April 8, 2004

Mr. Daniel J. Malone
Site Vice President
Palisades Nuclear Plant
Nuclear Management Company, LLC
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT
NRC SUPPLEMENTAL INSPECTION REPORT 05000255/2004005

Dear Mr. Malone:

On March 19, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed a supplemental inspection using Inspection Procedure 95001, "Inspection For One Or Two White Inputs In A Strategic Performance Area," at your Palisades Nuclear Plant. The enclosed report documents the inspection results which were discussed on March 19, 2004, with Mr. R. Remus and other members of your staff. There were no findings as a result of this inspection.

On April 4, 2003, the NRC completed a special inspection at your Palisades Nuclear Plant to review the circumstances surrounding a loss of offsite power and loss of shutdown cooling event that occurred on March 25, 2003. A finding was identified that concerned the failure of site management to take adequate corrective actions after a series of events during digging and excavating on station property between the protected area and the switchyard. The significance for this finding was subsequently determined to be White by the NRC Significance Determination Process. In accordance with the Reactor Oversight Process, this inspection was conducted for that White finding which was related to the reactor safety strategic performance area.

This supplemental inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspector reviewed selected procedures and records and interviewed personnel. The purpose of this inspection was to: (1) provide assurance that the root and contributing causes for the performance issues were understood; (2) provide assurance that the extent of condition and extent of cause of the performance issues were identified; and (3) provide assurance that the corrective actions to address the performance issues were sufficient to prevent recurrence.

Based on our review of your root cause evaluation for the loss of offsite power and loss of shutdown cooling event, we have concluded that your staff adequately identified the underlying root causes and contributing causes for this event. The evaluation was determined to be generally thorough and followed a structured approach for performing such a review. We also concluded that your staff's corrective actions reasonably address the root cause and each of the identified contributing causes.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at **http://www.nrc.gov/reading-rm/adams.html** (the Public Electronic Reading Room).

Sincerely,

/RA/

Eric Duncan, Chief
Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 05000255/2004005
w/Attachment: Supplemental Information

cc w/encl: J. Cowan, Executive Vice President
and Chief Nuclear Officer
R. Fenech, Senior Vice President, Nuclear
Fossil and Hydro Operations
D. Cooper, Senior Vice President - Group Operations
Manager, Regulatory Affairs
J. Rogoff, Vice President, Counsel and Secretary
A. Udrys, Esquire, Consumers Energy Company
Director of Nuclear Assets, Consumers Energy Company
Supervisor, Covert Township
Office of the Governor
Michigan Department of Environmental Quality -
Waste and Hazardous Materials Division
Michigan Department of Attorney General

DOCUMENT NAME: S:\ADMIN\Karen's Docs\ML040990608.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	EDuncan/trn							
DATE	04/08/04							

OFFICIAL RECORD COPY

ADAMS Distribution:
WDR
DFT
JFS2
RidsNrrDipmIipb
GEG
HBC
JAL3
C. Ariano (hard copy)
C. Pederson, DRS (hard copy - IR's only)
DRPIII
DRSIII
PLB1
JRK1

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255
License No:	DPR-20
Report No:	05000255/2004005
Licensee:	Nuclear Management Company, LLC
Facility:	Palisades Nuclear Plant
Location:	27780 Blue Star Memorial Highway Covert, MI 49043-9530
Dates:	March 15 through 19, 2004
Inspector:	M. Garza, Resident Inspector
Approved by:	E. Duncan, Chief Branch 6 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000255/2004005; Palisades Nuclear Plant; 03/15/04-03/19/04; Supplemental Inspection; IP 95001, "Inspection For One Or Two White Inputs In A Strategic Performance Area".

This report covers a supplemental inspection performed by the Palisades Resident Inspector. There were no findings as a result of this inspection. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

The NRC performed this supplemental inspection in accordance with Inspection Procedure 95001, "Inspection For One Or Two White Inputs In A Strategic Performance Area," to assess the licensee's root cause evaluation associated with a loss of offsite power event that occurred on March 25, 2003. During this supplemental inspection, the inspector determined that the licensee's overall evaluation for this event was acceptable. The licensee utilized a structured approach to evaluate the circumstances of the loss of offsite power. The licensee's corrective actions were determined to correspond with the root cause and contributing causes identified in the root cause evaluation. At the conclusion of the inspection, the corrective actions were either completed or were being tracked for completion. The licensee had also performed reviews to assess the effectiveness of these corrective actions.

Given the licensee's acceptable performance in addressing the root cause and contributing causes of the loss of offsite power event, the White inspection finding that resulted from the NRC special inspection subsequent to the event will only be considered in the assessment of plant performance for a total of four quarters in accordance with the guidance in Inspection Manual Chapter 0305, "Operating Reactor Assessment Program."

A. Inspector-Identified and Self-Revealed Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None.

REPORT DETAILS

01 INSPECTION SCOPE

The NRC performed this supplemental inspection to assess the licensee's root cause evaluation associated with the March 25, 2003, loss of offsite power and loss of shutdown cooling event. This supplemental inspection was performed in accordance with Inspection Procedure 95001, "Inspection For One Or Two White Inputs In A Strategic Performance Area."

The inspectors reviewed Root Cause Evaluation RCE000326, "Loss of Off-Site Power that Results in Loss of Shutdown Cooling," to provide assurance that: (1) the root cause and contributing causes were understood; (2) the extent of condition and extent of cause were identified; and (3) the established corrective actions were sufficient to address the causes and to prevent recurrence. The following inspection results are organized by the specific inspection requirements contained in Inspection Procedure 95001.

02 EVALUATION OF INSPECTION REQUIREMENTS

02.01 Problem Identification

a. Determination of who identified the issue and under what conditions.

On March 25, 2003, plant maintenance workers were installing signposts in the plant parking lot to designate parking spaces. One of the signposts was driven into a conduit and damaged a cable which contained protective relay circuitry for all sources of offsite power. An Alert was declared due to the loss of offsite power combined with the loss of shutdown cooling. The Alert was downgraded to an Unusual Event when shutdown cooling was restored. The Unusual Event was terminated on March 27, 2003, when offsite power was reliably restored.

This was a self-revealed event.

b. Determination of how long the issue existed, and prior opportunities for identification.

The licensee concluded that the root cause for the event was the failure to have a documented process for activities associated with excavating, trenching, or piercing the ground.

The licensee missed several opportunities to address the lack of digging and excavation controls. As stated in the root cause evaluation, since 1995 there were several condition reports initiated due to problems that occurred during digging and excavation activities on site. There were also several industry Operating Experience reports which licensee personnel did not adequately evaluate for applicability to Palisades. In addition, a Level B condition report, which required an apparent cause evaluation (CAP 030724), was written in May 2002 regarding meteorological tower cables that were severed during digging activities. However, the apparent cause evaluation was too narrowly focused and did not address the lack of procedures for conducting digging and excavation. The

inspector noted that these missed opportunities all involved nonsafety-related equipment and that these missed opportunities were sufficiently addressed in the root cause evaluation.

c. Determination of the plant-specific risk consequences (as applicable) and compliance concerns associated with the issue.

Licensee personnel concluded that the loss of offsite power and resultant loss of shutdown cooling event was of low safety significance because plant equipment functioned as expected and the control room operators responded effectively to mitigate the event in a timely manner. Control room operators responded in accordance with plant procedures and shutdown cooling was restored within 20 minutes after the event occurred. There were no compliance issues associated with the event and the inspector did not identify any concerns.

Personnel safety significance was also addressed in the evaluation. The evaluation discussed the potential hazard of driving a steel pole into an electrical conduit. There were no consequences during this event due to low voltage and proper protective clothing worn by site personnel.

An NRC final significance determination letter dated December 31, 2003, concluded that the event was a finding of low to moderate safety significance (White).

02.02 Root Cause and Extent of Condition Evaluation

a. Evaluation of methods used to identify the root cause and contributing causes.

The inspector noted that the root cause evaluation was conducted using a structured methodology to evaluate the event's root and contributing causes. Specifically, failure modes analysis and barrier analysis techniques were utilized. The inspector determined that the methods used to identify the causes were adequate.

b. Level of detail of the root cause evaluation.

The inspector determined that the root cause evaluation was performed with sufficient detail and analysis to support the conclusions reached. The root cause evaluation adequately considered previous internal and external operating experience, organizational response, programmatic weaknesses, and procedure and training adequacy.

c. Consideration of prior occurrences of the problem and knowledge of prior operating experience.

The licensee's root cause evaluation identified that the Operating Experience program was not adequate to evaluate similar experiences that occurred at other facilities.

There were several industry Operating Experience Reports related to problems associated with digging, excavation and trenching. These problems were associated with a lack of adequate work controls, a lack of appropriate training for personnel who

use excavation equipment, and a lack of drawings that identify underground lines. However, site personnel determined that none of these previous events were evaluated for applicability at Palisades.

Through a review of the corrective action database, licensee personnel identified several condition reports that indicated the controls for on site excavation and digging were inadequate. The licensee also identified a missed opportunity to identify procedural inadequacies for digging and excavation activities. This opportunity presented itself in an apparent cause evaluation that was written in May 2002 for a meteorological tower power cable that was severed during trenching activities. The licensee determined that the extent of condition review was inadequate since it did not address previous trenching events that occurred.

Overall, the inspector concluded that the licensee's root cause evaluation properly considered and evaluated prior internal and external operating experience.

d. Consideration of the extent of condition and the extent of cause.

The inspector reviewed the licensee's evaluation and concluded that, in general, licensee personnel adequately evaluated the extent of cause. However, the extent of condition was not addressed in this evaluation. Specifically, the potential existence of additional underground lines that may contain cabling that could present a single failure vulnerability, as it did in the loss of offsite power event, was not addressed.

Although the extent of condition as documented in the root cause evaluation did not address the separation of cabling in underground lines, this was addressed during the licensee's initial investigation into the cause of the event. During the initial investigation, licensee personnel concluded that the location of other underground cables had adequate separation such that a single digging event would not affect all offsite power circuits.

02.03 Corrective Actions

a. Appropriateness of corrective action(s).

The corrective actions were clearly described and were entered into the licensee's corrective action program. The established corrective actions, in general, appropriately addressed the root cause and contributing causes of the events.

However, the root cause evaluation stated that there were some inadequacies in the plant drawings for underground lines on site. Although inaccurate drawings were not identified as a cause of the event, this was an identified deficiency for which there was no corrective action. Also, the new excavation procedure which was developed as a corrective action to prevent recurrence contained steps that referenced the use of site drawings for determining locations of underground lines. The inspectors concluded this issue was of minor significance in that the drawings were not solely relied upon for determining the location of an underground line. The procedure also required detection methods to be used to determine the general locations of underground lines prior to performing digging activities.

b. Prioritization of corrective actions, and establishment of schedule for implementing and completing the corrective actions.

The inspector reviewed the corrective actions and verified that actions were prioritized and scheduled to be completed in a timely manner commensurate with safety significance. The corrective actions to prevent recurrence and the corrective actions to address the contributing causes were adequately scheduled for implementation. In addition, the inspector verified that the completed actions had been implemented according to assigned due dates and that pending actions were being tracked for resolution and closure. The inspector did not identify any concerns.

c. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence.

The licensee established an effectiveness review to validate the overall corrective action plans. Specifically, the corrective action database was reviewed 5 months after the new excavation procedure was issued to determine how many digging and excavation events were entered into the corrective action program. Licensee personnel determined that there were none and concluded that the corrective actions to prevent recurrence were effective. The inspector did not identify any concerns.

03. OTHER

(Closed) Unresolved Item (URI) 50-255/03-05-01: "Corrective Actions to Address Digging and Excavating Events."

Unresolved Item 50-255/03-05-01 was opened pending completion of a Phase 2 and Phase 3 analysis to determine the significance for the loss of offsite power and resultant loss of shutdown cooling event which occurred on March 25, 2003.

Phase 2 and Phase 3 analyses were completed and the NRC issued a final significance determination letter dated December 31, 2003, which concluded that the March 25, 2003, event was a finding of low to moderate safety significance (White). In addition, the inspector did not identify any concerns during a review of the corrective actions documented in Root Cause Evaluation RCE000326 that were developed to address digging and excavating events. Unresolved Item 50-255/03-05-01 is closed.

04. MANAGEMENT MEETINGS

Exit Meeting Summary

The inspector presented the inspection results to Mr. R. Remus and other members of licensee management at the conclusion of the inspection on March 19, 2004. The licensee acknowledged the information presented. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

G. Arent, Performance Improvement Manager
M. Carlson, Engineering Director
B. Dotson, Regulatory Compliance
P. Harden, Site Director
G. Higgs, Maintenance Manager
L. Lahti, Regulatory Affairs Manager
D. Malone, Site Vice President
G. Packard, Operations Manager
R. Remus, Plant Manager
S. Wawro, Consumers Energy Asset Manager

Nuclear Regulatory Commission

J. Lennartz, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Closed

50-255/03-05-01	URI	Corrective Actions to Address Digging and Excavating Events

Discussed

None

LIST OF DOCUMENTS REVIEWED

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

Condition Reports

CAP034500; Loss of Off-Site Power That Results in a Loss of Shutdown Cooling; March 26, 2003

CAP039836; Nuclear Oversight Assessment of Root Cause Evaluations Identified Deficiencies; February 5, 2004

CAP035837; Effectiveness Review For CAP034500; May 22, 2003

CAP035168; Events During RF016 Have Potential Common Thread To Procedure Culture At Palisades; April 14, 2003

CAP030724; Severed Power Cable to the Meteorological Tower; May 24, 2004

CAP040771; NRC 95001 Supplemental Inspection Observation

RCE000326; Loss of Off-Site Power That Results in a Loss of Shutdown Cooling; May 22, 2003

Miscellaneous Documents

Palisades Plant Root Cause Evaluation Handbook; Revision 3

FP-PA-ARP-01; Action Request Process; Revision 3

Administrative Procedure 5.33; Control of Excavation; Revision 1

QF-0406; Snapshot Self-Assessment Report on CAP034500, Loss of Offsite Power Event on March 25, 2003; March 11, 2004 through March 15, 2004

WD 1421; Palisades Substation Diagram; Sheet 31

WD 950 E-1; Single Line Meter and Relay Diagram; Sheet A

LIST OF ACRONYMS

ADAMS	Agency Document and Management System
CFR	Code of Federal Regulations
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
RCE	Root Cause Evaluation