ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

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License No.:	NPF-38
Report No.:	50-382/99-11
Licensee:	Entergy Operations, Inc.
Facility:	Waterford Steam Electric Station, Unit 3
Location:	Hwy. 18 Killona, Louisiana
Dates:	May 24-28, 1999
Inspector:	J. Blair Nicholas, Ph.D., Senior Radiation Specialist Plant Support Branch
Approved By:	Gail M. Good, Chief, Plant Support Branch Division of Reactor Safety
Attachment:	Supplemental Information

EXECUTIVE SUMMARY

Waterford Steam Electric Station, Unit 3
NRC Inspection Report No. 50-382/99-11

This announced, routine inspection reviewed the implementation of the liquid and gaseous radioactive waste effluent management program; status of the effluent radiation monitors and counting room instruments; and implementation of the engineered-safety-feature filtered ventilation systems design, maintenance, and in-place filter testing program. Training and qualifications of personnel, quality assurance oversight, and annual radiological effluent release reports were also reviewed.

Plant Support

- A good liquid and gaseous radioactive waste effluent management program was implemented. The processing, sampling, and analyses of radioactive liquid and gaseous waste effluents and the performance of waste discharges were conducted in accordance with Technical Requirements Manual and Offsite Dose Calculation Manual requirements. Very good performance was noted in the reduction of liquid and gaseous effluent radionuclide curies released and offsite dose. Since 1995, the curie amount of radioactive liquid effluent mixed fission and activation products released showed approximately a 79 percent reduction resulting in a dose reduction of about 93 percent. Since 1995, the gaseous effluent activity released decreased approximately 66 percent (Section R1.1).

- An effective maintenance and testing program was implemented for the in-place filter and laboratory charcoal testing of the engineered-safety-feature ventilation filter systems (Section R1.2).

- The chemistry counting room's analytical instrumentation was properly maintained, tested, and calibrated in accordance with station procedures (Section R2.1).

- The liquid and gaseous effluent radiation monitors experienced poor operational and repair history during the past 3 years. However, recent management awareness and attention to this issue improved the timeliness of effluent radiation monitor repairs. The liquid and gaseous effluent radiation monitors were properly tested and calibrated in accordance with Technical Requirements Manual requirements. Effluent radiation monitor alarm set points were properly calculated and installed (Section R2.2).

- Implementing chemistry procedures for the radioactive waste effluent program provided proper guidance. Revisions to the Offsite Dose Calculation Manual were appropriately implemented and did not reduce the effectiveness of the radioactive waste effluent program. The 1997 and 1998 annual radioactive effluent release reports were submitted within the time requirement specified in the Offsite Dose Calculation Manual and contained the required information (Section R3.1).

- Chemistry personnel had a very good understanding of the radioactive waste effluent program procedures, Technical Requirements Manual and Offsite Dose Calculation Manual requirements, and dose calculation methodologies. Experienced nuclear auxiliary operators performed radioactive waste batch effluent releases (Section R4).

- Training and qualification programs for the chemistry technical staff and nuclear auxiliary operators were properly implemented. The chemistry and operations departments maintained well trained, qualified, and experienced staffs for conducting sampling, analyses, processing, and release operations for radioactive waste effluents (Section R5).

- The licensee's radioactive waste effluent management program organization remained relatively stable, even though the chemistry department experienced a significant number of chemistry technician staffing replacements. The staffing changes had a minimal effect on radioactive waste effluent program performance. An appropriate chemistry technical staff and nuclear auxiliary operations staff were maintained (Section R6).

- The licensee's quality assurance audit program of the radioactive waste effluent program was very good. The auditors and technical specialists assigned to perform the radioactive waste effluent program and process radiation monitor audits were experienced and qualified to perform the evaluations. The biennial quality assurance audits provided management with a very good perspective to assess the radioactive waste effluent program. The contractor laboratories used to perform surveillance testing of the engineered-safety-related ventilation filter systems and the radioactive waste effluent composite samples were properly evaluated (Section R7).

Report Details

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Implementation of the Radioactive Waste Effluent Management Programs

a. Inspection Scope (84750)

Implementation of the liquid and gaseous radioactive waste effluent management programs, as described in the Technical Requirements Manual and Offsite Dose Calculation Manual, was reviewed.

The inspector interviewed licensee personnel and reviewed the following:

- Ten batch radioactive liquid waste effluent release permits for the period January 1998 through April 1999 from the boric acid condensate tanks and waste condensate tanks
- Six batch radioactive gaseous waste effluent release permits for the period January 1998 through April 1999 from the waste gas decay tanks and containment
- Selected liquid waste effluent sample analyses of continuous release samples from the turbine building industrial waste sumps, dry cooling tower sumps, circulating water discharge, and auxiliary component cooling water system for the period January 1998 through April 1999
- Selected gaseous waste effluent sample analyses of continuous release samples from the plant stack, fuel handling building ventilation system, and main condenser evacuation and turbine gland sealing system for the period January 1998 through April 1999
- Dose results calculated from liquid and gaseous waste effluent releases for 1998 and the first quarter of 1999

The inspector observed the following activities:

- The collection of gaseous effluent weekly grab samples from the fuel handling building ventilation system stack radiation monitor and the performance of radiochemistry analyses for airborne particulates, iodine, and tritium
- The collection of the liquid effluent weekly grab samples from the dry cooling tower sumps No. 1 and No. 2 for the performance of radiochemistry analysis for principal gamma emitting radionuclides, including iodine-131 and dissolved and entrained noble gases and the update of the monthly continuous release permit data and associated dose calculations

- The collection of the liquid effluent weekly grab samples from the circulating water discharge for the performance of radiochemistry analysis for principal gamma emitting radionuclides, including iodine-131 and dissolved and entrained noble gases and the update of the monthly continuous release permit data and associated dose calculations

b. Observations and Findings

On May 25, 1999, the inspector observed a chemistry technician perform the fuel handling building ventilation system sample collections and radiochemistry analyses. On May 26, 1999, the inspector observed a chemistry technician perform the sample collections and analyses of samples collected from the two dry cooling tower sumps and the update of the monthly continuous release permit, which included an update of the liquid effluent dose data for the month, quarter, and year. On May 27, 1999, the inspector observed a chemistry technician perform the sample collection and gamma analyses of samples collected from the circulating water discharge.

The inspector noted that the chemistry technicians carried and referred to the proper sampling procedures while performing the sample collections. The chemistry technicians used very good sample handling techniques when collecting and analyzing the samples. All aspects of the airborne and liquid sample collections and analyses were performed in accordance with station procedures.

The radioactive liquid and gaseous waste effluent releases were performed in accordance with approved procedures and the Technical Requirements Manual requirements. Quantities of radionuclides released in the liquid and gaseous radioactive waste effluents were within the limits specified in the Technical Requirements Manual. Offsite doses were calculated according to Offsite Dose Calculation Manual methodologies and were well within regulatory limits. Required analyses of monthly and quarterly composite samples of liquid and gaseous radioactive waste effluents were performed as specified in the Technical Requirements Manual.

The inspector noted that a natural work team, which consisted of members representing chemistry, operations, engineering, and maintenance, was chartered to reduce the number and volume of radioactive effluent waste releases. Radioactive liquid effluent data showed that the volume of liquid radioactive waste discharged between 1995 and 1998 remained relatively constant with an average release volume for the 4 years of approximately 12.5 million gallons. The 1999 liquid effluent waste volume to date indicated a decrease from previous years with only a release of 3.6 million gallons during the first 5 months.

From a review of data supplied by the licensee, the inspector noted that the curie amount of radioactive liquid effluent mixed fission and activation products released between 1995 and 1998 showed a declining trend from 3.8 curies released in 1995 to 0.81 curies released in 1998, approximately a 79 percent reduction. The inspector determined that this occurred because the licensee used selective processing techniques to reduce the amount of high dose contributor radionuclides from the liquid effluents discharged.

The whole body and organ doses resulting from liquid effluents showed a significant reduction between 1995 and 1998 of approximately 93 percent. The 1998 whole body dose represented less than 4 percent of the annual regulatory limit, and the maximum organ dose resulting from the liquid effluent releases represented less than 2 percent of the annual regulatory limit. The curie amount of liquid tritium released between 1995 and 1997 showed a declining trend but took a sharp increase in 1998 due to the processing of an increased number of boric acid condensate tanks as a result of back-to-back reactor shutdowns. The station's tritium release performance during 1996 and 1997 was near the median industry value for the amount of tritium released nationally from pressurized water reactors.

Since 1995, the gaseous effluent data showed a declining trend in the amount of airborne fission and activation radioactivity gases discharged. From 1995 through 1998, the curie amount of airborne fission and activation radioactive gases released decreased approximately 66 percent from 1,740 curies to 574 curies. The inspector also noted that the curie amount of airborne fission and activation radioactive gaseous released in 1996 reached an all time low of 80.2 curies. The 1998 gamma and beta air doses resulting from the gaseous effluent releases represented less than 2 percent of the annual regulatory limit.

The natural work team was tasked with identifying action items to enhance the radioactive effluent waste management program. Upon recommendation from the natural work team, the licensee made the following station system configuration changes to reduce doses to the public from radioactive liquid effluent discharges:

- Liquid waste management processing skid improvements were made which included the installation of a back pressure regulating valve to improve the efficiency of the processing skid.

- To obtain more accurate release data, check valves were installed in the dry cooling tower sump pump discharge lines to prevent back flow and reduce pump run times.

- Particulate filtration systems were installed on the component cooling water system and auxiliary component cooling water tower basins to reduce activity concentrations.

The natural work team also identified that the component cooling water and auxiliary component cooling water leakage into the dry cooling tower sumps contributed to activity released from the dry cooling towers. During the week of the inspection, the licensee was in the process of constructing a station configuration change to route the dry cooling tower sump pump discharge to the circulating water discharge line. This system configuration change will enable the licensee to use the circulating water flow dilution factors in calculating and reducing effluent release doses from the dry cooling towers.

c. Conclusions

A good liquid and gaseous radioactive waste effluent management program was implemented. The processing, sampling, and analyses of radioactive liquid and gaseous waste effluents and the performance of waste discharges were conducted in accordance with Technical Requirements Manual and Offsite Dose Calculation Manual requirements. Very good performance was noted in the reduction of liquid and gaseous effluent radionuclide curies released and offsite dose. Since 1995, the curie amount of radioactive liquid effluent mixed fission and activation products released showed approximately a 79 percent reduction resulting in a dose reduction of about 93 percent. Since 1995, the gaseous effluent activity released decreased approximately 66 percent.

R1.2 Engineered-Safety-Feature Ventilation Filter Systems

a. Inspection Scope (84750)

The inspector performed external visual inspections of the filter housings for the fuel handling building ventilation system, shield building ventilation system, and control room emergency air filtration system and interviewed the system engineer assigned to the systems.

The inspector reviewed the following records for the three engineered-safety-feature ventilation filter systems:

- Records and results of the in-place filter testing of high efficiency particulate filters and charcoal adsorbers

- Records of the laboratory test results of charcoal adsorbers

b. Observations and Findings

The inspector noted during visual inspections of the air cleaning systems that the filtration units and ventilation ducts were properly maintained. All filter housing doors were tightly closed, and the door gaskets were not leaking. Permanent test ports for in-place filter testing were installed and easily accessible. The areas surrounding the filtration units were clean and free of debris. Adequate lighting was provided for visual inspection of housings and components. No problems were identified during the visual inspection of the ventilation filter systems.

The inspector verified that the surveillance tests provided for the required periodic functional testing of the filtration systems' components, evaluation of the high efficiency particulate air filters and activated charcoal, and the in-place filter testing. The inspector reviewed the results of the last surveillance tests for each of the three safety-related air cleaning ventilation filter systems and verified that previous surveillance tests were performed at the required 18-month frequency. The inspector verified that the in-place filter testing and activated charcoal iodine removal efficiency tests were performed in accordance with approved procedures by an offsite contractor laboratory and that the surveillance test results met Technical Specification acceptance criteria.

On May 26, 1999, the inspector observed two technicians from the licensee's off-site contractor laboratory collect charcoal test canisters from the fuel handling building ventilation system for laboratory testing and perform the following in-place ventilation system tests: a pretest visual inspection prior to the leak testing of the filter housings, the flow rate testing of the ventilation duct, and the efficiency testing of the high efficiency particulate air filters and the activated charcoal adsorber filter units. The technicians performed and documented the ventilation system testing in accordance with approved testing procedures. No problems were identified.

c. Conclusion

An effective maintenance and testing program was implemented for the in-place filter and laboratory charcoal testing of the engineered-safety-feature ventilation filter systems.

R2 Status of Radiological Protection and Chemistry Facilities and Equipment

R2.1 Chemistry Counting Room

a. Inspection Scope (84750)

The chemistry counting room's analytical instrumentation was inspected to verify that adequate calibration and quality control programs were in place.

b. Observations and Findings

The inspector verified that the chemistry counting room maintained appropriate state-of-the-art analytical instrumentation to perform the required radiochemistry analytical measurements of the radioactive waste effluent samples. Quality control indicators were tracked and trended for the gamma spectroscopy, liquid scintillation, and gross alpha counting systems. Data showed that the instruments were operable, well maintained, and calibrated. Chemistry technicians assigned to the counting room were trained and knowledgeable on the use of the instrumentation.

c. Conclusion

The chemistry counting room's analytical instrumentation was properly maintained, tested, and calibrated in accordance with station procedures.

R2.2 Liquid and Gaseous Effluent Radiation Monitors

a. Inspection Scope (84750)

The inspector interviewed licensee personnel and reviewed the following items:

- Effluent radiation monitor operability

- Effluent radiation monitor checks and calibrations during 1998 and first quarter of 1999

- Effluent radiation monitor alarm set points

b. Observations and Findings

During the inspection of selected effluent radiation monitors listed in the Technical Requirements Manual, the inspector determined that selected effluent radiation monitors were operable. However, while reviewing the annual radioactive effluent release reports for the past 3 years, the inspector noted the following:

- During 1996, four radiation monitors were declared out-of-service for greater than 30 days, two of which were out-of-service for greater than 100 days before being repaired and returned to service.

- During 1997, eight radiation monitors were declared out-of-service for greater than 30 days, two of which were out-of-service for greater than 60 days before repaired and returned to service.

- During 1998, ten radiation monitors were declared out-of-service for greater than 30 days. One of these monitors was out-of-service for greater than 100 days and three of these monitors were out-of-service for greater than 60 days before repaired and returned to service.

- During the first 5 months of 1999, only one radiation monitor was declared out-of-service for greater than 30 days before being repaired and returned to service.

The licensee documented numerous reasons for the extended periods of time that the radiation monitors were out-of-service. For example, these reasons included delays in procurement of required parts, materials, and calibration gases; preparation of procedure changes to troubleshoot the problem; investigation and preparation of engineering evaluations; work scheduling problems involving assigning maintenance and repair work priorities; and a high maintenance backlog.

During 1998, station management addressed the excessive number of effluent radiation monitors out-of-service for greater than 30 days. As a result, a higher priority was placed on the repair of instruments or systems which were influenced by limiting conditions for operation or required special reports if not repaired and returned to service within a required time. These instruments and systems, which enter the station into limiting conditions for operation or require special written reports, were listed on the first page of each day's plan of the day report and were discussed and prioritized during the plan of the day meeting.

However, two radiation monitors declared out-of-service since September 1996 and November 1998 were still listed on the first page of each plan of the day report and had estimated repair completion dates of June 1999 and July 1999, respectively. During the inspection, the inspector discussed these two outstanding radiation monitor repair

issues with the system engineer and was informed that the estimated repair completion dates were realistic and should be met. The system engineer stated that the engineering evaluations and design change packages were completed and the instrument repairs were being performed. During 1999, the licensee significantly improved out-of-service radiation monitor repairs. Although past performance was poor in repairing and returning the out-of-service effluent radiation monitors to service within 30 days, the licensee had complied with the required action statements in the Technical Requirements Manual for the affected monitors.

The inspector verified that source checks, channel checks, channel functional tests, and calibrations were properly performed on the liquid and gaseous effluent radiation monitors. Surveillance test records documented that the effluent monitoring instrumentation was properly tested and calibrated in accordance with the requirements specified in Tables 4.3-8 and 4.3-9 in the Technical Requirements Manual.

The inspector checked the set point calculations for selected effluent radiation monitors and determined that the alarm set points were properly calculated using Offsite Dose Calculation Manual methodologies. The inspector verified that the calculated alarm set points were properly installed for selected effluent radiation monitors.

c. Conclusions

The liquid and gaseous effluent radiation monitors experienced poor operational and repair history during the past 3 years. However, recent management awareness and attention to this issue improved the timeliness of effluent radiation monitor repairs. The liquid and gaseous effluent radiation monitors were properly tested and calibrated in accordance with Technical Requirements Manual requirements. Effluent radiation monitor alarm set points were properly calculated and installed.

R3 Radiological Protection and Chemistry Procedures and Documentation

R3.1 Radioactive Waste Effluent Procedures, Offsite Dose Calculation Manual, and Annual Radioactive Effluent Release Reports

a. Inspection Scope (84750)

The inspector reviewed the following items:

- Procedures for the sampling, analysis, and release of radioactive liquid and gaseous waste effluents
- Revisions to the Offsite Dose Calculation Manual involving changes to the radioactive waste effluent program
- Annual radioactive effluent release reports for 1997 and 1998

b. Observations and Findings

The inspector verified that chemistry procedures described the responsibilities for collection and analyses of liquid and gaseous radioactive effluent waste samples in accordance with Technical Requirements Manual requirements. Chemistry procedures for batch and continuous release of liquid and gaseous radioactive waste effluents provided proper instruction for sampling, analyses, release permit generation, release limits, monitoring, and approvals. Chemistry procedures also provided proper guidance in the use of the computer software to perform pre- and post-release dose calculations in accordance with the dose calculation methodologies described in the Offsite Dose Calculation Manual. The chemistry procedures provided sufficient instruction to effectively conduct the required radioactive waste effluent program activities.

Changes 1 through 4 to Revision 5 of the Offsite Dose Calculation Manual were made during 1997 and 1998. The inspector determined that these changes to Revision 5 of the Offsite Dose Calculation Manual provided clarification and a better understanding of the action requirements for station operators when using Effluent Monitoring Instrumentation Tables 5.6-1, 5.6-2, 5.6-3, and 5.6-4; changed the time requirement for completion of the gross alpha analysis; incorporated a section on actions that should be performed for unplanned/abnormal releases; and added a definition for an unplanned/abnormal release. The inspector determined that these changes did not reduce the effectiveness of the radioactive waste effluent radiation monitoring program. These changes were documented in the appropriate annual radioactive effluent release reports as required by Technical Specifications.

Revision 6 to the Offsite Dose Calculation Manual was issued on February 15, 1999. Revision 6 eliminated the duplication of information and specifications which had previously been contained in both the Offsite Dose Calculation Manual and the Technical Requirements Manual. All duplicate information and specifications that existed in the Technical Requirements Manual were removed from the Offsite Dose Calculation Manual, and the scope of the Offsite Dose Calculation Manual was expanded to include applicable sections of the Technical Requirements Manual by reference. A table of previously included specifications which references the applicable sections in the Technical Requirements Manual was included in Revision 6 of the Offsite Dose Calculation Manual. The inspector determined that this major revision to the Offsite Dose Calculation Manual enhanced the effectiveness of the radioactive waste effluent monitoring program by placing the program information and specifications in one document.

The annual radioactive effluent release reports were written in the format described in NRC Regulatory Guide 1.21, Revision 1, June 1974, and contained the required information. The annual radioactive effluent release reports were issued in accordance with the time requirements stated in the Technical Specifications.

c. Conclusions

Implementing chemistry procedures for the radioactive waste effluent program provided proper guidance. Revisions to the Offsite Dose Calculation Manual were appropriately implemented and did not reduce the effectiveness of the radioactive waste effluent

program. The 1997 and 1998 annual radioactive effluent release reports were submitted within the time requirement specified in the Offsite Dose Calculation Manual and contained the required information.

R4 Staff Knowledge and Performance

a. Inspection Scope (84750)

The inspector interviewed chemistry personnel to evaluate their knowledge and performance of radioactive waste effluent activities.

b. Observations and Findings

The inspector observed chemistry personnel perform radioactive waste effluent activities and determined that they were very familiar with the radioactive waste effluent management program requirements. Chemistry personnel, including the counting room supervisor, the environmental senior specialist, and technicians, were knowledgeable and experienced in the performance of the liquid and gaseous radioactive waste effluent program procedures, implementation of the Technical Requirements Manual sampling and analyses requirements, and performance of the dose calculation requirements specified in the Offsite Dose Calculation Manual. Batch and continuous radioactive liquid and gaseous waste effluent releases were properly performed during the period January 1998 through May 1999. Chemistry personnel assigned to perform the effluent dose calculations were well trained and qualified. Nuclear auxiliary operators, who were trained and level "A" qualified, met the training and qualification requirements to perform radioactive waste batch effluent releases.

c. Conclusions

Chemistry personnel had a very good understanding of the radioactive waste effluent program procedures, Technical Requirements Manual and Offsite Dose Calculation Manual requirements, and dose calculation methodologies. Experienced nuclear auxiliary operators performed radioactive waste batch effluent releases.

R5 Staff Training and Qualification

a. Inspection Scope (84750)

The inspector interviewed licensee personnel and reviewed the following:

- Training and qualification programs for the chemistry technical staff and nuclear auxiliary operators
- Chemistry technician training program procedure
- Chemistry technician training lesson plan for radiological effluents

- Chemistry technician on-the-job training qualification cards for radiological effluent tasks
- Chemistry technician training matrix
- Nonlicensed operator training program procedure
- Operations training lesson plans for the boron management system, liquid waste management system, and gaseous waste management system
- Nuclear auxiliary operator level "A" qualification guide
- Selected training and qualification records for chemistry technicians and nuclear auxiliary operators

b. Observations and Findings

Based on a review of training and quaiification records, the inspector verified that eight chemistry technicians, the environmental senior specialist, and the counting room supervisor were trained and qualified to independently perform routine radioactive waste effluent program activities, including the performance of dose calculations. The inspector also verified that at least two level "A" qualified nuclear auxiliary operators were assigned to each of the five operations shift crews to perform radioactive waste effluent program release activities.

c. Conclusions

Training and qualification programs for the chemistry technical staff and nuclear auxiliary operators were properly implemented. The chemistry and operations departments maintained well trained, qualified, and experienced staffs for conducting sampling, analyses, processing, and release operations for radioactive waste effluents.

R6 Radiological Protection and Chemistry Organization and Administration

a. Inspection Scope (84750)

The organization, staffing, and assignment of the radioactive waste effluent management program responsibilities were reviewed. Chemistry procedures were reviewed to ensure that responsibilities were assigned for the program management and implementation.

b. Observations and Findings

The chemistry and operations departments were responsible for implementation and control of the radioactive waste effluent program. Several staffing changes were noted in the chemistry department since the last inspection of the radiological waste effluents program in October 1997. Since October 1997, due to transfers, promotions, and terminations, there were seven new chemistry technicians hired into the chemistry

department. This change represented approximately 50 percent (7 of 15) of the chemistry technicians. These new technicians were currently receiving initial qualification training. However, these staffing changes within the chemistry department appeared to have very little negative effect on the performance of the radioactive waste effluent program. Few staffing changes of nuclear auxiliary operators were noted in the operations department. The qualified staffing levels of the chemistry and operations department were sufficient to perform the duties required by the radioactive waste effluent program.

c. Conclusions

The licensee's radioactive waste effluent management program organization remained relatively stable, even though the chemistry department experienced a significant number of chemistry technician staffing replacements. The staffing changes had minimal effect on radioactive waste effluent program performance. An appropriate chemistry technical staff and nuclear auxiliary operations staff were maintained.

R7 Quality Assurance in Radiological Protection and Chemistry Activities

a. Inspection Scope (84750)

The quality assurance program for the radioactive waste effluent program was reviewed. Specifically, the following items were reviewed:

- Qualifications of personnel who performed the quality assurance audits
- Biennial quality assurance audits of the Offsite Dose Calculation Manual and process radiation monitors performed in December 1997 and December 1998, respectively
- Quality assurance audits of the contractor laboratories used to perform surveillance tests and sample analyses required by the radioactive waste effluent program and the engineered-safety-related ventilation filter systems' testing program

b. Observations and Findings

The biennial quality assurance audits of the Offsite Dose Calculation Manual and radioactive waste effluent program and the process radiation monitors were performed by qualified auditors, who had previous operational experience in radioactive waste effluent activities, and each audit team was supplemented with a qualified and experienced technical specialist. Based on the inspector's review of the 1997 Offsite Dose Calculation Manual audit report, the evaluation of the radioactive waste effluent program provided management with a very good perspective to assess the program. One finding (documented in condition report CR-98-0128), four recommendations, and six concerns were identified as a result of the Offsite Dose Calculation Manual audit. The inspector reviewed 1998 quality assurance audit of the health physics program for instruments and process and area radiation monitors provided a comprehensive

assessment of the health physics instrumentation program. The audit did not identify any problems with the effluent radiation monitor instrumentation. The scope and frequency of the audits met the quality assurance department audit requirements.

Audits of the two contractor laboratories used to perform radiochemistry analyses of radioactive waste effluent composite samples and in-place filter testing and charcoal analyses on the station's engineered-safety-related ventilation filter systems were used to evaluate the contractors' performance and determine if the contractor laboratories were qualified suppliers. These audits were performed by Nuclear Procurement Issues Committee audit teams led by utilities with interest in the services provided by the contractor laboratories. The inspector determined that the audits met the requirements to properly evaluate the contractors' abilities to perform respective Technical Specification and Technical Requirements Manual required analyses and surveillance activities.

c. Conclusions

The licensee's quality assurance audit program of the radioactive waste effluent program was very good. The auditors and technical specialists assigned to perform the radioactive waste effluent program and process radiation monitor audits were experienced and well qualified to perform the evaluations. The biennial quality assurance audits provided management with a very good perspective to assess the radioactive waste effluent program. The contractor laboratories used to perform surveillance testing of the engineered-safety-related ventilation filter systems and the radioactive waste effluent composite samples were properly evaluated.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the results of the inspection to members of licensee management at the conclusion of the inspection on May 28, 1999. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

A. Bergeron, Superintendent, Chemistry/Environmental
M. Branden, Supervisor, Licensing
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G. Hood, Environmental Specialist, Chemistry
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J. O'Hern, Director, Training and Emergency Planning
G. Pierce, Director, Quality Assurance
R. Porter, Superintendent, Plant Engineering
R. Prados, Senior Lead Engineer, Licensing
D. Rieder, Quality Assurance Engineer, Quality Assurance
G. Scott, Engineer, Licensing
J. Williams, Technician, Chemistry
A. Wrape, Director, Design Engineering

NRC

T. Farnholtz, Senior Resident Inspector

LIST OF INSPECTION PROCEDURES USED

IP 84750	Radioactive Waste Treatment and Effluent and Environmental Monitoring

LIST OF DOCUMENTS REVIEWED

ORGANIZATION CHARTS

Chemistry Department - May 1999

Operations Department - April 1999

CHEMISTRY TRAINING DOCUMENTATION

Chemistry department training records

Chemistry Technician Training Matrix

NTP-205	"Chemistry Technician Training," Revision 5, January 5, 1999
W-3-LP-CM-RADEEF	"Chemistry Technician Training Radiological Effluents Lesson Plan," Revision 0, October 17, 1996
W-3-QC-CMQC-RADEF	"Chemistry Radiological Effluents Qualification Card," Revision 0, February 4, 1997
W-3-QC-CMQC-EFCHM	"Chemistry Effluent Chemistry Qualification Card," Revision 1, May 3, 1999
W-3-QC-CMQC-RCHEM	"Radiochemistry Qualification Card," Revision 0, October 28, 1998

RADWASTE OPERATIONS TRAINING DOCUMENTATION

Radwaste operations department training records

Nuclear Auxiliary Operator Level "A" Qualification Guide

NTP-101	"Operations Training Programs," Revision 9, August 27, 1998
W-3-LP-OPS-BM00	"Boron Management System Lesson Plan," Revision 5, August 13, 1992
W-3-LP-OPS-LWM00	"Liquid Waste Management Lesson Plan," Revision 3, November 16, 1998

QUALITY ASSURANCE DOCUMENTS

Quality Assurance Audit Schedules for 1997, 1998, and 1999

Waterford-3 Quality Assurance Audit SA-97-0002.1, "Offsite Dose Calculation Manual," performed December 8, 1997 through January 29, 1998

Waterford-3 Quality Assurance Audit SA-98-018.1, "Health Physics Program - Instruments, Process, and Area Monitors," performed August 31 through December 8, 1998

Vendor Audits

NUPIC Joint Quality Assurance Audit of Teledyne Brown Engineering-Environmental Services, conducted August 31 through September 4, 1998

NUPIC Joint Quality Assurance Audit of NUCON International, performed July 15-18, 1997

PROCEDURES

Operations Procedures

OP-007-001	"Boron Management," Revision 15, February 19, 1999
OP-007-003	"Gaseous Waste Management System," Revision 13, March 8, 1999
OP-007-004	"Liquid Waste Management System," Revision 14, June 12, 1998

Chemistry Procedures

CE-003-518	"Radiological Effluents Sampling Schedule," Revision 0, March 7, 1997
CE-003-305	"Sampling of Ventilation and Gaseous Waste Management Systems for Radioactive Effluents," Revision 10, March 1, 1996
CE-003-331	"Gross Alpha and Beta Measurement," Revision 1, December 20, 1995
CE-003-332	"Use of the Beckman LS6500," Revision 0, August 8, 1995
CE-003-506	"Sampling of Gaseous Waste Management System and Containment Purge for Radioactive Effluents," Revision 0, March 7, 1997
CE-003-509	"Routine Filter Replacement and Grab Sampling from PIG Monitors and WRGMS," Revision 0, March 7, 1997
CE-003-511	"Liquid Effluent Sampling," Revision 0, March 7, 1997
CE-003-514	"Liquid Radioactive Waste Release Permit (Computer)," Revision 0, March 7, 1997
CE-003-515	"Gaseous Radioactive Waste Release Permit (Computer)," Revision 0, March 7, 1997
CE-003-516	"Calculation and Adjustment of Radiation Monitoring Setpoints," Revision 0, October 5, 1997
CE-003-520	"Operation of the Gamma Spectroscopy System," Revision 0, February 27, 1997
CE-003-541	"Compositing Effluent Samples," Revision 0, March 7, 1997

MISCELLANEOUS DOCUMENTS

Selected liquid radioactive waste batch release permits

Selected waste gas decay tank and containment batch release permits

Effluent radiation monitor surveillance test records

Engineered-safety-feature ventilation filter systems surveillance test records

Annual Radioactive Effluent Release Reports - 1997 and 1998

"Offsite Dose Calculation Manual," Revision 15, February 26, 1999