensee was aware of NUREG/CR-5078, Volume 2, "A Reliability Program for Emergency

Diesel Generators at Nuclear Power Plants." On October 6, 1989, the inspector verified, by discussion with the system engineer, that the licensee had received, reviewed and evaluated the recommendations of NUREG/CR-5078.

b. Steam Generator Blowdown Isolation

Mr. W. L. Axelson memorandum of October 10, 1989, identified that a discrepancy between the design basis and plant configuration was identified at some four loop PWRs. It was found that the Byron and Braidwood FSAR stated that Steam Generator blowdown will isolate on initiation of Auxiliary Feedwater, when in fact it doesn't. Mr. Axelson's memorandum requested that the resident inspector review the auxiliary feedwater and steam generator blowdown logics, and confirm that plant design and the FSAR description are in agreement. The inspectors reviewed the FSAR, plant prints and interviewed members of the operations staff; no problems were identified.

c. Main Steam Relief Valve Testing

During a conference call on October 5, 1989, Mr. W. L. Axelson requested information pertaining to testing of Main Steam Relief valves. It appears that some sites do the testing at power, which may create an unreviewed safety question. The licensee performs Main Steam Relief Valve testing while in cold shutdown, by removing the valves and sending them to a fossil plant that has testing capabilities. This information was provided to Region III.

d. Inconel Pressurizer Heater Sleeve

As a result of cracking found in the INCONEL-600 pressurizer heater sleeves, at the Calvert Cliffs Unit 2 Plant, Consumers Power Company conducted an inspection during the current outage. No cracking was identified. The pressurizer's manufacturer, Combustion Engineering, has determined that the cracking was likely a result of the particular process used in the assembly or of the material yield strength used in certain pressurizers. The Palisades pressurizer fell into all low risk categories.

e. System Engineering Program

As a result of NRC management interest, a description of the Palisades System Engineer program was provided. Highlights include: the ten year average experience among the thirty plus engineers, several of which held SRO licenses on the plant; daily hands on system involvement in maintenance, surveillance and modification oversight; system and equipment performance trending; and responsibility for corrective action relative to system deficiencies. The program and its implementation is a major strength in the licensees engineering and maintenance area.

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

14. Unresolved Items

Unresolved Items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. An Unresolved Item disclosed during the inspection is discussed in Paragraph 7.

15. Management Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) on November 13, to discuss the scope and findings of the inspection. In addition, the inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.