April 10, 2000

Mr. Mark L. Marchi
Site Vice President
Kewaunee Plant
Wisconsin Public Service
Corporation
Post Office Box 19002
Green Bay, WI 54307-9002

SUBJECT: NRC RADIATION SAFETY AND CHEMISTRY INSPECTION REPORT 50-305/2000005(DRS)

Dear Mr. Marchi:

On March 16, 2000, the NRC completed an inspection at your Kewaunee Nuclear Power Station. The enclosed report presents the results of that inspection.

This inspection was an examination of activities conducted under your license as they relate to radiation safety and chemistry and to compliance with the Commission's rules and regulations and with the conditions of your license. The inspection consisted of a selective examination of procedures and representative records, observations of work in progress, and interviews with personnel. Specifically, the inspection focused on the implementation of your chemistry and radiological environmental monitoring programs and the testing of the engineered safety feature air filtration systems at your facility.

We observed effective maintenance and testing of the engineered safety feature air filtration systems, and found plant water chemistry parameters to be well maintained. We also found that environmental monitoring equipment was acceptably maintained, and noted that radiological environmental sample results did not indicate any discernable effects from plant operations on the environment.

However, we identified some problems with environmental sample handling practices and some inconsistencies in information contained in the annual radiological environmental monitoring reports. In addition, we identified lapses in the implementation of the chemistry quality control program, which challenge the integrity of the data that your staff produces. For example, we noted that corrective actions were not consistently initiated when chemistry instrumentation did not perform within the specified acceptance limits. In addition, we identified deficiencies with the laboratory quality control procedures and with the implementation of those procedures. These problems appeared to be indicative of a lack of technician ownership and supervisory oversight of this program.

Your staff also indicated that the quality assurance organization has not reviewed the chemistry program in the last four years. While we recognize that your chemistry staff had completed self-assessments and identified problems in procedure adherence and adequacy which were similar to our observations during this inspection, your staff's previous corrective actions were not focused broadly enough to address fundamental procedure adherence problems.

Based on the results of this inspection, the NRC has determined that two violations of NRC requirements occurred concerning the failure to adequately maintain radiochemistry procedures and the failure to follow the procedures. These violations are being treated as Non-Cited Violations (NCVs), consistent with Section VII.B.1 of the Enforcement Policy. These NCVs are described in the subject inspection report. If you contest the violations or severity level of these NCVs, 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 3, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Electronic Reading Room (PERR) link at the NRC homepage, http://www.nrc.gov/NRC/ADAMS/index.html.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA by John E. House Acting For/

Wayne Slawinski, Acting Chief
Plant Support Branch
Division of Reactor Safety

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

Enclosure: Inspection Report 50-205/200005(DRS)

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

Your staff also indicated that the quality assurance organization has not reviewed the chemistry program in the last four years. While we recognize that your chemistry staff had completed self-assessments and identified problems in procedure adherence and adequacy which were similar to our observations during this inspection, your staff's previous corrective actions were not focused broadly enough to address fundamental procedure adherence problems.

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Sincerely,

/RA by John E. House Acting For/

Wayne Slawinski, Acting Chief
Plant Support Branch
Division of Reactor Safety

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

Enclosure: Inspection Report 50-205/200005(DRS)

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

DOCUMENT NAME: G:\DRS\KEW2000005 DRS.WPD

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-305
License No:	DPR-43
Report No:	50-305/2000005(DRS)
Licensee:	Wisconsin Public Service Corporation
Facility:	Kewaunee Nuclear Power Station
Location:	RR #1, Box 999 Kewaunee, WI 54216-9511
Dates:	March 13-16, 2000
Inspector:	Steven K. Orth, Senior Radiation Specialist
Accompanying Personnel:	Jennifer L. Albright, Management Analyst
Approved by:	Wayne Slawinski, Acting Chief, Plant Support Branch Division of Reactor Safety

EXECUTIVE SUMMARY

Kewaunee Nuclear Power Station
NRC Inspection Report 50-305/2000005(DRS)

This announced inspection included an evaluation of the effectiveness of aspects of the radiation protection and chemistry programs. Specifically, the inspector evaluated the licensee's implementation of the chemistry, radiological environmental monitoring, and engineered safety feature (ESF) air filtration programs. As part of this assessment, the inspector reviewed the licensee's procedures, water chemistry controls, laboratory quality control data and trend charts, and the results of the licensee's self-assessment activities. In addition, the inspection included a review of ESF air filtration test results, environmental air sampler calibration records, and annual environmental reports. This inspection covered a 4-day period concluding on March 16, 2000, and was performed by a senior radiation specialist.

Plant Support

- The licensee effectively maintained reactor coolant and secondary system water chemistry to reduce the potential for system corrosion. Based on radiochemical data, the inspector did not observe any indication of fuel integrity issues (Section R1.1).

- Environmental sample results did not indicate any discernable effects from plant operations on the environment (Section R1.2).

- During the review of the radiological environmental monitoring program, the inspector identified some problems concerning technician sample handling techniques and the content of the annual reports. The technician's technique could potentially result in a loss of the collected sample (Section R1.2).

- The inspector identified lapses in the licensee's implementation of its chemistry quality control program. For example, the licensee failed to adequately maintain its quality control procedures to be consistent with its instrumentation and laboratory practices, which resulted in a Non-Cited Violation. In addition, the inspector identified that the licensee failed to adequately implement its procedures concerning the review of instrument control charts, which resulted in another Non-Cited Violation. The inspector also identified occasions when the licensee did not take corrective actions when instrumentation failed quality control tests, and plant data obtained from out-of-tolerance instruments was incorporated into plant records. Plant management acknowledged these findings and planned to implement corrective actions (Section R2.1).

- The licensee performed periodic inspections of air cleaning systems associated with the Auxiliary Building, Fuel Handling Building, and the Control Room ventilation systems. The licensee identified and promptly resolved maintenance and operability issues, and the licensee met the regulatory commitments for testing (Section R2.2).

- During primary and secondary system sampling activities, the chemistry technicians demonstrated effective procedural adherence and generally effective analytical practices (Section R4.1).

- The inspector identified poor contamination control practices while a chemistry technician collected primary system samples (Section R4.1).

- The plant quality assurance staff had not reviewed the chemistry program since 1996. Also, while the chemistry staff had assessed chemistry technician performance in 1998 and 1999, the staff's corrective actions and assessment conclusions were narrowly focused and failed to fully characterize procedural adherence deficiencies (Section R7.1).

Report Details

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Plant Water Chemistry Controls

a. Inspection Scope (84750)

The inspector reviewed the licensee's control of chemistry impurities during the unit startup and during routine operations. Specifically, the inspector reviewed the licensee's water chemistry control program, reviewed the chemistry data for the primary reactor coolant and steam generator systems, and discussed the evaluation of this data with members of the chemistry staff.

b. Observations and Findings

The inspector reviewed the licensee's water chemistry control program (procedures RC-C-401 (Revision F), "Kewaunee Secondary Water Chemistry Program;" RC-C-401A (Revision A), "Kewaunee Primary Water Chemistry Program;" RC-C-403 (Revision I), "Secondary Chemistry Sample Specifications;" and RC-C-405 (Revision H), "Secondary Chemistry Corrective Actions)," which documented the licensee's commitment to minimizing corrosive impurities in reactor water and in the secondary system. The inspector observed that the licensee established administrative action levels which were consistent with industry experience and with the recommendations of the Electric Power Research Institute (EPRI). In addition, the procedures contained appropriate directions to reduce the concentration of impurities that were not below the stated action levels and to mitigate the effects of operating above the action levels.

The inspector observed that system chemistry parameters were generally well maintained throughout the current operating cycle. For example, steam generator sodium concentrations were routinely below 1 part per billion (ppb) (between 0.2 and 0.8 ppb), and steam generator sulfate concentrations averaged between 1 and 2 ppb. The concentration of chloride in the steam generators was controlled to balance the sodium concentrations (i.e., molar ratio chemistry control) and was generally between 1 and 2 ppb. In the primary coolant, concentrations of corrosive chemical impurities were also maintained at a fraction of the licensee's action levels.

The inspector also reviewed reactor water radiochemical data to assess the status of fuel integrity. Based on the levels of iodine and cesium radioisotopes in the primary coolant, the inspector did not identify any indications of fuel integrity problems.

c. Conclusions

The licensee effectively maintained reactor and secondary system water chemistry to reduce the potential for system corrosion. Based on radiochemical data, the inspector did not observe any indication of fuel integrity issues.

R1.2 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope (84750)

The inspector reviewed the implementation of the radiological environmental monitoring program (REMP). Specifically, the inspector reviewed the 1997 and 1998 annual radiological environmental monitoring reports, observed sample collection activities, and reviewed the calibration and operability of instrumentation.

b. Observations and Findings

The inspector reviewed the 1997 and 1998 annual reports and verified that the reports contained the information required by the Offsite Dose Calculation Manual (ODCM) and the Radiological Environmental Monitoring Manual (REMM). Based on the sample results, the inspector concluded that there was no measurable impact on the environment from plant operation. Within the reports, the licensee documented sample anomalies. However, the inspector observed some inconsistencies in the data. For example, the 1998 report documented that an air sampler was out-of-service for one week, while the report also contained a data table indicating that a particulate and charcoal sample was collected from that sampler and pulled a full air volume. In 1997, the licensee relocated an air sampler and renumbered the location. However, the 1998 report erroneously referred to an air sample taken at the previous location number. Finally, a meat sample had not been collected for two consecutive years in one of the sampling locations, without any explanation in the report. While these items do not constitute violations of NRC requirements, the licensee recognized that the observations indicated a need for heightened review and quality control of future annual reports.

The inspector also observed the collection of air filter samples (i.e., air particulate and charcoal cartridges). The inspector noted that the instrumentation was operable and was acceptably maintained. However, the inspector noted 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 location of a blower (for pump cooling purposes) exacerbated this condition. The inspector also identified some problems concerning the chemistry technician's (CT's) handling of air samples. Specifically, the filter papers were routinely removed by the CT using his bare hands. In handling the filters in this manner, the CT touched the active surface of the filter, potentially disrupting the sample and affecting sample integrity. Additionally, the technician tapped a filter unit on a desktop during removal attempts, which could have resulted in a loss of collected materials. 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.

The inspector reviewed the licensee's calibration records (1998 to date) for air regulators/pumps used in the collection of environmental samples. Although the applicable procedures require an annual calibration, the licensee routinely performed these calibrations at a 6-month frequency. The inspector reviewed these calibration records and identified some minor problems. For example, the current procedure did not include the specific model (RAS-2) of the pump found in the field. The staff indicated that the pump was an equivalent design; however, the staff could not explain why the recent procedure revision (February 2000) did not contain this model.

Additionally, the inspector found the "as found" calibration readings to be misleading. The radiation protection staff indicated that the "as found" readings were obtained after the pump had been rebuilt by the maintenance organization. Therefore, the actual "as found" condition was not known. Finally, the supervisory review of these calibrations routinely occurred late in the cycle or on many occasions after the next calibration cycle had been entered. The licensee acknowledged the inspector's findings.

c. Conclusions

Environmental sample results did not indicate any discernable effects from plant operations on the environment. However, the inspector identified some problems concerning technician sample handling techniques and the content of the annual reports. For example, the technician's technique could potentially result in a loss of the collected sample.

R2 Status of Radiation Protection and Chemistry Facilities and Equipment

R2.1 Quality Control of Chemistry Instrumentation

a. Inspection Scope (84750)

The inspector reviewed the chemistry staff's quality control program for laboratory instrumentation. In particular, the inspector reviewed instrument control charts, interlaboratory cross-check program results, and duplicate sample results and interviewed members of the chemistry staff.

b. Observations and Findings

The inspector reviewed the licensee's procedures which defined its chemistry quality control program, and noted that the licensee had not consistently maintained its current procedures. In several cases, the inspector identified that the licensee's procedures were not consistent with the licensee's practices or with the current instrumentation used in the laboratory. For example, the inspector identified the following inadequacies:

- Procedure No. RC-C-318 (Revision A), "Performance Trending of Chemistry Instrumentation," defines the laboratory instruments used and the concentration ranges for the performance tests. On a number of occasions, the licensee upgraded the instrumentation specified in the procedure and changed the concentration range of the performance test. However, the licensee failed to revise the procedure to be consistent with the current technology and laboratory practices. For example, procedure RC-C-318 requires that 20 ppb chloride, sulfate, and fluoride standards be used to ensure the operability of a specified ion chromatograph. However, the licensee no longer used the specified instrument and had reduced the concentration of the standards to 2 ppb.

- Procedure No. RC-C-318 also specifies that instrument performance trends will be updated on a 6-month frequency, based on the previous 6-months of data. However, procedure RC-C-314 (Revision C), "Quality Control, Lab Accuracy," states that instrument control limits (which are determined from instrument performance trends) will be established every 3-months from the data collected during the previous 3-months.

In addition to the above, the licensee and the inspector identified additional deficiencies in the current quality control procedures. The chemistry superintendent acknowledged the above deficiencies and indicated that staff resources had been dedicated to establishing the new quality control program; however, the day-to-day operations had not been regularly reviewed and updated. The chemistry staff indicated that the station had an ongoing plan to review and update all of the chemistry procedures, which commenced in July of 1999. As of the date of this inspection, the chemistry staff had reviewed about 92 of the 325 chemistry procedures and had about 60 changes made or in progress. However, the licensee did not appear to have any defined goal or milestone for completing this review.

Technical Specification (TS) 6.8.a. requires, in part, that the licensee establish, implement, and maintain procedures that meet the requirements and recommendations of Section 5.3 of ANSI N18.7-1976. Section 5.3 of ANSI N18.7-1976 recommends that chemical and radiochemical procedures be provided and should include the nature and frequency of sampling and analysis. The failure to maintain chemistry instrument quality control procedures which are used to perform chemistry analyses important to plant safety is a violation of TS 6.8.a. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Kewaunee Assessment Program (KAP) No. 00-000657. (NCV 50-305/2000005-01(DRS))

The inspector reviewed a selection of the current quality control charts maintained for the laboratory instruments. For example, the inspector verified that the staff performed calibration checks for the analytical and radiochemical instruments in the laboratory, at procedure specified frequencies. Based on the results of these tests, the staff prepared and maintained control charts to demonstrate that the instrumentation was performing within statistical control and to identify any instrument performance or calibration problems. Recently, the licensee had implemented a computer software program to increase the efficiency in data review and oversight. During this inspection, the inspector reviewed selected instrument control charts for sulfate, chloride, sodium, gamma spectroscopy, and tritium analyses. Based on the review, the following problems were identified:

- On September 6, 1999, the licensee performed and failed four tritium performance tests (i.e., all test results were above the 3-sigma control limit specified in the licensee's procedure). In cases when the instrumentation was found to be out-of-tolerance, Procedure No. RC-C-314 states that the following steps should be taken: (1) stop work immediately, (2) determine the problem, (3) record the problem and corrective actions, and (4) rerun the samples, including a duplicate test standard. However, the inspector identified that the licensee recorded the reactor coolant system primary to secondary tritium leak rate result determined by the out-of-tolerance instrument, and did not implement the actions specified in the procedure.

- On January 7, 2000, the licensee performed and failed a sulfate performance test. As in the case of the above tritium problem, the licensee recorded the sulfate analysis results and did not follow the guidance contained in procedure RC-C-314. In this case, the result was used to monitor water chemistry corrosion control.

During a review of the instrument control charts, the inspector also noted some statistical biases in the quality control data. The inspector noted that the chemistry staff had not been reviewing the data as required by procedure RC-C-314. In particular, the procedure specifies that the control limits for the specified control charts are to be established every 3-months from the data collected from the previous 3-months. A member of the staff indicated that the last review and control limit evaluation had not been performed for at least 6-months and that the reviews were not being routinely performed and documented.

Technical Specification 6.8.a. requires, in part, that the licensee establish, implement, and maintain procedures that meet the requirements and recommendations of Section 5.3 of ANSI N18.7-1976. Section 5.3 of ANSI N18.7-1976 recommends that chemical and radiochemical procedures be provided and should include the nature and frequency of sampling and analysis. The failure to perform the 3-month reviews of control limits required by procedure No. RC-C-314 is a violation of TS 6.8.a. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with the NRC Enforcement Policy. This violation is in the licensee's corrective action program as KAP No. 00-000657. (NCV 50-305/2000005-02(DRS))

The inspector also reviewed the chemistry staff's results for the interlaboratory cross-check programs, which were completed at a quarterly frequency. The results generally indicated an acceptable level of accuracy in the chemistry staff's overall analyses. However, the inspector noted that the staff's performance in the lithium analyses was generally poor. In 1998 and 1999, the licensee met its acceptance criteria in only 60 and 56 percent of the lithium analyses performed, respectively. The plant analytical chemist indicated that the staff experienced sample matrix interference problems, which had been resolved. The inspector also noted that some technicians had multiple failures of a particular analyte and that the licensee often did not retest technicians for 6 to 12 months after a technician failed an interlaboratory analysis. The plant analytical chemist indicated that the program did not contain required actions for multiple technician failures, but he planned to review these results more closely in the future and planned to review the timeliness of the repeat analyses.

The licensee performed duplicate sample analyses to verify the CTs ability to obtain representative samples and to produce reliable analysis results. On a "routine" basis, procedure RC-C-315, "Intralab Quality Control," dated December 30, 1985, called for two CTs to independently collect and analyze duplicate samples from a designated sample point. The inspector reviewed the 1998 and 1999 comparisons which generally demonstrated the repeatability of the sampling and analyses. However, the inspector noted that a relatively limited number of these analyses were performed since 1996. Specifically, the chemistry staff performed only three duplicate analyses over the last 2-years, which involved six-of-nine CTs. In addition, the licensee did not have any data for 1997 and had performed one duplicate analysis in 1996. Based on this data, the inspector observed that certain CTs had not participated in this program for more than 4-years.

Although these problems did not appear to result in gross errors in reported chemistry results, the inspector discussed the above observations with the chemistry superintendent and plant management. The problems appeared to be indicative of a lack of attention to detail and oversight of the chemistry quality control program, which had been captured in the above KAP. The licensee acknowledged the deficiencies and

indicated that improvements to procedure adherence and adequacy were a priority of plant management.

c. Conclusions

The inspector identified lapses in the licensee's implementation of its chemistry quality control program. For example, the licensee failed to adequately maintain its quality control procedures to be consistent with its instrumentation and laboratory practices, which resulted in a Non-Cited Violation. In addition, the inspector identified that the licensee was failing to adequately implement its procedures concerning the review of instrument control charts, which resulted in another Non-Cited Violation. The inspector also identified occasions when the licensee did not take corrective actions when instrumentation failed quality control tests, and plant data obtained from these out-of-tolerance instruments was incorporated into plant records. Plant management acknowledged these findings and planned to implement corrective actions.

R2.2 Material Condition and Testing of Engineered Safety Feature (ESF) Air Filtration Systems

a. Inspection Scope (84750)

The inspector reviewed the testing and maintenance programs for ESF atmosphere air cleaning systems and for auxiliary systems. The inspector interviewed personnel and reviewed the testing documents and maintenance records to assure compliance with the requirements contained in the TS and the description contained in the Updated Safety Analysis Report (USAR).

b. Observations and Findings

The inspector reviewed the licensee's testing and maintenance of the air filtration units for the Auxiliary Building, Fuel Handling Building, and Control Room. The air cleaning systems consisted of pre-filters, high efficiency particulate air (HEPA) filters, and charcoal adsorption beds. The purpose of the systems was to reduce the airborne radioactivity released during normal operating and accident conditions and to maintain effluents as-low-as-is-reasonably-achievable (ALARA).

During system walk-downs the inspector noted that the condition of the pre-filters, HEPA filters, and charcoal beds was well maintained. The inspector verified that there were no visible system integrity problems (ventilation seals and seams). Some buildup of particulates was noted on the pre-filters; however, the buildup did not appear to be blocking the filters. The assigned engineer was knowledgeable of the equipment and program.

The licensee performed periodic testing of the filtration units on an 18-month frequency. The inspector reviewed the most recent tests of the Fuel Handling Building, Auxiliary Building, and Control Room ventilation filtration units. The inspector found the testing to be adequate and did not identify any problems related to the test results. The licensee's corrective action system was properly used to promptly analyze and correct identified issues discovered during testing. For example, a testing failure of a fan resulted in the immediate tag-out of the equipment. The issue was promptly entered into the corrective

action program, and the equipment was repaired and retested, resulting in a successful test result.

c. Conclusions

The licensee performed periodic inspections of air cleaning systems associated with the Auxiliary Building, Fuel Handling Building, and the Control Room ventilation systems. The licensee identified and promptly resolved maintenance and operability issues, and the licensee met the regulatory commitments for testing.

R4 Staff Knowledge and Performance in Radiation Protection and Chemistry

R4.1 Routine Chemistry Sampling and Analysis Activities

a. Inspection Scope (84750)

The inspector observed CTs obtaining samples of reactor coolant and of the secondary systems. In addition, the inspector observed the technicians preparing the samples and completing selected analyses.

b. Observations and Findings

The inspector observed the CTs collect samples and noted proper procedural adherence and generally effective analytical techniques. In the case of the primary sampling activities, the inspector observed some minor analytical technique issues concerning the use of pipettes and chemical cross contamination. The inspector discussed these issues with the licensee, who agreed with the observations and planned to correct the practices. Overall, the practices would have had only a minor effect on the sample results and would have introduced a slightly conservative error.

The inspector observed the radiological practices of the technician performing the primary sampling activities and observed some inadequate contamination control practices. During the sampling, the technician wore protective clothing (i.e., surgeon gloves and lab coat) when working within the sampling hood, a posted contaminated area. However, the CT did not consistently remove his gloves before touching equipment and materials outside of the hood. In addition, the CT used a disposable paper cloth to wipe-off potentially contaminated sample containers, used the same paper cloth to dry his hands, and placed the paper cloth in his lab coat pocket for additional uses. Finally, the CT did not perform a confirmatory survey of the sample containers, which were removed from the sample hood. The CT rinsed the containers with de-ionized water (i.e., decontaminated the containers), but the CT did not perform a survey to ensure that the decontamination was adequate. Although no contamination was spread, these practices had the potential to contaminate other materials in the laboratory and the CT. The chemistry superintendent acknowledged the inspector's observations and planned to improve the contamination control practices. However, the inspector observed that the issue had not been captured in the licensee's corrective action program.

c. Conclusions

During primary and secondary system sampling activities, the chemistry technicians demonstrated effective procedural adherence and generally effective analytical practices. However, the inspector identified poor contamination control practices during primary sampling activities. For example, the CT wore the same protective clothing while touching equipment and sample lines in a contaminated sample hood and while touching non-contaminated items in the laboratory. The licensee acknowledged that the practices could potentially result in the spread of contamination within the laboratory or on the CT and planned to correct the practices.

R7 Quality Assurance in Radiation Protection and Chemistry Activities

R7.1 Self-Assessments and Audits of the Chemistry Program

a. Inspection Scope (84750)

The inspector reviewed the self-assessments of the chemistry program, which were performed by the chemistry staff and the quality assurance organization.

b. Observations and Findings

The quality assurance (QA) staff indicated that the last audit of the chemistry program had been performed in 1995 or 1996. Based on the NRC inspection record (NRC Inspection Report No. 50-305/98004(DRS)), the last NRC reviewed QA audit was performed during 1996. Members of the chemistry staff indicated that the QA organization had lost its source of chemistry expertise; therefore, the chemistry staff had to self-audit their activities.

The inspector reviewed chemistry assessments which were performed by the chemistry staff and a contracted organization. Overall, these audits reviewed the water chemistry control program and the performance of chemistry technicians. In the case of the water chemistry control program audit (February 1999), the contractor performed a thorough review of the licensee's program and identified several areas for improvement. The chemistry superintendent indicated that the staff agreed with the recommendations and was beginning to implement the improvements.

The chemistry staff also performed field observations/assessments of technician performance in July through September of 1998, and as a follow-up to an NRC identified procedural adherence violation in July of 1999. The inspector noted that the assessments reviewed numerous activities and had a number of findings. For example, the 1998 assessment identified poor contamination control practices, which were similar to the observations described in Section R4.1. In addition, both assessments documented that chemistry technicians were observed performing procedure steps out-of-order or omitting certain steps/warnings. The inspector noted that the licensee attributed the procedural adherence issues to weaknesses in the procedures (re: procedures which were outdated, too restrictive, and did not allow the user adequate margin for field judgement), which was the focus of the chemistry staff's corrective actions. The inspector discussed this narrow focus of corrective actions with plant management, who indicated that procedure adherence was a priority for station management and an ongoing culture change.

Following the 1999 NRC identified violation, the licensee initiated a KAP to review and to correct problems in chemistry procedures, as previously described in Section R2.1. The chemistry superintendent indicated that a lack of resources and a slow procedure revision process contributed to their lack of sufficient progress in this review.

c. Conclusions

Although the chemistry staff had performed assessments of chemistry technician performance in 1998 and 1999, the inspector noted that the plant QA staff had not reviewed the chemistry program since 1996. The chemistry staff's assessments effectively identified procedural adequacy and adherence problems; however, the staff's corrective actions and assessment conclusions were narrowly focused and failed to fully characterize the procedural adherence deficiencies.

R7.2 Quality Assurance Audits of the Radiological Environmental Monitoring Program

The inspector reviewed the QA staff's assessment of the REMP program. The assessment was broadly focused and included observations of technician performance, reviewed material condition of sampling equipment, and assessed the annual report data and documentation. Overall, the audit concluded that the program was being effectively implemented. The inspector recognized that the assessment identified problems with the annual report documentation and certain inconsistencies between the program guidance documents, which were similar to the inspector's observations (Section R1.2). The chemistry staff indicated that corrective actions were completed or in progress to address these problems.

R8 Miscellaneous Radiation Protection and Chemistry Issues

R8.1 (Closed) Violation No. 50-305/97015-05: The licensee failed to perform 12-month required fit tests for certain personnel designated to be qualified for respiratory protection. The inspector verified that the licensee had entered the issue into its corrective action system (KAP No. 1248). At the time of this inspection, the licensee had completed its immediate and long term corrective actions. For example, the licensee ensured that the required personnel were respiratory protection certified, reviewed/revised the applicable procedure to more clearly define the individuals requiring respiratory protection certification, and discussed the event at the plant morning meeting and in respiratory protection training. This item is closed.

V. Management Meetings

XI Exit Meeting Summary

The inspector presented the preliminary inspection findings to members of licensee management on March 16, 2000. The licensee acknowledged the findings presented and did not identify any of the documents reviewed as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

M. Bernsdorf, Plant Analytical Chemist
W. Flint, Superintendent - Plant Chemistry
B. Gauger, Health Physics
G. Harrington, Plant Licensing Supervisor
R. Hawley, Chemistry
L. Haworth, Process Leader - Quality Programs
B. Heida, Engineering
K. Hoops, Manager - Kewaunee Power Station
M. Reinhart, Supervisor, Health Physics
D. Shields, Plant Analytical Chemist

INSPECTION PROCEDURES USED

IP 84750: Radioactive Waste Treatment, and Effluent and Environmental Monitoring

ITEMS OPENED, CLOSED OR DISCUSSED

Opened

50-305/200005-01	NCV	Failure to maintain radiochemical control procedures concerning the chemistry QC program. (Section R2.1)
50-305/200005-02	NCV	Failure to adhere to radiochemical control procedures. (Section R2.1)

Closed

50-305/97015-05	VIO	Failure to maintain required qualifications for those plant personnel required to wear respiratory protection. (Section R8.1)
50-305/200005-01	NCV	Failure to maintain radiochemical control procedures concerning the chemistry QC program. (Section R2.1)
50-305/200005-02	NCV	Failure to adhere to radiochemical control procedures. (Section R2.1)

Discussed

None

LIST OF ACRONYMS USED

ALARA	As-Low-As-Is-Reasonably-Achievable
CT	Chemistry Technician
EPRI	Electric Power Research Institute
ESF	Engineered Safety Feature
HEPA	High Efficiency Particulate Air
KAP	Kewaunee Assessment Program
NCV	Non-Cited Violation
ODCM	Offsite Dose Calculation Manual
PDR	Public Document Room
ppb	Parts Per Billion
QA	Quality Assurance
QC	Quality Control
REMM	Radiological Environmental Monitoring Manual
REMP	Radiological Environmental Monitoring Program
TLD	Thermoluminescence Dosimeter
TS	Technical Specifications
USAR	Updated Safety Analysis Report

LIST OF DOCUMENTS REVIEWED

Chemistry Department Self-Assessments

"Assessment of Chemical Safety -- Locker Storage," (KAP No. 257), dated February 25, 2000.

"Review of Kewaunee Chemistry Control Practices," dated February 2, 1999.

Kewaunee Assessment Process (KAP) Nos.

KAP 1574, KAP 1881, and KAP 3246.

Kewaunee Power Station Procedures Nos.

HP-07.063 (Revision B), "Instrument Calibration Procedure -- Air Sample Pumps: RAS-1, RAP-1, RAP-1Q, RAP-3;"
RC-C-10B (Revision J), "ORTEC MCA Yearly Calibration;"
RC-C-63 (Revision N), "Gross Gamma Gases;"
RC-C-68H (Revision B), "Tritium Accuracy;"
RC-C-85 (Revision F), "Primary Sampling System;"
RC-C-88 (Revision K), "Primary to Secondary Leak Rate Data;"
RC-C-300 (Revision C), "Quality Assurance Program Counting Instrument;"
RC-C-310 (Revision C), "Quality Control Program, Chemistry Department;"
RC-C-311, "Routine Standardization Calibration and Maintenance of Lab Equipment," dated December 30, 1985;
RC-C-312, "Chemistry Procedure Quality Control," dated December 30, 1985;
RC-C-313 (Revision B), "Interlab QC;"
RC-C-314 (Revision C), "Quality Control, Lab Accuracy;"
RC-C-314A (Revision B), "Quality Control, Lab Precision;"
RC-C-315, "Intralab Quality Control," dated December 30, 1985;
RC-C-316, "Sample Matrix Interference," dated December 30, 1985;
RC-C-318 (Revision A), "Performance Trending of Chemistry Laboratory Instrumentation;"
RC-C-319, "Shelf Life Program for Chemistry Standards, Reagents and Stocked Chemicals," dated March 10, 1992;
RC-C-401 (Revision F), "Kewaunee Secondary Water Chemistry Program;"
RC-C-401A (Revision A), "Kewaunee Primary Water Chemistry Program;"
RC-C-403 (Revision I), "Secondary Chemistry Sample Specifications;"
RC-C- 405 (Revision H), "Secondary Chemistry Corrective Actions;" and
SP 63-164 (Revision T), "Environmental Sample Collection."

Miscellaneous Documents and Records

Annual Environmental Monitoring Report January-December 1998.

Annual Environmental Monitoring Report January-December 1997.

Appendix A, Kewaunee Nuclear Power Plant, 1998 Meteorological Data.

Radiological Environmental Monitoring Manual (REMM), Revision 5, dated February 28, 2000.

Quality Assurance Audits

Audit No. 99-002, Second Quarter of 1999.

Surveillances

NEP 14.9 (Revision A), “TSC Pressurization Unit Filter Testing,” performed on May 15, 1998;
SP 14-118 (Revisions O and P), “Auxiliary Building Zone SV Filter Testing,” performed on February 19, 1998, and July 26, 1999;
SP 17-126 (Revisions M and N), “SFP Sweep System Filter Testing,” performed on February 18, 1998, October 14, 1998, and July 28, 1999;
SP 24-122 (Revisions P and Q), “Shield Building Vent Filter Testing,” performed on February 17, 1998, May 15, 1998, July 27, 1999, and March 11, 2000; and
SP 25-119 (Revisions K and L), “Control Room Post Accident (CRPA) Recirculation Filter Testing,” performed on February 16, 1998, and July 29, 1999.