November 14, 2000

Mr. M. Reddemann
Site Vice President
Kewaunee and Point Beach Nuclear Plants
Nuclear Management Company, LLC
6610 Nuclear Road
Two Rivers, WI 54241

SUBJECT: KEWAUNEE INSPECTION REPORT 50-305/00-19(DRP)

Dear Mr. Reddemann:

On September 29, 2000, the NRC completed the baseline problem identification and resolution inspection of your Kewaunee Nuclear Power Plant. The results of this inspection were discussed with Mr. M. Wadley, yourself, and other members of your staff.

The inspection was an examination of activities conducted under your license as they relate to your corrective action program and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observation of activities, and interviews with personnel.

Based on the results of this inspection, four issues of very low safety significance (Green or No Color) were identified: failure to identify corrosion as a potential failure mechanism in the operability determination for a carbon steel key in the Service Water system, failure to take corrective action for a 1996 equipment issue in the turbine driven auxiliary feedwater system, failure to implement Quality Assurance manual requirements for determining the significance of conditions adverse to quality, and failure to implement Quality Assurance manual requirements for trending issues. These issues were determined to involve violations of NRC requirements.

Based on the results of this inspection, the NRC concluded that the corrective action program at Kewaunee showed significant weaknesses and inconsistencies across all of the procedural elements inspected. These weaknesses existed across departments and affected multiple cornerstones in the strategic performance areas of Reactor Safety, Radiation Safety, and Safeguards. Of particular note was the lack of procedures for determining the significance of conditions adverse to quality and for trending of issues and the complete lack of trending within your corrective action program.

We also identified a lack of urgency in correcting issues which resulted in repeat examples occurring and, coupled with a poor tracking system, a tendency for issues to be dropped. While none of the specific examples identified by the team were of high risk significance when looked at in isolation, in the aggregate they were similar in nature to prior issues in the emergency preparedness area that rose to a higher significance level and contributed to a degraded cornerstone. While we concluded that the station had fostered an environment in which

personnel freely identified conditions adverse to quality without fear of discrimination or retaliation, we also concluded that significant weaknesses with, and inconsistent implementation of, the station corrective action program resulted in multiple examples where station personnel did not enter deficiencies into the station's formal corrective action program.

Previous inspections conducted by the NRC have also identified significant problems with the Kewaunee corrective action program. For example, in April 2000, we inspected your staff's evaluation of the root cause of a Yellow performance indicator related to the Alert and Notification System (sirens) and determined that your staff had not completed an adequate root cause evaluation for this issue. In September 2000, during a subsequent inspection, (Inspection Report 50-305/00-17) NRC inspectors again determined that your staff had not completed an adequate root cause evaluation for the same Yellow performance indicator related to the Alert and Notification System. Both of these inspections were conducted after it had been affirmed that your staff was ready for the NRC to inspect this issue. Our inspections concluded that significant deficiencies in the Kewaunee corrective action program contributed to the Yellow performance indicator and that your staff had not done an adequate evaluation to prevent recurrence, including determining the extent of condition. As a result of the weaknesses identified in Inspection Report 50-305/00-17, we issued a Yellow finding with respect to your corrective action program.

In August 2000, during a baseline emergency preparedness inspection, NRC inspectors also identified a failure by your staff to address a long standing and repetitive issue with your emergency preparedness augmentation drills. This issue was identified by the NRC and was preliminarily classified as a White finding. A major contributor to this finding was the lack of corrective action by your staff for a known problem.

In 1997, and again in 1999, one of Kewaunee's offsite review committees identified significant concerns with the effectiveness of the Kewaunee corrective action program. In fact, one of your senior managers stated that staff members had informed him that this NRC inspection had identified nothing new. However, to this point only very limited attempts at improving the program have been attempted. I understand that you are now developing a significant revision to your corrective action program and this revised program will be in effect shortly. We will affirm the adequacy of this new program in a subsequent inspection.

Based on the significant weaknesses identified in this and earlier inspection reports, the NRC has begun an evaluation to determine if this represents a substantial cross-cutting issue in the corrective action program. We will apprize you of the results of our determination shortly.

The above mentioned violations are not being cited because the violations were of very low safety significance and have been entered into your corrective action program, which you are currently revising. If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United

States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Kewaunee facility.

In accordance with 10 CFR 2.790 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/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

Original signed by M. Leach

M. Leach, Chief,
Reactor Projects Branch 2

Docket No. 50-305
License No. DPR-43

Enclosure: Inspection Report 50-305/00-19(DRP)

cc w/encl: K. Weinhauer, Assistant Site Vice President, Kewaunee Plant
B. Burks, P.E., Director, Bureau of Field Operations
Chairman, Wisconsin Public Service Commission
State Liaison Officer

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-305
License No:	DPR-43
Report No:	50-305/00-19(DRP)
Licensee:	Nuclear Management Company, LLC
Facility:	Kewaunee Nuclear Power Plant
Location:	N 490 Highway 42 Kewaunee, WI 54216
Dates:	September 18 through September 29, 2000
Inspectors:	K. Riemer, Team Leader L. Collins, Project Engineer Z. Dunham, Resident Inspector G. O'Dwyer, Reactor Inspector
Approved By:	Melvyn N. Leach, Chief Reactor Projects Branch 2 Division of Reactor Projects

NRC's REVISED REACTOR OVERSIGHT PROCESS

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

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

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

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

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

SUMMARY OF FINDINGS

IR 05000305-00-19, on 9/18-9/29/00; Nuclear Management Company, LLC; Kewaunee Nuclear Power Plant; Unit 1. Identification and Resolution of Problems.

The report covers a 2-week inspection by three region-based inspectors and one resident inspector. This was an announced inspection to review the effectiveness of the corrective action process which included the methods used for identification, cause investigation, and correction of quality related problems. The inspectors used Inspection Procedure IP 71152, "Identification and Resolution of Problems," to conduct the inspection. The inspection identified four issues which were considered Non-Cited Violations (NCVs). The significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process.

Problem Identification and Resolution

In general, the Kewaunee corrective action program contained significant weaknesses in both the problem identification and problem resolution areas. These weaknesses occurred across multiple cornerstones and were not limited to any one specific department. Although none of these items, in isolation, were considered safety significant, collectively they could represent a significant cross cutting weakness in the licensee's program. Specifically, the team identified the following substantive weaknesses in the licensee's corrective action program:

- Station personnel exhibited weaknesses or inconsistencies across departments in the identification and entry of items into the station's corrective action program. The team identified examples where station personnel were slow to enter problems into the corrective action program after identification by outside organizations.

- The team identified weaknesses and inconsistencies with the station's prioritization and evaluation of issues. The team identified that there was not an implementing procedure for determining the significance of issues as required by the station's Quality Assurance (QA) manual. No formal documentation or requirements for prioritization and evaluation existed at the station; the prioritization and evaluation of issues were left up to individual departments and personnel. The team noted that station personnel worked "outside the process," or there was inconsistent implementation of the corrective action program. Station personnel sometimes had difficulty retrieving data from the corrective action program concerning matters such as scope or extent of condition reviews, corrective actions assigned, or status of the corrective actions.

- The team identified weaknesses and inconsistencies with respect to the effectiveness of the corrective actions taken for identified deficiencies. The team determined that certain corrective actions were based on the following criteria: similar, repetitive events following initial identification of the problem, or NRC identified examples after the station had undertaken initial corrective actions. The team also identified that the station did not have an implementing procedure for tracking and trending as required by the QA manual. Finally, similar to the other inspection areas examined, the team noted that corrective actions were sometimes worked informally or outside of the station's process.

- Overall, the inspectors found the audits conducted by external organizations to be thorough and accurate evaluations which identified significant problems with Kewaunee's corrective action process. In general, outside audits and assessments provided high quality feedback on problems with the corrective action program. The inspectors noted that several audits dating back to 1997 had conclusions very similar to and, in some instances, the same as the inspectors' conclusions. Internal audits were somewhat inconsistent. While problems may have been recognized, no broad based corrective actions were in place to address the identified concerns. The team identified weaknesses in some individual Quality Programs (QP) audits and that the licensee did not rigorously follow up on QP audit findings.

- Licensee management fostered an environment in which station personnel felt free to identify and enter safety issues into the corrective action program. However, the inspectors noted that, in some instances, station personnel did not document issues via the Kewaunee Assessment Process (KAP) for other reasons such as informal processes, a perceived work load increase if a KAP was generated, or a lack of confidence in the effectiveness of the corrective action process.

Cornerstone: Mitigating Systems

GREEN. The inspectors identified that the licensee failed to identify corrosion as a potential failure mechanism in the operability determination for a carbon steel key in the Service Water system. Thus, the licensee failed to quantify the corrosion rate and therefore did not adequately evaluate the expected service life of the carbon steel key. One non-cited violation was identified. (Section 4OA2.2)

GREEN. The inspectors identified that a root cause evaluation for a 1996 equipment issue in the turbine driven auxiliary feedwater system was not completed until 1999. The evaluation stated that the internals of the steam traps were designed to operate at pressures up to a maximum 600 psig but that the traps were exposed to pressures up to 1025 psig. A corrective action item to initiate a design change request to replace the steam traps with a different model rated for the design pressure of the system was described in the evaluation. However, the inspectors identified that the design change request had never been initiated and the KAP had been closed. As a result, the corrective action item for this design problem was lost. In addition, operability of the system had never been formally evaluated despite the identification that the system design requirements were not met. The licensee subsequently determined that the steam traps remained operable and was planning to initiate the design change to correct the problem. One non-cited violation was identified. (Section 4OA2.3)

Cross-Cutting Issue: Problem Identification and Resolution

NO COLOR. The inspectors reviewed the QA manual requirements against Kewaunee's implementing procedures and identified that two QA manual requirements were not being implemented. Specifically, Program Requirement 3.1.9 which stated that directives and procedures shall provide for the review of conditions adverse to quality to determine if the conditions are significant in nature. This requirement paralleled 10 CFR Part 50, Appendix B, Criterion XVI, which requires that the cause of significant conditions adverse to quality be determined and corrective actions taken to prevent recurrence. The inspectors reviewed the Nuclear Administrative Directive (NAD 11.08)

and the procedure (GNP 11.08.01) governing the KAP process and found no procedure requirements for identifying significant conditions adverse to quality. This finding does not directly affect a cornerstone. As a result, this issue was not evaluated with the Significance Determination Process and was not assigned a color. One non-cited violation was identified. (Section 4OA2.2)

NO COLOR. The inspectors reviewed the QA manual requirements against Kewaunee's implementing procedures and identified that two QA manual requirements were not being implemented. Specifically, QA Program Requirement, 3.1.10, stated that directives and procedures shall provide for analyzing trends of conditions adverse to quality. Once identified these trends were required to be considered significant conditions adverse to quality. The inspectors found that conditions adverse to quality were not defined in the KAP procedures and that no procedure existed for trending. This finding does not directly affect a cornerstone. As a result, this issue was not evaluated with the Significance Determination Process and was not assigned a color. One non-cited violation was identified. (Section 4OA2.3)

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Identification and Resolution of Problems

.1 Effectiveness of Problem Identification

a. Inspection Scope

The inspectors reviewed items that pertained to the seven cornerstones of safety related to the Reactor Safety, Radiation Safety, and Safeguards strategic performance areas. The inspectors reviewed NRC inspection reports (IR) (including the Plant Issues Matrix and Plant Performance Review letters); various Kewaunee Assessment Process (KAPs) forms; and corrective action documents, audits, and self-assessments in order to determine if problems were being identified at the proper threshold, and to verify that when issues were identified, they were appropriately characterized and entered into the licensee's problem identification and resolution program. The documents listed in Attachment 1 were used during the review.

b. Issues and Findings

In general, the team noted weaknesses or inconsistencies across departments in the identification and entry of items into the station's corrective action program (initiation of KAPs). The team also identified examples where station personnel were slow to enter problems into the corrective action program after identification by outside organizations.

Examples of the team's observations are listed below:

NRC Documentation Review

The team reviewed Kewaunee IRs for the prior year (listed in Attachment 1) and determined that a consistent theme of NRC correspondence was the licensee's failure to identify deficiencies prior to the NRC's identification of the problem. Multiple examples also existed where the licensee was slow to enter the item into the corrective action program after initial identification by the NRC. The examples were seen across departments and existed across the cornerstones of the Reactor Safety, Radiation Safety, and Safeguards strategic performance areas.

Design Change Request (DCR) to Change Safety Injection (SI) Signal

The inspectors reviewed the corrective actions associated with KAP 00-002816. This KAP documented the failure to update an Emergency Operating Procedure (EOP) appendix following the implementation of Design Change Request 3163. Emergency operating procedures provide mitigating strategies to ensure that operators act appropriately to prevent barriers from being exceeded during accident scenarios.

This issue was originally identified by the NRC Resident Inspectors on August 2, 2000, and communicated verbally to licensee management. The inspectors also noted that initial documentation of the KAP was untimely in that the issue was first identified on August 2, 2000, and was not formally documented in the KAP process until August 10. Additionally, the inspectors noted that the licensee had at least one prior opportunity

more than 1 year earlier to identify (and implement corrective actions to prevent recurrence of) the problem. A licensee Quality Programs Audit Report for Third Quarter 1999 identified a similar issue where an operations procedure appendix had not been revised following implementation of a DCR. The licensee did not initiate a KAP to document that event. Reference Section 4OA2.2 of this report for NRC concerns associated with the licensee's evaluation of the issue.

Chemistry Procedure Quality Problems

The licensee missed multiple opportunities to identify problems with the implementation of the chemistry quality control program. The issue was important because lapses in the implementation of the chemistry quality control program challenged the integrity of the data produced by the licensee's staff. The results were used, in part, to monitor water chemistry corrosion control and primary to secondary leak rates.

The inspectors reviewed KAP 00-000597. The licensee initiated KAP 00-000597 in response to the NRC's identification of two examples of the licensee's failure to implement the chemistry quality control program; the NRC issued two Non-Cited Violations in March 2000 for the failure to follow radiochemistry QA/QC procedures (reference IR 50-305/00-005). While the licensee did not document the deficiency until after the NRC identified the violations in March 2000, the team determined (through interviews with station personnel) that personnel in the licensee's chemistry department had know about problems with the chemistry quality control program approximately 6 months earlier. The licensee did not document the issue and enter it into the KAP process at that time, but rather worked informally within the chemistry department to resolve the issue. By not entering the issue into the station corrective action program, Kewaunee personnel did not have an opportunity to formally evaluate and resolve the problems. Additionally, the licensee identified these problems only after NRC identification of a failure to follow chemistry procedures and issuance of an NCV in June 1999 (reference IR 50-305/99-008). Reference Section 4OA2.2 of this report for NRC concerns associated with the licensee's prioritization and evaluation of the issue.

.2 Prioritization and Evaluation of Issues

a. Inspection Scope

The team performed an independent assessment of the prioritization and evaluation of a selected sample of KAPs. Other attributes reviewed by the team included a review of the assigned significance level (category), operability and reportability determinations, extent of condition evaluations, and the appropriateness of the assigned corrective actions. The inspectors also assessed the licensee's evaluation of non-cited violations (NCVs). Additionally, the team evaluated the station's implementation of Quality Assurance Manual requirements. The inspectors reviewed information in the time period from approximately June 1999 to the present.

The team used the documents listed in Attachment 1 during the review.

b. Issues and Findings

The team identified weaknesses and inconsistencies with the station's prioritization and evaluation of issues. The team identified that there was not an implementing procedure for determining the significance of issues as required by the station's Quality Assurance

(QA) manual. No formal documentation or requirements for prioritization and evaluation existed at the station; the prioritization and evaluation of issues were left up to individual departments and personnel. The team identified that station personnel worked "outside the process," or there was inconsistent implementation of the corrective action program. Station personnel sometimes had difficulty retrieving data from the corrective action program concerning matters such as scope or extent of condition reviews, corrective actions assigned, or status of the corrective actions.

Examples of the team's observations are listed below:

Determining Significance of Issues as Required by the Quality Assurance (QA) Manual

The inspectors reviewed the QA program manual requirements in the area of corrective action against Kewaunee's implementing procedures and identified two QA manual requirements that were not being implemented. The first example involved Program Requirement 3.1.9 which stated that directives and procedures shall provide for the review of conditions adverse to quality to determine if the conditions are significant in nature. This requirement paralleled 10 CFR Part 50, Appendix B, Criterion XVI, which requires that the cause of significant conditions adverse to quality be determined and corrective actions taken to prevent recurrence. The inspectors reviewed the directive (NAD 11.08) and the procedure (GNP 11.08.01) governing the KAP process and found no procedure requirements for identifying significant conditions adverse to quality. The identification of significant issues is necessary to properly prioritize issues for evaluation and corrective action. However, the inspectors noted there was also no prioritization process, no required due dates, and as a result, limited ability to manage the KAP process. Reference Section 4OA2.3 of this report for the second QA manual requirement concern identified by the team.

10 CFR Part 50, Appendix B, Criterion II, requires that the quality assurance program be documented by written policies, procedures, or instructions, and shall be carried out throughout plant life in accordance with those policies, procedures, or instructions. The failure to have written procedures to document the quality assurance program requirements for identifying significant conditions adverse to quality was an example of a violation of 10 CFR Part 50, Appendix B, Criterion II. This issue is characterized as one example of a Non-Cited Violation (NCV 50-305/00-19-01A). This finding does not directly affect a cornerstone. As a result, this issue was not evaluated with the Significance Determination Process and was not assigned a color. This violation has been entered into the licensee's corrective action program as KAP 00-0728 and is being treated as a Non-Cited Violation.

Work Flow Coordinator Interviews

The inspectors noted that the work flow coordinators for the various maintenance organizations did not utilize a formal procedure for prioritizing work activities. Part of the activities that the work flow coordinators were responsible for included corrective action program duties such as assigning responsibility for KAP resolution, action, and closure. Typically, corrective actions and other activities were scheduled based on the priority determined by the individual work flow coordinator. However, the inspectors did note that if a specific corrective action item was of significance, that typically the work flow coordinator received additional guidance from plant management as to how the item should be prioritized.

DCR to Change SI Signal

Section 4OA2.1 of this report documented the team's concerns with respect to weaknesses associated with the identification of a failure to update an EOP following implementation of a DCR. The inspectors also noted concerns with the licensee's prioritization and evaluation of the deficiency. The licensee utilized a software program which electronically searched operations procedures to determine if a particular component affected by the design change was identified within the body of the procedure. However, this software program was not capable of searching appendices which were attached to the procedures. The inspectors noted that as part of the corrective actions for the original KAP (KAP 00-002816), the licensee implemented a revision to the procedure and appendix in question and performed a review of other operations procedure appendices which may have been affected by the specific DCR. However, the licensee did not review or sample other DCRs after the issue was identified in August 2000 to determine whether or not the scope of the problem existed beyond the example identified by the inspectors. Additionally, the licensee failed to adequately evaluate the potential scope of the problem following identification of a similar issue in the 1999 third quarter QP audit. The licensee had not implemented a mechanism to prevent recurrence of the issue by the end of this inspection.

Chemistry Procedure Quality Problems

Section 4OA2.1 of this report documented the team's concerns with respect to weaknesses associated with the licensee's failure to identify and document concerns associated with chemistry quality control procedures. The team also identified weaknesses with the licensee's evaluation and prioritization of the problem once identified by the NRC. The inspectors reviewed the corrective actions associated with KAP 00-000597. The licensee initiated this KAP to address corrective actions in response to the NRC's issuance of two Non-Cited Violations in March 2000 for the licensee's failure to follow radiochemistry QA/QC procedures.
(Reference IR 50-305/00-05) The inspectors noted that the licensee's immediate corrective actions, which included interim measures to identify and flag procedural inadequacies, were adequate. However, the long term corrective actions of implementing final procedure revisions were still in progress at the end of this inspection. Additionally, the inspectors determined that as a result of a previous Non-Cited Violation in July 1999, the licensee identified numerous procedural deficiencies within the radiochemistry program. However, the licensee did not document these deficiencies, nor take formal corrective actions within the KAP process until after the NRC identified similar deficiencies in March 2000 and issued two Non-Cited Violations. The licensee's efforts to evaluate and correct deficiencies within the chemistry program were ineffective from the time the NRC first identified problems with the chemistry program (July 1999) until the time of this inspection. The issue was not entered into the corrective action program until the NRC identified repeat, similar violations. The licensee performed no initial prioritization of the issue and informally worked on corrective actions to address the issue within the chemistry department.

Solenoid Valve/EQ Problems

In February 2000, two solenoid valves in the Auxiliary Fan Floor Coil Units A and B failed due to excessive wear caused by repeated cycling beyond the assumed cycling life. The NRC reviewed the issue in IR 2000-004 and concluded that the issue was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control. During

this current inspection the inspectors reviewed the issue to evaluate the licensee's problem identification and corrective action and found that the licensee had identified three other solenoid valve applications in which the valves were operated differently than the design assumptions in the Environmental Qualification (EQ) program but had not yet completed the extent of condition review to determine if other components were operated differently than designed. The extent of condition review and the root cause evaluations that were planned for the initial equipment failure and the subsequent identification of the three additional issues were not completed at the time of the inspection and did not have due dates in the KAP process despite being approximately 6 or more months old at the time of the inspection. Additionally for one of these issues, which involved a solenoid-operated containment isolation valve in the letdown system, LD-4A, corrective actions from a similar 1996 issue that involved changing procedural guidance to control the amount of time each solenoid valve was energized would have prevented the most recent problem, but the corrective actions were never formally entered or tracked in the KAP process, and were never implemented.

General KAP/NCV/Root Cause Review

During the inspection, the inspectors requested a list of KAPs that required a root cause investigation. After reviewing a number of KAPs on the list, the inspectors determined that the majority of these KAPs did not, in fact, receive a root cause investigation. Through conversations with licensee staff, the inspectors learned that the method and depth of the cause investigation was largely left up to the individual assigned to the KAP. There was no procedural guidance on performing root cause evaluations and the KAP administrative procedure lacked clear requirements for when a root cause evaluation was required. The KAP administrative procedure stated that root causes should be performed for maintenance preventable functional failures, reportable occurrences, significant human performance events, and at the discretion of the Plant Operations Review Committee. The inspectors identified a number of problems with the quality of root cause evaluations, including several KAPs that appeared to warrant a root cause investigation based on this guidance but did not receive a formal root cause evaluation. Below are several examples of problems with root cause evaluations:

- KAPs 00-001056 and 00-2354, Reactor Vessel Level Instrumentation System (RVLIS) did not respond as expected after the reactor coolant pump was shutdown. This issue was determined to be a maintenance preventable functional failure but did not receive a root cause evaluation in accordance with the procedural guidance.

- KAP 99-003003 and NCV 99-006-01, Inoperable Wide Range Containment Water Level Instrument Channels. This issue was determined to be both a reportable occurrence and a maintenance preventable function failure yet no formal root cause evaluation was performed. A limited evaluation was performed that identified the most likely cause of failure but a structured, thorough, root cause determination was not completed.

- KAP 00-000186, Safety Injection Train B exceeds maintenance rule (a)(1) unavailability criteria. This KAP received a review to determine why the unavailability performance criteria were exceeded although no formal root cause techniques were used. However, the review determined that the causes were mainly due to pump seal maintenance work and motor-operated valve testing. The planned corrective actions did not match the identified causes. No actions

were planned to better control or more closely monitor unavailability due to those reasons. In fact, the planned corrective action was to evaluate revising the performance criteria using a new probabilistic risk assessment model.

- KAP 00-000694, Wrong revision of a safety-related surveillance test procedure was used. This KAP was closed to tracking and trending with only informal corrective actions taken in the one maintenance department that was involved. However, NAD 11.08 provided examples of significant problems with human performance or procedure adequacy, one of which was the wrong revision of a safety-related procedure being implemented. No root cause, or any cause evaluation, was performed for this incident which appeared to meet the definition of a significant problem.

- While not specifically reviewed by the team, the inspectors noted that ineffective root cause evaluations contributed to other, more significant, issues. Through the past eighteen months, various station personnel did not respond adequately to emergency drills. The corrective action program was ineffective in resolving this repetitively deficient performance. The issue resulted in a WHITE inspection finding (reference IR 50-305/00-15(DRS)). Additionally, failures of the corrective action program and poor root cause evaluations contributed to a YELLOW PI with respect to the Alert and Notification System. The NRC completed a supplemental inspection pursuant to NRC Inspection Procedure 95002 (IR No. 50-305/00-06(DRS)). That inspection revealed substantive inadequacies in plant staff's evaluation of the root causes of the performance deficiency, the extent of the performance problems, and the corrective actions that the station implemented to improve performance. During a follow-up supplemental inspection, the NRC continued to identify deficiencies with the most recently performed evaluation. The NRC concluded that the plant staff's review was not of adequate depth to identify the root causes which led to the reduced safety margin. In addition, plant personnel had only begun to evaluate the extent of condition of these newly identified problems. Consequently, the NRC inspection was unable to fully review the evaluation and the inadequacies in the root cause evaluation also limited the NRC's ability to determine the adequacy of the corrective actions (reference IR No. 50-305/00-17(DRS)).

- The inspectors requested a list of root cause evaluations that had been completed. The licensee did not have the ability to easily retrieve the root cause evaluations and had to generate the list by contacting the staff via a site-wide e-mail message to request copies of any root cause evaluations that the staff had been involved in. This method retrieved eight root cause evaluations completed since approximately 1996. A limited review of these eight root cause evaluations concluded that the majority did not use formal root cause techniques.

Loss of Load Transient Review

The inspectors reviewed the licensee's corrective actions associated with a 100MWe load transient which had occurred on June 19, 1999, during routine main turbine stop and control valve testing. The licensee documented the transient and corrective actions in KAP 99-003166. The inspectors noted that the licensee took immediate actions to revise the associated testing procedure to address compensatory actions in case of load transients during future testing. The station's corrective actions were narrowly focused in that they did not address potential human performance concerns. The NRC identified

(reference IR 50-305/99-01) that contingencies or test abort criteria were not discussed during the pre-evolution brief. The team identified that the licensee did not conduct a formal root cause analysis of the event. Instead, the licensee conducted interviews with the control room staff following the event and concluded that there were no human performance issues which negatively impacted the plant and staff response. However, the inspectors noted that a formal root cause analysis, conducted by personnel not closely associated with the event, would potentially have been appropriate given the magnitude of the transient and the guidance listed in licensee procedures.

Service Water System Pump Impeller Key Problems

In corrective action document KAP WO 99-3066 the licensee documented that on June 1, 1999, the A2 service water (SW) pump shaft had failed by cyclic fatigue. While investigating the failure, the responsible engineer discovered other deficiencies including that the impeller key in the failed pump was the incorrect material (carbon steel). The pump vendor's Bill of Material, DTP32255, dated April 22, 1970, documented that the SW pump impeller keys were stainless steel. The responsible engineer identified that the impeller key in the failed pump was carbon steel because of the significant pitting corrosion. Additionally, the licensee discovered several spare pump keys in the warehouse that were incorrect material, (e.g., one of the two spare impeller keys was carbon steel). To document this issue in the corrective action system, the licensee initiated KAP WO-99-3406.

In the operability determination for KAP WO-99-3406, the licensee stated that the operability of the operating service water pumps would not be challenged if the impeller keys were carbon steel material. In this evaluation the licensee failed to identify corrosion as a potential failure mechanism for the carbon steel key. Thus, the licensee failed to quantify the corrosion rate and therefore did not adequately evaluate the expected service life of the carbon steel key. Failure to promptly correct the condition adverse to quality by replacement with the design key material, or establish an appropriate service life for the non-design key material is considered a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions." This issue is characterized as a Non-Cited Violation (NCV 50-305/00-19-02). The team characterized this issue using the significance determination process (SDP), and determined that it had very low risk significance (GREEN) because there had been no actual failure of these impeller keys. After identification by the inspectors, licensee personnel initiated KAP WR-00-3446, in part, to address corrosion of the three potentially carbon steel impeller keys and the potential for a reduced service life.

.3 Effectiveness of Corrective Actions

a. Inspection Scope

The team assessed the adequacy of the station's plans to ensure that the corrective actions properly addressed the identified cause(s) of the issue or event. The inspectors performed this assessment by reviewing KAPs, audits, and self-assessments to verify that corrective actions commensurate with the issues were identified and implemented in a timely manner, including corrective actions to address common cause or generic concerns. The team also verified the implementation of a sample of corrective actions. The samples were selected based on their importance in reducing operational risks.

b. Issues and Findings

The team identified weaknesses and inconsistencies with respect to the effectiveness of the corrective actions taken for identified deficiencies. The team evaluated certain corrective actions as weak based on the following criteria: similar, repetitive events following initial identification of the problem, or NRC identified examples after the licensee had undertaken initial corrective actions. The team also noted that the licensee did not have an implementing procedure for tracking and trending as required by the QA manual. Finally, similar to the other areas inspected, the team noted that corrective actions were sometimes worked informally or outside of the station's process.

Examples of the team's observations are listed below:

Implementing Procedure for Trending as Required by QA Manual

A second QA Program Requirement, 3.1.10, stated that directives and procedures shall provide for analyzing trends of conditions adverse to quality. Once identified, these trends were required to be considered significant conditions adverse to quality. The inspectors found that conditions adverse to quality were not defined in the KAP procedures and that no procedure existed for trending. In the past, the station had trended cause codes for KAPs but not the underlying issues. The inspectors requested copies of any KAPs that had identified a trend as a result of this process but found that no KAP had ever been written to identify a trend. As a result, the inspectors concluded that a trend analysis process for conditions adverse to quality did not exist. A Nuclear Administrative Directive NAD 8.10 titled, "Performance Monitoring, Trending and Assessment Program" existed with one of its' stated purposes to trend data that accurately reflects conditions adverse to quality, and to provide for an assessment of these trends. The inspectors reviewed this monthly report and found that it contained INPO performance indicator information, maintenance rule equipment unavailability information, and other plant performance data but that it did not identify or trend conditions adverse to quality. The inspectors' conclusion was similar to that in the Joint Utility Management Assessment (JUMA) audit in 1997 that this report was essentially a status report and not a trend analysis of conditions adverse to quality.

10 CFR Part 50, Appendix B, Criterion II, requires that the quality assurance program be documented by written policies, procedures, or instructions, and shall be carried out throughout plant life in accordance with those policies, procedures, or instructions. The failure to have written procedures to document the quality assurance program requirements for trending conditions adverse to quality was a second example of a violation of 10 CFR Part 50, Appendix B, Criterion II. This issue is characterized as a Non-Cited Violation (NCV 50-305/00-19-01B). This finding does not directly affect a cornerstone. As a result, this issue was not evaluated with the Significance Determination Process and was not assigned a color. This violation has been entered into the licensee's corrective action program as KAP 00-00728 and is being treated as a Non-Cited Violation.

Examples of Weak Corrective Actions (NRC Documentation Review):

The team reviewed prior NRC documentation to evaluate the effectiveness of licensee corrective actions for selected deficiencies. The team evaluated the corrective actions as weak based on either a repeat occurrence of the problem after initial NRC identification, or on NRC identification of additional examples of similar problems after

the licensee had implemented corrective actions for station identified deficiencies. The deficiencies were noted across station departments and occurred in multiple cornerstones. The team reviewed the following examples from the documentation record for approximately the prior year.

* Chemistry Procedure Issues: In IR 50-305/99-08 (July 1999), the NRC documented an NCV for the licensee's failure to follow an approved plant chemistry procedure. Licensee actions to address the issue were not effective in preventing recurrence of the deficiency. In IR 50-305/00-05 (February 2000), the NRC documented additional examples (NRC identified NCV) of plant staffs' failure to follow chemistry procedures. The licensee's long term corrective actions (procedural revisions) were still open and just being implemented at the time of the PI&R inspection.

* Safeguards Vehicle Searches: In IR 50-305/00-01 (January 2000), the NRC documented an NCV for the licensee's failure to perform a proper vehicle search. The licensee's corrective actions for the inadequate search were ineffective in preventing recurrence of the issue. In IR 50-305/00-13 (July 2000), the NRC documented another NCV for failure to perform an adequate vehicle search.

* Siren PI Issue: Inspection Reports 50-305/99-09 (July 1999) and 50-305/99-13 (January 2000) both documented self-revealing failures of the Emergency Siren System. Both of these siren failures were precursors to the yellow Performance Indicator associated with the siren system and indicated that licensee efforts to address the siren system failure were ineffective. Supplemental IRs 50-305/00-06 and 50-305/00-17 documented that narrow corrective actions going back to 1998 were not effective at addressing the full extent of the problems associated with the alert notification sirens.

* RP Environmental Sampling Equipment: In IR 50-305/00-05, the inspectors observed sample collection activities associated with the radiological environmental monitoring program. The NRC identified and documented a problem concerning the configuration of the air sampling equipment. Specifically, the exhaust from the sample pump was located directly below the intake, creating a potential recirculation loop and nonrepresentative sample. The inspector discussed these observations with the chemistry and radiation protection staff, who planned to review the configuration of the air samplers and the technicians' practices. In IR 50-305/00-16, the NRC documented that licensee staff failed to document, adequately evaluate, and address concerns with environmental air sampling. Specifically, the NRC observed (similar to concerns documented in IR 00-05), that the sampling heads on the environmental air sampling stations were not configured within the sample station enclosures as designed by the manufacturer.

* EP Augmentation Drill Issue: Inspection Report 50-305/00-15 documented ineffective corrective actions associated with the licensee's failure to prevent repetitive failures to meet emergency drill augmentation requirements. The IR was in a Draft status at the time of the PI&R inspection, however, the inspection had been completed and preliminary results presented to the licensee prior to the PI&R team inspection activities.

NRC Identified Post Maintenance Testing (PMT) Issues

The inspectors reviewed the corrective actions associated with KAP 00-002262 and 00-002400. The licensee had written the KAPs to document the resident inspectors' identification that in two instances appropriate post maintenance testing had not been completed prior to the associated safety related equipment being returned to service (reference IR 50-305/00-14 and associated NCV). The licensee identified, approximately 2 years earlier, that the governing preventative maintenance procedures for these examples did not have clear direction regarding appropriate post maintenance testing requirements. The licensee informed the team that there was an on-going effort in the maintenance department to address the concern. However, the inspectors identified that although the licensee made revisions to these particular procedures, the licensee did not document the issue via initiation of a KAP and had not performed an extent of condition review to determine the potential scope of the problem. The issue was still open at the time of the inspection. Subsequent to the end of the inspection period, the resident inspectors identified another example of licensee personnel returning equipment to service without completing the required post-maintenance testing or paperwork closeout.

Shield Building Ventilation

The inspectors reviewed the licensee's corrective actions associated with KAP 00-000547. The KAP had been written on March 10, 2000, to document the licensee's determination that surveillance testing data for the "B" train of safety-related Shield Building Ventilation, which had been missing for several months, did not meet the acceptance criteria for the test. The inspectors noted that the licensee conducted a full root cause analysis and identified several areas for improvement. These included improved human factors design issues, procedural enhancements, and improved administrative oversight of testing. The inspectors evaluated the stated corrective actions as appropriate. However, the inspectors noted that of the three major corrective actions which were documented in LER 2000-002-00, that only two of the corrective actions were partially completed and that the third corrective action had not been started. Additionally, the inspectors noted that the assigned due date was June 1, 2000, but that no explanation or documentation for an extension of the due date was available.

The inspectors noted that this issue was also an example of poor problem identification in that the licensee had prior opportunities to identify the out of tolerance test data when the test was originally performed on July 27, 1999. The test procedure required shift supervisor review and initials prior to returning the associated equipment to service. Although that was done, the out-of-tolerance data was missed, and was subsequently not identified until several months later.

Turbine Driven Auxiliary Feed Water Pump Steam Trap

The licensee identified poor equipment performance of the turbine driven auxiliary feedwater steam traps 25 and 26 in June 1996 and initiated KAP96-0071. The KAP form showed that a root cause evaluation would be completed by June 28, 1996. The inspectors found that the root cause evaluation was not completed until October 20, 1999, more than 3 years after the original due date. The evaluation stated that the internals of the steam traps were designed to operate at pressures up to a maximum 600 psig but that the traps were exposed to pressures up to 1025 psig. A corrective action item to initiate a design change request to replace the steam traps with a different

model rated for the design pressure of the system was described in the evaluation. However, the inspectors found that the design change request had never been initiated and the KAP had been closed. As a result, the corrective action item for this design problem was lost. In addition, operability of the system had never been formally evaluated despite the identification that the system design requirements were not met. The licensee initiated a new KAP 00-003430 to document the operability determination for the inadequate design of the steam traps. The determination concluded that the traps remained operable. The licensee planned to initiate the design change to correct the design problem. Subsequent to the end of the inspection period, the licensee generated KAP WR# 00-004073 to document the corrective action program concerns with the issue.

The inspectors evaluated the design discrepancy using the Significance Determination Process and determined that the issue was of very low safety significance (green) because the AFW system remained operable. 10 CFR Part 50, Appendix B, Criterion XVI, requires that conditions adverse to quality such as deficiencies, deviations, and nonconformances are promptly identified and corrected. The failure to take timely corrective action for the identified design deficiency of the turbine-driven auxiliary feedwater steam traps was a violation of Criterion XVI. However, because of the very low safety significance and because the licensee has included this issue in the corrective action program, this corrective action violation is being treated as a Non-Cited Violation (NCV 50-305/00-19-03).

Failure to Trip Reactor Issue

The inspectors reviewed a formal root cause evaluation that was performed under KAP 99-2516 after an event which involved problems with main generator cooling and resulted in a generator load reduction on January 6, 1999. During the event, station air was inadvertently introduced into the main generator hydrogen coolers and adversely affected main generator cooling. The alarm response procedure during this event called for tripping the reactor, however, operators did not trip the reactor because they concluded that the procedure step only applied for an event involving a main generator fault, which had not occurred. The inspectors noted that the initial root cause evaluation focused on the generator cooling problem rather than the operating crew failure to follow procedures and trip the reactor, which appeared to be the more safety significant issue. The root cause evaluation reviewed the crew response but concluded that they met management expectations regarding procedure compliance. The inspectors spoke with operations' management who indicated that station managements' view of the crew response had changed although the root cause evaluation had not been revised nor had a new KAP been initiated to identify a problem with the initial root cause evaluation. However, a second root cause evaluation was performed under KAP 99-2709 for five different human performance issues, one of which involved this event. This root cause identified problems with communications and vague or incomplete procedure guidance. The inspectors requested the status of the open corrective action items for these issues and received conflicting information. The KAP administrator indicated that a number of the corrective action items for this issue remained open. However, an operations' manager indicated that all the actions had been closed. The inspectors found it difficult to determine if all actions had been completed because many were informal reviews of training or procedures and no specific output was available for review. The inspectors were unable to determine how and why the KAP corrective action items for this significant issue remained open in the KAP system for over one year.

.4 Effectiveness of Kewaunee Nuclear Power Plant Audits and Assessments

a. Inspection Scope

Towards the end of the inspection, the team conducted a review of audits and assessments to assess the effectiveness of these reviews in identifying problems. The inspectors reviewed a sample of self-assessments and Quality Assurance audits to evaluate the effectiveness of these activities in assessing performance and identifying problems. The samples included audits and self-assessments related to operations, maintenance, and the corrective action process to evaluate the effectiveness of these activities in assessing licensee performance and identifying problems. The inspectors reviewed condition reports, audits, and self-assessments to verify that corrective actions commensurate with the issues were identified and implemented in a timely manner, including corrective actions to address common cause or generic concerns. Information that the inspectors reviewed was selected in the time period from June 1998 to the present. The selected audits and assessments are listed in Attachment 1.

b. Issues and Findings

The team observed mixed performance in this area. Overall, the inspectors found the audits conducted by external organizations to be thorough and accurate evaluations which identified significant problems with Kewaunee's corrective action process. In general, outside audits and assessments provided high quality feedback on problems with the corrective action program. The inspectors identified that several audits dating back to 1997 had conclusions very similar and, in some instances, the same as the inspectors' conclusions. Internal audits were somewhat inconsistent. While problems may have been recognized, no broad based corrective actions were in place to address the identified concerns. The team identified weaknesses in some individual Quality Programs (QP) audits and that the licensee did not rigorously follow up on QP audit findings.

Examples of the team's observations are listed below:

QP audits

The team looked at audits for the last 5 quarters. Several appeared strong, but others had a disconnect between the findings in the body of the audit and the stated conclusions. For example, the first quarter 1999 audit body discussed the need for management to support or enforce a more aggressive approach for the KAP process to improve resolution and completion of corrective action program issues, yet in the conclusion of the audit stated that the overall assessment of the corrective action program was satisfactory. The fourth quarter 1999 audit body contained the following observations: 1) 215 of 380 open corrective actions associated with KAPs are beyond their due dates; 2) the back log of KAP corrective actions needs to be addressed, along with notifying individuals of delinquent due dates and that this item was in every audit since the KAP process began; and 3) the KAP process does not define a completion date for assessments. The conclusion of the fourth quarter 1999 audit stated that no new adverse trends were noted and the implementation of the KAP process was found to be satisfactory. Also, the team noted that the station did not perform a rigorous review or check of prior QP audit issues (QARs). Both of those items represented potential weaknesses.

NMC Operations Assessment

The NMC performed a credible review and assessment of the Operations Department performance. While the assessment only dealt with the Operations Department, the report and stated conclusions were very candid. The themes mentioned in the Operations Assessment correlated with PI&R themes and those expressed by the licensee's Safety Culture Survey and Joint Off Site Review Committee (JOSRC) concerns.

JOSRC issues

The inspectors reviewed the 1997 and 1999 audits of the Quality Assurance Program performed by the Joint Utility Management Assessment (JUMA) Team under the direction of the Nuclear Safety Review and Audit Committee. The 1997 audit report concluded that the KAP program was marginally effective and that inconsistency among governing documents, backlogs, and the lack of an effective tracking and trending program limited the programs' effectiveness. In particular, the audit identified a difference between the Operational Quality Assurance Program (OQAP) which required conditions adverse to quality to be identified and corrected and the implementing procedures that did not specify conditions adverse to quality. A second example in which the OQAP manual requirements were not implemented involved the analysis of trends of conditions adverse to quality. At the time of the JUMA audit there was no program in place to perform this function. The only data generated and provided to management was the Monthly Performance Monitoring Report, which the JUMA report found to be essentially a status report. The audit also found that standard root cause analytical techniques were not used and that root cause conclusions were more typical of "apparent cause" evaluations.

The 1999 JUMA report had a repeat finding of these issues and concluded that the KAP program was not being effectively used to identify and correct problems. The 1999 JUMA team found that the KAP initiated after the 1997 audit was open and that several corrective actions had either not been completed or were not effective. Among the issues identified in the repeat finding was continued ambiguity and discrepancies between the OQAP and implementing procedures, backlog of KAP evaluations, lack of due dates, and the lack of a process for evaluating trends of conditions adverse to quality.

The Nuclear Safety and Review Audit Committee (NSRAC) which sponsored the JUMA audits evolved into the Joint Off-Site Review Committee (JOSRC) for Point Beach and Kewaunee Nuclear Power Plants. The JOSRC took up the concerns from the JUMA audits and requested a presentation on the issues during the July 2000 meeting. After extended discussion on the topic of the KAP program, the JOSRC provided a recommendation in the meeting minutes dated August 3, 2000, that corrective actions be taken to expeditiously address corrective action program weaknesses. The JOSRC was concerned with corrective action backlog, lack of a corrective action prioritization scheme, inconsistency of KAP initiation, timeliness, and lack of guidance on lower level problem identification systems.

ECP "Safety Culture Survey" results

The team reviewed the results of a "Safety Culture Survey" initiated by the site general manager and employee concerns program (ECP) administrator in July 2000. The

survey itself was complete at the time of the inspection; however, the final report was still in draft. The preliminary results were very credible; survey responses from station personnel indicated a lack of prompt, appropriately prioritized actions to mitigate concerns and a relatively large fraction of respondents indicated that they were unsure about the effectiveness of the plant corrective action program, the KAP, to drive issues to timely resolution. In general, the survey results reflected some of the same themes that the PI&R team developed.

.5 Assessment of Safety Conscious Work Environment

a. Inspection Scope

During the conduct of interviews, document reviews, and observations of Kewaunee Nuclear Power Plant activities, the inspectors looked for evidence that suggested plant employees may be reluctant to raise safety concerns. The inspectors utilized the type of questions included in Appendix 1 to NRC Inspection Procedure 71152, "Suggested Questions For Use In Discussions With Licensee Individuals Concerning PI&R Issues," during interviews with licensee personnel. The inspectors also discussed with licensee staff the evaluation and resolution of issues that were addressed by the Kewaunee Nuclear Power Plant employee concerns program in the past year.

b. Issues and Findings

There were no significant findings during this portion of the inspection. The inspectors concluded, based on information collected from interviews with licensee personnel, that licensee management fostered an environment in which station personnel felt free to identify and enter safety issues into the corrective action program. However, the inspectors identified that, in some instances, station personnel did not document issues via the KAP process for other reasons such as informal processes, a perceived work load increase if a KAP was generated, or a lack of confidence in the effectiveness of the corrective action process. While station management fostered an environment free of harassment and intimidation, due to the reasons mentioned above, the station was potentially losing the opportunity to identify and correct problems.

The station Employee Concerns Program (ECP) Manager and station General Manager had initiated a "Safety Culture Survey" in July 2000. The survey itself had been completed but the final report was still in draft at the conclusion of the inspection period. The inspectors reviewed the preliminary results of the survey and discussed the data with the ECP manager. The preliminary results of the survey reflected some of the same themes developed by the NRC inspection team.

4OA6 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. M. Wadley, M. Reddeman, and other members of licensee management at the conclusion of the inspection on September 29, 2000. The licensee acknowledged the findings presented. On November 13, 2000, Mr. Weinhauer was notified by telephone of the results of the NRC's review of the preliminary inspection findings. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Kewaunee Nuclear Power Plant

M. Wadley, Nuclear Management Company, Chief Nuclear Officer
M. Reddeman, Site Vice President
D. Braun, Asst. Plant Manager, Operations
D. Cole, Site Assessment Manager
R. Draheim, Human Performance Process Leader
P. Ehlen, I&C Supervisor
T. Ewald, Mechanical Maintenance Supervisor
J. Gray, Training Superintendent
G. Harrington, Plant Licensing Leader
L. Haworth, Quality Programs Process Leader
G. Hoppe, Shift Supervisor
K. Hoops, Plant Manager
D. Johnson, Director Regulatory Services
V. Legreve, Quality Programs Process Leader
R. Mende, Engineering Director
J. Mortonson, Asst. Plant Manager, Maintenance
S. Pfaff, Corrective Action General Supervisor
P. Reichart, Quality Assurance Auditor
M. Reinhart, Superintendent Radiation Protection
D. Rozell, Self Assessment & Process Improvement Leader
T. Schneider, Quality Programs
J. Schweitzer, Engineering Manager
C. Smoker, Nuclear Management Company, Assessment Manager
J. Stafford, Nuclear Control Operator
J. Stoeger, Superintendent, Operations
K. Weinhauer, Asst. Site Vice President

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-305/00-19-01A	NCV	Failure to Implement QA Manual Requirements for Determining Significance
50-305/00-19-02	NCV	Failure to Promptly Correct Condition Adverse to Quality For Service Water System Pump Impeller Key
50-305/00-19-01B	NCV	Failure to Implement QA Manual Requirements for Trending
50-305/00-19-03	NCV	Failure to Take Timely Corrective Action for Design Deficiency of the Turbine-Driven Auxiliary Feedwater System

Closed

50-305/00-19-01A	NCV	Failure to Implement QA Manual Requirements for Determining Significance
50-305/00-19-02	NCV	Failure to Promptly Correct Condition Adverse to Quality For Service Water System Pump Impeller Key
50-305/00-19-01B	NCV	Failure to Implement QA Manual Requirements for Trending
50-305/00-19-03	NCV	Failure to Take Timely Corrective Action for Design Deficiency of the Turbine-Driven Auxiliary Feedwater System

Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the inspection, including documents prepared by others for the licensee. Inclusion of a document on this list does not imply that NRC inspectors reviewed the entire documents, but, rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. In addition, inclusion of a document on this list does not imply NRC acceptance of the document, unless specifically stated in the body of the IR.

Corrective Action Program Description

Nuclear Administrative Directive (NAD)-11.08, "Kewaunee Assessment Process," Revision D
General Nuclear Procedure (GNP)-11.08.01, "Kewaunee Assessment Process," Revision C

Procedures

NAD 3.1, "Directive and Process Control," Revision H
NAD 5.25, "Commitment Tracking System," Revision A
NAD 8.10, "Performance Monitoring, Trending, and Assessment Program," Revision B
NAD 11.9, "Employee Concerns Program," Original Revision
Nuclear Engineering Procedure 5.3, "Commitment Tracking," Revision B
GNP 11.8.3, "Operability Determination," Original Revision
GNP 11.8.4, "Reportability Determinations," Revision A
GNP 11.8.5, "Work Group Assessments," Original Revision
Quality Programs 11.2.2, "Quality Programs Trending," Original Revision
Root Cause Guidelines
Surveillance Procedure 24-133, "Shield Building Vent (SBV) Filter Testing," Revision R
Work Flow Management Guidelines, March 21, 2000

Kewaunee Assessment Process (KAPs) Forms

96-000071: TDAFWP room Steam Traps and Associated Piping Temperatures
96-000314: Target Rock Valve RC-45B Didn't Open Per Procedure
97-000783: SI pump lube oil heat exchanger flow low
97-001136: SW flow to CCW heat exchanger low
97-001977: 1997 JUMA Audit Findings
97-001354: Trend Graphs of Plant Performance
98-001465: Trend Graphs of Plant Performance
98-001614: Trend Graphs of Plant Performance
98-001867: Trend Graphs of Plant Performance
98-002447: During Installation of EQ NAMCO Limit Switches Req'ts of GMP 21.8 Not Met
99-003066: SWP A2 head shaft failure
99-003406: SWP impeller key material discrepancies.
99-002709: Common elements of Recent Human Performance Errors
99-002516: Abnormal Electrical Generator Heat Removal and Subsequent Load Reduction
99-003193: Trend Graphs for Various Cause Codes
99-002767: Trend Graphs of Plant Performance
99-002941: Periodic KAP Review of Trends
99-002928: Dilution of Radwaste
00-000252: EDG JW HX do not have required heat removal capacity.
00-000282: Bus 282 ground under light WO 00-0537, NRC question on CCW pump analyses.
00-001034: RHR-299A leaking & allowing RCS to suction of SI piping

00-001065: A RHR pump had excessive seal leakage when pump was stopped.
00-001149: Should manual iso valves be closed if shutdown less than 110 hours.
00-001825: Document the past operability of the SW system based on system testing.
00-002440: Evaluate KAP for failure cause and MRFF implications.
00-002466: Design Basis info for SW and SW-supported equip is often difficult to find
00-002511: KAP 1136 did not consider the max allowable press drop for CCW HXs.
00-002621: NRC questioned Design Basis info control & compliance with Crit. III.
00-002710: Containment Dome Fan failure to start.
00-002867: RTP and FW trending down with no steam flow to SG decrease.
00-300010: Evaluate RHR-299B actuator bolt head gap.
00-003048: JOSRC Concern - Lower Level Corrective Action Programs
00-000903: JOSRC Meeting #2 Open Items
00-003117: KAP Process Trend Graphs
00-000186: Safety Injection Train B is a Candidate for Placement into Maintenance Rule (a)(1)
00-000720: Solenoid Valve for LD-4A May Have Exceeded Its Qualified Life
00-000420: SV 33837 is Chattering and Blowing Air Out Of Its Vent Port
00-000433: Perform Root Cause Analysis for Solenoid Valve 33836 Failure
00-000874: The Qualified Life of the Solenoid Valves Associated With RBV1, RBV2, RBV3, and RBV3 is Based on the Assumption That These Valves Are Normally De-energized
00-000728: Perform Gap Analysis to New INPO Document “Principles for Effective Self-Assessments and Corrective Action Programs”
00-000934: Plant Procedure Change Process
00-002253: Perform Self-Assessment of I&C Activities Related to EQ
00-002282: Perform Self-Assessment of OPs Activities Related to EQ
00-001056: Failure of Train B of the RVLIS System to Operate as Expected
00-000934: Procedure Control Processes Allow Temporary Changes to Procedures Without Having an SRO Review When There is no Change of Intent Involved
00-000282: Evaluate Cause of Failure and Identify Any Corrective Actions
00-000537: NRC Question on CCW Pump Analysis
00-001034: RHR-299A Leaking and Allowing RCS to Suction of SI Piping
00-001065: A RHR Pump Had Excessive Seal Leakage When Pump Was Stopped
00-001149: Should Manual Isolation Valves Be Closed if Shutdown Less Than 110 Hours
00-001491: Perform Safety Evaluations for Components Inside Plugged SG Tubes
00-002466: Design Basis Info For SW and Sw-supported Equip is Often Difficult to Find
00-002511: KAP 1136 Did Not Consider the Max Allowable Press Drop for CCW HXs
00-002621: NRC Questioned Design Basis Info Control & Compliance with Crit. III
00-002710: Evaluate Failure For Cause and Recommend Corrective Actions
00-002867: RTP and FW Trending Down With No Steam Flow to SG Decrease
00-300010: Evaluate RHR-299B Actuator Bolt Head Gap
99-002516: Abnormal Electrical Generator Hear Removal and Subsequent Load Reduction
00-000186: Safety Injection Train B is Candidate for Placement into Maintenance Rule Category (a) (1)
00-000694: SP-39-227A & SP-39-227B Were Performed Using an Out of Date Procedure
00-000753: During Diagnostic Testing of MOV SI 351B on 3/31/00, With the TTC Removed, the Valve Disc Touched the Backseat
00-001940: CET 35 is Providing Input to ICMMS Train A for both CET 35 and 27
00-001066: When Attempting to Open RC-45B Per N-RC-36E the Valve Did Not Open
00-000725: Setpoint Discrepancies on Logic Drawing E1626 and DSP Alarm Response Sheets 87220-11 and 87220-21
00-000539: Potential Concerns Regarding the KAP Program and OQAP Requirements
00-000218: Aux Bldg Supply Fan B Failed to Start When the Aux Bldg Exhaust Fan B Started

Non-Cited Violations (NCVs)

NCV 99-006-01, “Inadequate Surveillance Test Procedure”
NCV 99-006-02, “Lack of Access Controls For High Radiation Area”
NCV 99-008-01, “Inadequate Instructions in a Maintenance Procedure”
NCV 99-008-02, “Chemistry Technicians Did Not Follow Approved Procedure”
NCV 99-012-02, “Failure to Follow Procedures For Installation of Temporary Jumpers”
NCV 99-013-01, “Personnel Violation of Radiography Boundary”
NCV 99-013-02, “Failure to Perform 18-Month Test of Steam Exclusion System”
NCV 00-004-01, “Shield Building Ventilation System Train ‘B’ Inoperable”
NCV 00-005-01, “Failure to Adhere to Radiochemical Procedures”
NCV 00-008-02, “Failure to Update Computer Alarm for Current Axial Flux Distribution Target Band”
NCV 50-305/99-10-01, Inadequate seismic monitor surveillance procedure
NCV 50-305/00-07-01, Failure in install Heat Shrink IAW procedure requirements
NCV 50-305/00-08-01, Failure to write a KAP for a miscalibrated RWST level alarm
NCV 50-305/00-08-03, Failure to test additional relief valves required by TS
NCV 50-305/00-09-01, Failure to post a Very High Radiation Area iaw 10 CFR Part 20.

Operability Determinations Associated With the Following KAPS

00-000282: Evaluate Cause of Failure and Identify Any Corrective Actions
00-000537: NRC Question on CCW Pump Analysis
00-001065: A RHR Pump Had Excessive Seal Leakage When Pump Stopped
00-001548: CCW Temperature Could Approach SW Temperature During an Event
00-001824: Document Current Operability of the SW System Following System Test
00-002440: Evaluate KAP For Failure Cause and MRFF Implications
00-002440: KAP 1136 Did Not Consider the Max Allowable Press Drop for CCW HXs
00-002710: Containment Dome Fan Failure to Start

Root Cause Evaluations Associated With the Following KAPS

00-001825: Document the Past Operability of the SW System Based on System Testing
00-002440: Evaluate KAP For Failure Cause and MRFF Implications
00-002621: NRC Questioned Design Basis Info Control & Compliance with Crit. III
00-002710: Containment Dome Fan Failure to Start
00-002867: RTP and FW Trending Down With No Steam Flow to SG Decrease

Kewaunee County Station Audits and Assessments

NSRAC Audit of the WPSC Quality Assurance Program, 1997
NSRAC Audit of the WPSC Quality Assurance Program, 1999
Quality Programs Audit, 1st quarter 1999
Quality Programs Audit, 2nd quarter 1999
Quality Programs Audit, 3rd quarter 1999
Quality Programs Audit, 4th quarter 1999
Quality Programs Audit, 1st quarter 2000
Nuclear Management Company Operations Assessment, Kewaunee Summary, 7/31 - 8/4/00

NRC Inspection Reports

IR 50-305/99-08 (DRP)
IR 50-305/99-09 (DRP)
IR 50-305/99-10 (DRP)
IR 50-305/99-11 (DRS)
IR 50-305/99-12 (DRP)
IR 50-305/99-13 (DRP)
IR 50-305/00-01 (DRS)
IR 50-305/00-02 (DRP)
IR 50-305/00-03 (DRS)
IR 50-305/00-04 (DRP)
IR 50-305/00-05 (DRS)
IR 50-305/00-06 (DRS)
IR 50-305/00-07 (DRP)
IR 50-305/00-08 (DRP)
IR 50-305/00-09 (DRS)
IR 50-305/00-13 (DRS)
IR 50-305/00-15 (DRS)
IR 50-305/00-16 (DRS)
IR 50-305/00-17 (DRS)

LIST OF ACRONYMS USED

DCR	Design Change Request
d/p	differential pressure
DRP	Division of Reactor Projects
EOP	Emergency Operating Procedure
EQ	Environmental Qualification
JOSRC	Joint Off-Site Review Committee
JUMA	Joint Utility Management Assessment
KAP	Kewaunee Assessment Process
NCV	Non Cited Violation
OQAP	Operational Quality Assurance Program
PERR	Public Electronic Reading Room
PORC	Plant Operations Review Committee
psi	pounds per square inch
QA	Quality Assurance
QC	Quality Control
SDP	Significance Determination Process
SI	Safety Injection
UFSAR	Updated Final Safety Analysis Report