



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005**

August 6, 2004

Randall K. Edington, Vice
President-Nuclear and CNO
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

**SUBJECT: COOPER NUCLEAR STATION - QUARTERLY CONFIRMATORY ACTION
LETTER INSPECTION REPORT 05000298/2004007**

Dear Mr. Edington:

On May 14, 2004, the NRC completed an inspection at your Cooper Nuclear Station. The enclosed inspection report documents the inspection findings, which were discussed on June 23, 2004, with you and other members of your staff during a telephone exit meeting.

This inspection examined activities related to the NRC Confirmatory Action Letter, dated January 30, 2003, and the Strategic Improvement Plan, Revision 2. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection no findings of significance were identified.

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/

Arthur T. Howell III, Director
Division of Reactor Projects

Docket: 50-298
License: DPR-46

Enclosure:
NRC Inspection Report
05000298/2004007

cc w/enclosure:

Clay C. Warren, Vice President of
Strategic Programs
Nebraska Public Power District
1414 15th Street
Columbus, NE 68601

John R. McPhail, General Counsel
Nebraska Public Power District
P.O. Box 499
Columbus, NE 68602-0499

P. V. Fleming, Licensing Manager
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

Michael J. Linder, Director
Nebraska Department of
Environmental Quality
P.O. Box 98922
Lincoln, NE 68509-8922

Chairman
Nemaha County Board of Commissioners
Nemaha County Courthouse
1824 N Street
Auburn, NE 68305

Sue Semerena, Section Administrator
Nebraska Health and Human Services System
Division of Public Health Assurance
Consumer Services Section
301 Centennial Mall, South
P.O. Box 95007
Lincoln, NE 68509-5007

Ronald A. Kucera, Deputy Director
for Public Policy
Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65101

Jerry Uhlmann, Director
State Emergency Management Agency
P.O. Box 116

Jefferson City, MO 65102-0116

Chief, Radiation and Asbestos
Control Section
Kansas Department of Health
and Environment
Bureau of Air and Radiation
1000 SW Jackson, Suite 310
Topeka, KS 66612-1366

Daniel K. McGhee
Bureau of Radiological Health
Iowa Department of Public Health
401 SW 7th Street, Suite D
Des Moines, IA 50309

William J. Fehrman, President
and Chief Executive Officer
Nebraska Public Power District
1414 15th Street
Columbus, NE 68601

Jerry C. Roberts, Director of
Nuclear Safety Assurance
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

Chief Technological Services Branch
National Preparedness Division
Department of Homeland Security
Emergency Preparedness & Response Directorate
FEMA Region VII
2323 Grand Boulevard, Suite 900
Kansas City, MO 64108-2670

Electronic distribution by RIV:
 Regional Administrator (**BSM1**)
 DRP Director (**ATH**)
 DRS Director (**DDC**)
 Senior Resident Inspector (**SCS**)
 Branch Chief, DRP/C (**KMK**)
 Senior Project Engineer, DRP/C (**WCW**)
 Staff Chief, DRP/TSS (**PHH**)
 RITS Coordinator (**KEG**)
 Dan Merzke, Pilot Plant Program (**DXM2**)
RidsNrrDipmLipb
 Jennifer Dixon-Herrity, OEDO RIV Coordinator (**JLD**)
 CNS Site Secretary (**SLN**)
 Dale Thatcher (**DFT**)
 W. A. Maier, RSLO (**WAM**)

ADAMS: WYes No Initials: __wcv__
 W Publicly Available Non-Publicly Available Sensitive W Non-Sensitive

R:_CNS\CN2004-07RP-WCW.wpd

RIV:SPE:DRP/C	PE:DRP/D	SRI:DRP/C	C:DRS/PSB	C:DRP/C
WCWalker;df	DEDumbacher	CCOsterholtz	JAClark	KMKKennedy
/RA/	/RA/	T - KMKennedy	/RA/	/RA/
8/ /04	8/4/04	8/4/04	8/4/04	8/4/04
D:DRP				
ATHowell				
/RA/				
8/6/04				

Nebraska Public Power District

-5-

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket.: 50-298
License: DPR-46
Report No.: 05000298/2004007
Licensee: Nebraska Public Power District
Facility: Cooper Nuclear Station
Location: P.O. Box 98
Brownville, Nebraska
Dates: October 6-10, 2003, with additional in-office review through May 19, 2004
May 10-14, 2004, Telephonic exit June 23, 2004
Team Leader: W. Walker, Senior Project Engineer, Project Branch C, Division of
Reactor Projects (DRP)
Inspectors: D. Dumbacher, Project Engineer, Project Branch D, DRP
C. Osterholtz, Senior Resident Inspector, Project Branch C, DRP
C. Paulk, Senior Reactor Inspector, Engineering Branch, DRS
T. McConnell, Reactor Inspector, Plant Engineering Branch, DRS
Approved By: Arthur T. Howell III, Director
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000298/2004007; 02/10-14/2004; Cooper Nuclear Station; special inspection to verify provisions of the NRC Confirmatory Action Letter and the licensee's Strategic Improvement Plan (TIP).

The inspection was conducted by four Region-based inspectors and one resident inspector. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

This inspection was the sixth of a series of inspections performed by the NRC to assess Nebraska Public Power District's progress with respect to the implementation of their improvement plan and to verify the effectiveness of actions taken in response to the provisions outlined in the NRC Confirmatory Action Letter, dated January 30, 2003. The inspection primarily focused on the areas specified in the Confirmatory Action Letter which include: (1) emergency preparedness; (2) human performance; (3) material condition and equipment reliability; (4) plant modifications and configuration control; (5) corrective action program, utilization of industry operating experience, and self-assessments; and (6) engineering programs. In addition, the inspection reviewed baseline inspection reports, licensee performance measures, and the licensee staff's utilization of performance indicators and assessed the progress in the above areas.

In the area of emergency preparedness, the licensee's performance indicators, NRC performance indicators, and baseline inspection results indicated a satisfactory level of performance. Also in the area of engineering programs, improvements are in place and an improving trend has been noted in licensee performance indicators and no significant findings have been identified during NRC baseline inspections. In the area of human performance, baseline inspection findings continue to be identified in which personnel errors have contributed to plant performance issues. TIP action steps implemented and ongoing have provided some improvement as evidenced by two of four licensee performance indicators performing satisfactorily and the other two requiring further improvement but trending in a positive direction.

In the three remaining Confirmatory Action Letter areas, the team concluded, by reviewing licensee performance indicators, NRC performance indicators, licensee self-assessments, and NRC baseline inspection results, that a number of positive actions have been implemented but they have not yet resulted in sustained improved performance. Specifically, in the area of material condition and equipment reliability, actions completed to date have provided the necessary processes for improvement, and numerous equipment improvements have been recently completed. However, a number of the licensee's performance indicators did not meet their performance goals. In the area of plant modifications and configuration control, progress in operability determination screening and lesson learned training was noted and provides potential for enhancing the licensee's ability to prioritize and perform operability

Enclosure

determinations by emphasizing knowledge based tools. This conclusion was reinforced through interviews with operations and engineering personnel. Lastly, in the area of corrective action, a new "take action now" philosophy has also been implemented to increase manager ownership of corrective action performance indicators, through presentations of performance indicator status to senior management on a regular basis. The early trending information or the effectiveness of the "take action now" philosophy has shown a marked improvement in timely corrective actions.

REPORT DETAILS

The following documents are available to the public in the NRC Agency-wide Document Access and Management System (ADAMS) using the appropriate accession number. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

The licensee's Strategic Improvement Plan (TIP), Revision 1; dated June 10, 2002; ADAMS Accession Number ML023010136

TIP, Revision 2; dated November 25, 2002; ADAMS Accession Number ML030340146

The Nuclear Regulatory Commission Confirmatory Action Letter (CAL) dated January 30, 2003; ADAMS Accession Number ML030310263

TIP consists of a series of individual steps, each with an assigned scheduled completion date. As each step is completed, the licensee staff creates a closure package containing all associated documents, drawings, procedures, etc., that support the closure of that step. An independent reviewer checklist is completed for each step to ensure package completeness and is included in the closure package. The team reviewed the completed closure packages for the steps indicated in this report.

To assess the licensee's progress in implementing the improvement plan, the team reviewed documents and interviewed personnel responsible for the completed action plan steps to verify that the steps were completed on schedule as defined in the CAL and that the actions taken met the intent of the action plan step. In addition, the team assessed the effectiveness of the improvement plan by reviewing the results of NRC baseline inspections, NRC performance indicators, and licensee performance measures and indicators.

1. CAL Item 1 - Emergency Preparedness

a. Scope

The licensee had previously completed all emergency preparedness action plan steps addressed in the CAL. The NRC's review of these steps is documented in NRC Inspection Report 05000298/2003009. However, the team performed a review of licensee performance indicators and NRC baseline inspection results to determine effectiveness of TIP actions associated with emergency preparedness.

b. Implementation of Action Plan Steps

All actions had been previously completed and reviewed by the NRC.

Enclosure

c. Performance Assessment

The team reviewed the following licensee performance indicators (these performance indicators are similar to the NRC performance indicators in the Emergency Preparedness Cornerstone):

<u>Indicator</u>	<u>Performance</u>	<u>Trend</u>
Alert and Notification System Reliability (number of successful siren tests in previous 4 quarters divided by total number of siren tests in previous 4 quarters)	Green - Excellent Performance	Stable
Emergency Preparedness Emergency Response Organization (ERO) Staffing (tracks ERO staffing vacancies to assure adequate personnel to manage the responsibilities of the ERO)	White - Meets Goal	Stable
ERO Drill Participation (measures percentage of key ERO members who have participated recently in proficiency enhancing drills, exercises, training opportunities, or in an actual event)	Green - Excellent Performance	Stable
ERO Performance (number of successful emergency opportunities divided by total opportunities in previous 12 months)	White - Meets Goal	Stable

The team determined that TIP emergency preparedness performance indicators were meeting licensee goals.

The team also reviewed NRC performance indicators and baseline inspection results and determined there were no significant findings.

d. Conclusions

The team reviewed the licensee’s performance indicators, NRC performance indicators, and baseline inspection results for emergency preparedness and concluded that the licensee staff continues to demonstrate an acceptable level of performance.

2. CAL Item 2 - Human Performance

a. Scope

The team reviewed the following completed TIP, Revision 2, action plan steps associated with CAL Item 2, Human Performance:

<u>Action Plan</u>	<u>Title</u>	<u>Step</u>
5.1.4.1	Human Performance	5c, 6, 7, 8, 20b

The team reviewed the closure packages and supporting documentation and conducted interviews with various licensee personnel knowledgeable of the specific steps. The team also reviewed the baseline inspection reports and licensee performance measures and performed a review of site performance indicators to evaluate the effectiveness of TIP actions associated with human performance.

b. Implementation of Action Plan Steps

The licensee staff completed the CAL-related improvement plan steps as scheduled, and the actions taken met the intent of the associated steps.

c. Performance Assessment

The team performed a review of four licensee performance indicators associated with human performance:

<u>Indicator</u>	<u>Performance</u>	<u>Trend</u>
Human Performance Event Free Days	Yellow - Action Required	Stable
Configuration Control Events	White - Meets Goal	Stable

Human Performance Error Rate	Yellow - Action Required	Positive
OSHA Recordable Injury Rate	White - Meets Goal	Stable

Two of the four indicators demonstrated performance with further action required (Yellow). Two indicators demonstrated acceptable performance (White). All the indicators demonstrated stable or positive trends.

The team determined that TIP action steps implemented and ongoing have provided some overall improvement in human performance as evidenced by two of four licensee performance indicators performing satisfactorily and an improving trend noted in human performance data over the last 6 months. Specific actions that have had a positive impact included: increased use of management observations in the field, maintenance department implementation of job-site specific reviews of human performance tools, a monthly Management Performance Review Meeting which focuses site upper management on progress in improving site-wide human performance and site-wide training using a recently developed human performance simulator.

Despite these improvements, baseline inspection findings continue to be identified. The team reviewed baseline NRC inspection reports from March to June 2004 and determined that the following examples of failure to follow procedures by operators resulted in errors:

- A failure to follow station procedures resulted in an incorrect breaker being opened causing an inadvertent actuation of the primary containment isolation system in March 2004.
- A failure to follow station procedures for equipment control of diesel fuel oil storage tank cross tie valves resulted in both emergency diesel generators being declared inoperable in March 2004

Procedural noncompliance has been previously identified as one of the common themes within this area. In addition, two yellow indicators (Human Performance Error Rate and Human Performance Event Free Days), although demonstrating a stable or improving trend, indicate a need for further effort in this area. The licensee has implemented additional actions to improve human performance. These activities include: an initiative implemented site wide in March 2004 to address concerns with procedure use and adherence expectations; a site level "Good Catch" recognition tool; a more consistent method of communicating error information; and requirements to provide supervisors more time in the field.

d. Conclusions

The team reviewed the baseline inspection findings, licensee performance measures, NRC performance indicators, and licensee self-assessments to determine whether the licensee's actions have been effective in improving human performance. The team concluded that some improvements have been observed as reflected in two of the licensee performance indicators. However, a number of human performance errors continue to occur. These errors have resulted in improper operation of safety-related equipment and incorrect system configuration involving risk significant accident mitigation systems, resulting in inoperability of safety-related equipment. The licensee has continued to implement additional actions to improve human performance, including the start of a second cycle of site-wide training using the human performance mock-up trainer and ongoing emphasis on quality management observations to improve human performance.

3. **CAL Item 3 - Material Condition and Equipment Reliability**

a. Scope

The team reviewed the following completed TIP , Revision 2, action plan steps associated with CAL Item 3, Material Condition and Equipment Reliability:

<u>Action Plan</u>	<u>Title</u>	<u>Steps</u>
5.3.1.2.a	Service Water	5d
5.3.1.2.c	Offsite Power/Switchyard Reliability	18, 19, 21
5.3.1.2.d	Feedwater Controls Improvement	2, 3
5.3.1.2.e	Water Sulfates	5, 7, 8, 17, 19
5.3.1.2.f	Heating, Ventilation, and Air Conditioning	1b, 1c, 1d, 2b, 2c, 2d, 8, 5c, 6
5.3.1.2.g	Primary Containment Vacuum Breakers	3
5.3.1.2.h	Control Room Recorder Obsolescence	2c1, 3b1, 6
5.3.1.2.i	Air Systems	8b, 8d
5.3.1.2.j	Kaman Radiation Monitors	2, 2c
5.3.1.2.k	Optimum Water Chemistry	6
5.3.1.1	Equipment Reliability Improvement Plan	1c, 2, 3f, 4b, 5d, 8

The team reviewed the licensee's closure packages and supporting documentation. In addition, interviews with knowledgeable licensee personnel and equipment walkdowns were conducted. The team reviewed NRC baseline inspection reports and 19 licensee site performance indicators that are used to assess the effectiveness of TIP actions associated with material condition and equipment availability.

b. Implementation of Action Plan Steps

The licensee completed the CAL-related improvement plan steps as scheduled. The actions taken satisfied the intent of the associated steps.

c. Performance Assessment

The team reviewed the following 19 licensee performance indicators to aid in the assessment of the performance in the area of material condition and equipment reliability.

<u>Indicator</u>	<u>Performance</u>	<u>Trend</u>
Components in Accelerated Testing	Green - Excellent	Stable
Control Room Deficiencies	Green - Excellent	Stable
Forced Loss Rate (18-Month)	Red - Unsatisfactory	Positive
Long-Term Clearance Orders	White- Meets Goal	Positive
Maintenance Rework	Yellow - Action Required	Stable
On-Line Corrective Maintenance Backlog	Green - Excellent	Positive
On-Line Plant Leaks	Green - Excellent	Stable
Overdue Preventive Maintenance	Green - Excellent	Stable
Non-Technical Program Health	White - Meets Goal	Positive
Risk Significant Functional Failures	Yellow - Action Required	Stable
Safety System Functional Failures	White - Meets Goal	Stable
Safety System Unavailability:		
Emergency A/C	Green - Excellent	Negative

Enclosure

Power		
HPCI	White - Meets Goal	Stable
RCIC	White - Meets Goal	Stable
RHR	White - Meets Goal	Stable
System Health	Yellow - Action Required	Stable
Unplanned Entries into LCO's	Red - Unsatisfactory	Negative
Chemistry Performance	Red - Unsatisfactory	Positive

The team observed that there has been improvement in the licensee performance indicators tracking long-term clearance orders, overdue preventive maintenance, corrective maintenance backlog, and nontechnical program health. In addition, recent performance improvements have been noted in water sulfate chemistry, optimum water chemistry, reactor building ventilation, and control room recorders. The team observed that 6 of the 19 licensee performance indicators were either unsatisfactory or have action required. Two indicators have a negative trend, Emergency A/C Power and Unplanned Entries into LCO's. Unplanned LCO entries trended from white to red. The major contributors to this change were equipment failures associated with Kaman Radiation Monitors, Fire Doors, Air Operated Valves and Motor Operated Valves associated with Primary and Secondary Containment. Notification 10312078 was written and contained a recommendation to evaluate the effectiveness of programs initiated to address unplanned LCO entries.

The 19 performance indicators and 11 action plans having deliverables this inspection show evidence of improving equipment reliability. However, during interviews the licensee acknowledged that in the area of equipment reliability their focus needs to be broader than the CAL related TIP items. The other action plan areas will require continued monitoring and completion of remaining improvement deliverables to lend confidence that the licensee can focus on other priorities. In addition the licensee has initiated a new integrated process designed to prioritize and schedule maintenance. This process emphasizes feedback to reveal issues and to serve as a trend mechanism.

The team determined that the licensee's ability to identify latent equipment and material condition problems prior to functional failures actually occurring needs continued effort. Functional failures continue to occur on a too frequent basis as evidenced by the licensee's Risk Significant Functional failure performance indicator which remained in the action required (Yellow) category this inspection quarter.

The following risk significant failures have recently occurred contributing to the unsatisfactory PI:

- Repeated clogging of the emergency diesel generator fuel oil strainer in March 2004;
- Tripping of the 'A' turbine equipment cooling pump in February 2004.

d. Conclusions

The team determined that the licensee completed the CAL-related TIP items as scheduled. During interviews the licensee acknowledged that in the area of equipment reliability their focus needs to be broader than the CAL related TIP items. As such the licensee has initiated a new integrated process designed to prioritize and schedule maintenance. This process emphasizes feedback to reveal issues and to serve as a trend mechanism.

A review of the most recent baseline inspection results revealed additional inspection findings involving emergency diesel generator reliability. The team concluded that the licensee was tracking the system health and risk significant functional failure performance indicators. Actions were being implemented to improve performance in these areas; however, the failure rate does not meet licensee expectations as noted by the yellow performance indicator.

4. **CAL Item 4 - To Resolve Long-Standing Problems With Plant Modifications and Configuration Control**

a. Scope

The team reviewed the following completed TIP action plan steps associated with CAL Item 4, Resolve Long-Standing Problems with Plant Modifications and Configuration Control:

<u>Action Plan</u>	<u>Title</u>	<u>Steps</u>
5.2.1.2	Operability Determinations	7, 10
5.3.3.3	Unauthorized Modifications	5, 7

The team reviewed the closure packages and supporting documentation and conducted interviews with various licensee personnel knowledgeable of the specific steps. The team also reviewed baseline inspection reports and licensee performance measures and performed a review of six licensee performance indicators used to track effectiveness of the TIP actions associated with the CAP, utilization of industry operating experience, and self-assessment.

b. Implementation of Action Plan Steps

The licensee staff completed the CAL-related improvement plan steps as scheduled, and the actions taken met the intent of the associated step.

c. Performance Assessment

The team reviewed the following six Plant Modifications and Configuration Control Performance Indicators:

<u>Indicator</u>	<u>Performance</u>	<u>Trend</u>
Modification Closeout Backlog	Green - Excellent	Positive
Operator Challenges	Green - Excellent	Positive
Operator Workarounds	Green - Excellent	Positive
Temporary Modifications	Green - Excellent	Positive
Drawings and Vendor Change Backlog	Green - Excellent	Negative
Drawing Change Notice (DCN) On-time Completion	White - Meets Goal	Stable

Five of the six performance indicators were in the Green band, four of which indicated a positive trend and the other (Drawings and Vendor Change Backlog) a negative trend. The team noted that the DCN on-time completion performance indicator still indicated White, but that the previously noted negative trend in this indicator had stabilized.

The team considered that the new program for increasing the effectiveness of operability determinations (ODs) provided a potential enhancement for increasing the licensee's ability to prioritize and perform ODs by emphasizing knowledge based tools. The team's assessment was reinforced through interviews with operations and engineering personnel. The team also concluded that efforts to resolve problems with unauthorized modifications had improved. Based on corrective actions initiated, for example, the licensee performed 33 Engineering Evaluations in 2003 to identify the need to incorporate DCNs to eliminate unauthorized configurations. The team also noted that, as of May 2004, 23 additional DCNs had been generated and the remaining 10 had been scheduled for the January 2005 refueling outage, indicating progress was made and is ongoing.

d. Conclusions

The team determined that the licensee completed the CAL-related TIP items as scheduled. The licensee's performance indicators were all satisfactory and 4 of 6 were trending in the positive direction. The team noted that the new program for increasing effectiveness of operability determinations was recently initiated and included provisions for increasing the licensee's ability to prioritize and perform operability determinations. The team also concluded that efforts to resolve problems with unauthorized modifications had improved.

5. **CAL Item 5 - To Resolve Long-Standing Problems With The Corrective Action Program (CAP)**

a. Scope

The team reviewed the following TIP action plan steps associated with CAL Item 5, Corrective Action Program, Utilization of Industry Operating Experience, and Self-Assessments:

<u>Action Plan</u>	<u>Title</u>	<u>Steps</u>
5.2.7.1	Improve Use of CAP (Corrective Action Program) to Effectively Resolve Station Problems	1a, 1j, 5a

The team reviewed the closure packages and supporting documentation and conducted interviews with various licensee personnel knowledgeable of the specific steps. The team also reviewed baseline inspection reports and licensee performance measures and performed a review of five licensee performance indicators used to track effectiveness of the TIP actions associated with the CAP, utilization of industry operating experience, and self-assessment.

b. Implementation of Action Plan Steps

The licensee staff completed the CAL-related improvement plan steps as scheduled, and actions taken met the intent of the associated step.

c. Performance Assessment

The team performed a review of the five site performance indicators used to track effectiveness of the TIP actions associated with the CAP, utilization of industry operating experience, and self-assessments. Specifically, the team reviewed the following indicators:

<u>Indicator</u>	<u>Performance</u>	<u>Trend</u>
Corrective Action Program Performance Index	Green - Excellent	Stable
Timeliness of Cooper Nuclear Station Response to Industry Issues	Green - Excellent	Positive
Significant Condition Report On-Time Completion	Green - Excellent	Negative
Corrective Action Program Self-Identification	Red - Unsatisfactory	Negative
On Schedule Completion of QA Findings	Green - Excellent	Stable

The team noted that the performance indicator for CAP self-identification had declined from Yellow to Red with a negative trend. The licensee indicated that this was primarily due to findings as a result of an increased number of quality assurance audits that were recently performed. The licensee initiated Notification 10313582 to assess the negative trend and to evaluate areas for improvement in corrective action self-identification. The licensee's assessment was still in progress at the end of the inspection. Of the other PI's, Timeliness of CNS Response to Industry Issues was Green with a positive trend, On Schedule Completion of Quality Assurance Findings was Green and stable, and Significant Condition Report On Time completion was Green with a negative trend.

The team determined that efforts were ongoing to reinforce a "take action now" philosophy, creating a methodology for increasing line manager ownership of corrective action performance indicators, and establishing an equipment trending program for incorporating corrective action program work items. The team reviewed the licensee's program to enhance line manager ownership of performance indicators through presentations of performance indicator status to senior management on a regular basis and considered it a good initiative. The licensee also demonstrated that early trending information on the effectiveness of "on-the-spot" corrective action through the "take action now" philosophy was reducing the corrective action backlog and ensuring high priority notifications were addressed in a timely manner.

d. Conclusions

The team determined that the licensee completed the CAL-related TIP items as scheduled. The team reviewed the performance indicators and determined that 4 of 5 indicators were meeting licensee goals. The CAP self-identification performance

indicator was unsatisfactory. The licensee was in the process of evaluating corrective actions to improve performance in this area. Also recent actions to improve line manager ownership of the corrective action program have resulted in a reduction of the corrective action backlog and the effectiveness of the “on the spot” corrective action through the “take action now” philosophy has resulted in more timely correction of plant problems.

6. CAL Item 6 - Engineering Programs

a. Scope

The team reviewed the following completed TIP, Revision 2, action plan step associated with CAL Item 6 Engineering Programs:

<u>Action Plan</u>	<u>Title</u>	<u>Step</u>
5.3.2.1	Engineering Programs	40

The team reviewed the closure package and supporting documentation and conducted interviews with various licensee personnel knowledgeable of the specific step. The team also reviewed baseline inspection reports and licensee performance measures and performed a review of three licensee site performance indicators that are used to assess the effectiveness of TIP actions associated with engineering programs.

The team reviewed the actions taken by the licensee to address the qualification of electrical equipment required to operate in harsh environments to mitigate the accident that caused the harsh environment. The effort consisted of the review of 24 environmental qualification data packages; the procedural guidance for documenting and demonstrating qualification; 9 qualification test reports; and Engineering Evaluation EE 03-086, "Assessment of CNS Compliance with 10CFR50.49," dated June 27, 2003. The inspectors also reviewed the corrective actions taken in response to Notice of Violations 05000298/2000007-05, "Failure to Maintain Environmental Qualifications of Safety-Related Equipment," and 05000298/2000010-03, "Failure to Take Prompt Corrective Actions," as stated in Cooper Nuclear Station Letters NLS2001104 and NLS2000109, respectively.

b. Implementation of Action Plan Steps

The licensee’s staff completed the CAL-related improvement plan step as scheduled, and action taken met the intent of the associated step.

The team noted that work had been performed during the development of the qualification data packages by contractors. The contractor did not have a quality assurance program that met the requirements of Appendix B to 10 CFR Part 50. Therefore, the work was performed under the Cooper Nuclear Station quality

assurance program. All of the work performed by the contractor was reviewed and approved by licensee personnel.

The team also noted that some of the calculations used to support the qualification data packages had not received approval at the time of the inspection. The team found that those calculations did not adversely affect the qualification of installed equipment at Cooper Nuclear Station. Those calculations were part of qualification data packages that were being revised to make the packages consistent in form and content. As such, the calculations, as part of the revision process, were to receive the required reviews and approvals.

The team reviewed four audits performed between June 2000 and February 2004 and four quality assurance surveillances performed between July 2001 and June 2003. The three audits performed between June 2000 and May 2002 that included environmental qualification issues were corrective action program audits and addressed only that aspect of Appendix B.

Each of the surveillances and the February 2004 audit addressed various criteria of Appendix B, including design control, procedural adequacy and implementation, and corrective actions. In Quality Assurance Surveillance Report S302-0203, performed in October 2002, the licensee's reviewer identified that contractors were not performing calculations in accordance with approved procedures. The licensee issued a stop work order and licensee personnel performed independent review and approval of the contractors' work in accordance with approved Cooper Nuclear Station procedures.

c. Performance Assessment

The team reviewed the following performance indicators:

<u>Indicator</u>	<u>Performance</u>	<u>Trend</u>
Overdue Preventive Maintenance	White - Meets Goal	Stable
Cooper Nuclear Station Program Health	White - Meets Goal	Stable
Engineering Inventory	White - Meets Goal	Positive

The team noted that all of the performance indicators were meeting licensee goals and have remained stable or continued to improve from the last quarterly inspection. In addition, all the performance indicators were trending in the positive direction. Also, the team's review of baseline inspections indicated no adverse trends in this area.

d. Conclusions

The team determined that the licensee completed the CAL-related TIP items as scheduled. The team reviewed the licensee performance indicators for engineering programs and determined all of the indicators were meeting licensee goals.

The team also found that, in the area of environmental qualification of electric equipment, appropriate oversight of quality activities had been applied through audits and surveillances. This oversight assured that contractor supplied work products were accurate and in compliance with Cooper Nuclear Station procedures and regulatory requirements.

4AO6 Exit Meeting

On October 9, 2003, the team presented their findings regarding the environmental qualification portion of the inspection, to Mr. R. Eddington and members of his staff. The management representatives acknowledged the inspection results.

On June 23, 2004, a telephonic exit meeting was held to present the results of the CAL inspection to Mr. Minahan and other members of the licensee staff. The licensee staff acknowledged the inspection results.

While some materials examined during the inspection should be considered proprietary, no proprietary information is included in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

M. Boyce, Corrective Action and Assessments
D. Buman, Manager, Design Engineering
J. Christensen, Co-Director of Nuclear Safety Assurance
D. Cook, Manager, Strategic Improvement Plan
R. Edington, Vice President - Nuclear Energy and Chief Nuclear Officer
R. Estrada, Performance Assessment Department Manager
P. Flemming, Licensing Manager
T. Hottavy, Manager of Equipment Reliability Department
G. Kline, Director of Engineering
D. Knox, Manager, Maintenance
D. Meyers, General Manager Site Support
S. Minahan, General Manager Plant Operations
D. Montgomery, Human Performance Coordinator
T. Pospisil, Engineer, Environmental Qualification
J. Sumpter, Senior Engineer, Licensing
M. Unruh, Program Engineer, Environmental Qualification
B. Toling, Manager, Root Cause Analysis
W. Victor, Senior Licensing Engineer
A. Williams, Manager, Engineering Programs

NRC

S. Alexander, Senior Engineer, Office of Nuclear Reactor Regulation
S. Cochrum, Resident Inspector, Cooper Nuclear Station
S. Schwind, Senior Resident Inspector, Cooper Nuclear Station

LIST OF ITEMS CLOSED

05000298/2000007-05	NOV	Failure to Maintain Environmental Qualifications of Safety-Related Equipment
05000298/2000010-03	NOV	Failure to Take Prompt Corrective Actions

LIST OF DOCUMENTS REVIEWED

Plant Procedures

<u>Document</u>	<u>Title</u>	<u>Revision</u>
0-CNS-25	Self-Assessment	12
0-HP-POLICY	Human Performance Policy	2
0-HP-IMPLEMENT	Human Performance Policy Implementing Procedure	1
0.5.TRND	Trending of Problem Identification Report Results	2
0-CNS-63	TIP Progress Monitoring and Action Plan Closure	9
0-PI-01	Performance Indicator Program	10
Enn-OD-102	Operability Determinations	2
0.5.OPS	Operations Review of Notifications/Operability Determinations	22
0.4A	Procedure Change Process Supplement	10
Chem. 8.7.1.8	Biomonitoring	2
Eng. 3.30	Mascroscopic Biological Organism Sampling	3
Eng. 3.10	Erosion/Corrosion Program	2
Ops. 2.012	Operations Challenges	4
Training 1.15	Performance Analysis	4
0.5.NAIT	Corrective Action Implementation and Nuclear Action Item Tracking	18
0-CNS-07	Management Field Observations	6
0-HP-Implement	Human Performance Policy Implementing Procedure	1
0-HP-Policy	Human Performance Policy	1
0-HP-PJ Brief	Pre-Job Brief/Post-Job Critique	1
0.5	Conduct of the Problem Identification and Resolution Process	44

<u>Document</u>	<u>Title</u>	<u>Revision</u>
0.5 Root-Cause	Root Cause Analysis Procedure	2
0.10	Operating Experience Program	12
7.0.5	Post-Maintenance Testing	22

Notifications

10268669	10276249	10291229
10268879	10305676	10249119
10269173	10277031	10302420
10270158	10224878	10285766
10271278	10306749	10307705
10272768	10226156	10292644
10274121	10149443	10308401
10274350	10309766	10293847
10275620	10277151	10311653
10275978	10286211	10304665
10276156	10312078	10314248

Resolve Condition Reports

2002-2441
2002-2440

Audits and Assessments

Self-Assessments SS-04048, Quality Assurance Surveillance Report #S100-0401, Quality Assurance Quarterly Oversight Report - QAD 20040007, Quality Assurance Oversight Plan for TIP July 2003, Quality Assurance Surveillance Report QAD 20030060 and QAD 20030049, Quality Assurance Audit Report #S302-0401.

Change Evaluation Document

CED 6012162
CED 6007520
CED 6013762
CED 6014322
CED 601028181

Engineering Evaluations

EE-04-027
EE-04-028
EE-04-029

Environmental Qualification Data Packages

NUMBER	TITLE	DATE ISSUED	REVISION
15A	Series 300 Marathon Terminal Blocks	June 30, 2003	1
81	Rosemount Transmitters 1153 Series B	June 30, 2003	11
81-S1	Rosemount Transmitters 1153B Series	June 29, 2003	10
87/87A/2 23-S1	Conax RTD & Thermocouple Assemblies Model Numbers 2SK-3066-02, 2SK-3243, and 2SK-3652	May 21, 2003	0
87A	Conax RTD Assemblies Part Numbers 2SK-3243 and 7H04-10001-01	June 30, 2003	6
201	Automatic Switch Company (ASCO) Solenoid Valve Model Series NP-1	June 30, 2003	17
201-S1	Automatic Switch Company (ASCO) Solenoid Valve Model Numbers NP-8316, 8320, and 8321 (Test Report AQS-21678)	October 6, 2003	2
201-S2	Automatic Switch Company (ASCO) Solenoid Valve Model Number NP-8320 (Test Report AQR-67368)	June 20, 2003	1
203	Electric Conductor Seal Assemblies (ECSA)/ Thread Sealant Model N-11136-01, N11027-01, N11119-01 CONAX/PATEL/EGS	June 30, 2003	11
203-S1	Electric Conductor Seal Assemblies (ECSA) CONAX Corporation Model N-11027-01 and N-11136-01	May 21, 2003	10
216	Patel Conduit Seals Model 8412-06	June 30, 2003	9
219	Reliance AC Motor Class H, Type RH	June 30, 2003	9
219-S1	Reliance 460VAC Motor Class H, Type RH	June 5, 2003	8

Environmental Qualification Data Packages

NUMBER	TITLE	DATE ISSUED	REVISION
222	Pressure Switch Static O-ring (SOR) Model 6N6-B3-NX-CIA-JJTTX6, X12	June 30, 2003	10
222-S1	Pressure Switch Static O-ring (SOR) Model 6N6-B3-NX-CIA-JJTTX6, X12	June 9, 2003	9
228	Pressure Switch Static O-ring (SOR) Model TA Series	June 30, 2003	10
228-S1	Pressure Switch Static O-ring (SOR) Model TA Series	June 25, 2003	9
234	NAMCO Controls Limit Switch EA 180 Series	June 30, 2003	9
234-S1	Limit Switch (Containment Applications) EA 180 Series	June 20, 2003	8
240-S1	Valcor Solenoid Operated Valve Model V526-5940-20	May 22, 2003	5
EQDP.2. 102	Automatic Valve Corporation (AVCO) Scram Pilot Solenoid Pilot Valve Model Number B7122-145	June 30, 2003	1
EQDP.2. 102-S1	AVCO Scram Solenoid Pilot Valves Model B7122-145	June 30, 2003	0
EQDP.2. 121	Target Rock Corporation Solenoid Valve Model Number 02V-001	July 2, 2003	0

Miscellaneous

NUMBER	DESCRIPTION	REVISION / DATE
44400R96-1	Nuclear Environmental Qualification Test Report Scram Solenoid Pilot Valve Model #B7122-145	B
Audit 00-07	Quality Assurance Audit Report, <i>Significant Condition Reports, Resolve Condition Reports, and Operating Experience Reviews</i>	July 3, 2000

Miscellaneous

NUMBER	DESCRIPTION	REVISION / DATE
Audit 00-12	Quality Assurance Audit Report, <i>Significant Condition Reports, Resolve Condition Reports, and Operating Experience Reviews</i>	January 4, 2001
Audit 02-05	Quality Assurance Audit Report, <i>Engineering</i>	May 30, 2002
Audit 04-02	Quality Assurance Audit Report, <i>Environmental Qualification (EQ)</i>	February 23, 2004
CED 2000-0194	Nutherm DC Starter Door Clip Replacement	October 24, 2000
EE 03-086	Assessment of CNS Compliance with 10 CFR 50.49	June 30, 2003
MWR 00-3588	Modify the Nutherm Panel Fasteners on EE-STR-1302MV, EE-STR-1308MV, EE-STER-250DIV1(MO25A), EE-STR-250DIV1(MO53A) and EE-STR-125RCIC(MO16)	November 13, 2000
MWR 00-3589	Modify the Nutherm Panel Fasteners on EE-STR-125HPCI(MO16)	November 13, 2000
NAIT 2002-0949	NAIT Feedback Form RCR Part 21 Evaluation for Weidmuller Terminal Block	June 24, 2002
PDB-EQ	Cooper Nuclear Station Environmental Qualification PDB-EQ Program Basic Document	1
PIR 4- 12831	NPPD Problem Identification Report Weidmuller Terminal Blocks	November 30, 2000
PIR 4- 14334	NPPD Problem Identification Report Weidmuller Terminal Blocks	November 30, 2000
RCR 2002-0949	RCR Apparent Cause Evaluation-Buchanan Model 0241 Terminal Blocks	1
RCR 2002-2447	The Strategic Improvement Plan Action Plan 5.3.2.1, Step 40	June 30, 2003
S3002-0101	Quality Assurance Surveillance Report, <i>Special Programs</i>	August 9, 2001

Miscellaneous

NUMBER	DESCRIPTION	REVISION / DATE
S302-0202	Quality Assurance Surveillance Report, <i>EQ Program Surveillance</i>	February 19, 2002
S302-0203	Quality Assurance Surveillance Report, <i>EQ Project/Program</i>	December 4, 2002
S302-0301	Quality Assurance Surveillance Report, <i>Environmental Qualification Program</i>	June 16, 2003

Procedures

NUMBER	TITLE	REVISION
6.1RPS.307	Reactor Vessel Low-High Water Level Channel Calibration (Div 1)	11
AP 0.19	Equipment Record and Functional Location File Program	14C1
AP 0.4	Notice to Workers	34
AP 0.14	Procedure Change Process	12
AP 0.20	Environmental Qualification of Electrical Equipment	9
AP 0.40	Work Control Program	38
EP 3.4.1	Part Evaluation	1
EP 3.12.1	Environmental Qualification Program Implementation	9
EP 3.12.2	Environmental Qualification Data Package	16
EP 3.12.3	Environmental Qualification Design Input File Control	10
EP 3.12.5	Age Related Degradation for Environmental Qualification	10
EP 3.12.7	Control of Master Equipment List (MEL)	7
EP 3.36	Shelf Life	0

Procedures

NUMBER	TITLE	REVISION
IACP 14.0.4	IAC Equipment Qualification Control Guidelines	2
IACP 14.9.2.1	Rosemount Model 1153, Series B, EQ Transmitter Circuit Board Replacement	5
MP 7.0.2	Preventive Maintenance Program Implementation	27
MP 7.0.9	Control of Lubricants	11
MP 7.0.14.2	Lubrication/Oil Analysis Program	3
MP 7.3.13.1	Nutherm Starter and Disconnect Inspection	6
MP 7.3.37	EQ Reliance and Toshiba Motor Lubrication	5
MP 7.3.53	EQ Valve Solenoid Valve Electrical Maintenance (Kerite Cable)	5
MWP 5.3.4	Electric Motor Bearing Lubrication	0
PBD-EQ	Environmental Qualification Program Basis Document	19
PM EDP-06	Design Inputs	10
PM EDP-07	Cable, Terminal Box & Insulated Splice Data Base Maintenance and Control	1
SP 1.8	Warehouse Goods Issue, Return, and Shipping	35

Qualification Test Reports

NUMBER	TITLE	REVISION
EQDI 1056	Reliance Electric Company Summary Report Nuclear Power Motor Systems Type Test Support Analysis Random Wound Motors NUC-9	July 1, 1978

Qualification Test Reports

NUMBER	TITLE	REVISION
EQDI 2000	ASCO Test Report No. AQR-67368, "Report on Qualification of Automatic Switch Co. (ASCO) Catalog NP-1 Solenoid Valves for Safety-Related Applications in Nuclear Power Generating Stations"	1
EQDI 2010	ASCO Test Report No. AQS-21678, "Qualification Tests of Solenoid Valves by Environmental Exposure to Elevated Temperature, Radiation, Wear Aging, Seismic Simulation, Vibration Endurance, Accident Radiation and Loss-of-Coolant Accident (LOCA)"	A
EQDI 2054	ASCO Test Report No. AQR-67368/TR, "ASCO Catalog NP-1 Valves: Qualified Life Based on Activation Energy, Component Replacement and Surveillance Program"	Supplement 3
EQDI 2188	Conax Corporation Report IPS-1138, "Design Qualification Test Report for Class 1E RTD and Thermocouple Assemblies for Conax Corporation"	A
EQDI 2420	Valcor Test Report No. QR 52600-5940-2, "Qualification Test Report on SNUPPS Solenoid Valve"	C
EQDI 2554	EGS Test Report EGS-TR-841215-04, "Test Report for Nuclear Environmental Qualification/ Submergence Testing of Patel/EGS Conduit Seals"	September 28, 1992
EQDI 3120	Target Rock Corporation Report No. 3996, "Qualification Test Report for the Environmental Qualification of the Target Rock Corporation Solenoid Operated Globe Valves in Accordance with Standard Case IV Condition (Modified) IEEE 382-1980"	A
EQDI 3218	Analysis of MS-TE-112B for High Temperature Effects on Kapton® Wires	December 13, 2001