



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064**

February 23, 2000

Garry L. Randolph, Vice President and
Chief Nuclear Officer
Union Electric Company
P.O. Box 620
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SUBJECT: NRC INSPECTION REPORT NO. 50-483/2000-06

Dear Mr. Randolph:

This refers to the inspection conducted on January 31 through February 4, 2000, at the Callaway Plant facility. The purpose of this inspection was to review your radioactive waste effluent management program and engineered-safety-feature air filtration testing program. The enclosed report presents the results of this inspection.

We determined that your radioactive waste effluent releases were properly controlled, monitored, and quantified. Engineered-safety-feature air filtration and adsorption units were properly tested and maintained. Overall, your radioactive waste effluent management and engineered-safety-feature air filtration testing programs were effectively implemented.

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 Document Room (PDR).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

Gail M. Good, Chief
Plant Support Branch
Division of Reactor Safety

Docket No.: 50-483
License No.: NPF-30

Enclosure:
NRC Inspection Report No.
50-483/2000-06

cc w/enclosure:

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E-Mail report to D. Lange (DJL)
 E-Mail report to NRR Event Tracking System (IPAS)
 E-Mail report to Document Control Desk (DOCDESK)

E-Mail notification of report issuance to the CWY SRI and Site Secretary (VGG, DVY).

E-Mail notification of issuance of all documents to Nancy Holbrook (NBH).

bcc to DCD (IE06) - Radiological Protection Reports

bcc distrib. by RIV:

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-483
License No.: NPF-30
Report No.: 50-483/2000-06
Licensee: Union Electric Company
Facility: Callaway Plant
Location: Junction Highway CC and Highway O
Fulton, Missouri
Dates: January 31 through February 4, 2000
Inspector: J. Blair Nicholas, Ph.D., Senior Health Physicist
Plant Support Branch
Approved By: Gail M. Good, Chief, Plant Support Branch
Division of Reactor Safety
Attachment: Supplemental Information

EXECUTIVE SUMMARY

Callaway Plant NRC Inspection Report No. 50-483/2000-06

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 maintenance and in-place filter testing program. Training and qualifications of personnel, quality assurance oversight, and annual radiological effluent release reports were also reviewed.

Engineering

- The engineered-safety-feature filter ventilation systems were properly maintained. Effective in-place filter and laboratory testing programs were implemented. The system engineers responsible for the engineered-safety-feature filter ventilation systems were knowledgeable of the systems and appropriately involved in implementing the filter testing program. The areas surrounding the ventilation filtration units were clean, well lighted, and free of debris (Sections E2.1 and E3.1).

Plant Support

- Overall, an effective radioactive effluent monitoring program was implemented. The processing, sampling, and analyses of radioactive liquid and gaseous waste effluents and the performance of effluent discharges were conducted in accordance with Final Safety Analysis Report and Offsite Dose Calculation Manual requirements. Improved performance was noted in the reduction of liquid and gaseous effluent radionuclide curies released and offsite doses during the period 1996 through 1999. Since 1996, the curie amount of radioactive liquid released was reduced 91 percent with a corresponding whole body dose reduction of 73 percent. The curie amount of gaseous effluents released since 1996 was reduced 70 percent with gamma and beta dose reductions of approximately 43 and 59 percent, respectively (Section R1.1).
- A comprehensive effluent radiation monitor calibration and channel check program was in place. Effluent radiation monitors were properly calibrated, and channel checks were performed in accordance with Final Safety Analysis Report requirements. The counting room's analytical instrumentation used to analyze radioactive effluent samples was properly maintained, tested, and calibrated. Effluent radiation monitors, storage tanks, and effluent processing equipment were in good material condition. The areas where effluent radiation monitors and radioactive waste effluent storage tanks and processing equipment were located were clean and well maintained (Sections R2.1 and R2.2).
- Implementing procedures for the radioactive waste effluent program provided proper guidance. A revision to the Offsite Dose Calculation Manual was appropriately

implemented and did not reduce the effectiveness of the radioactive waste effluent program. The 1998 Annual Radioactive Effluent Release Report was submitted in a timely manner and contained the required information (Section R3).

- An effective radioactive waste effluent training program for health physics technical support technicians and health physics radwaste operators was implemented. The course materials for the health physics technical support technician and health physics radwaste operator training programs were well organized and included the subject areas needed to qualify the health physics technical support technicians and health physics radwaste operators to perform the required radioactive waste management activities. The experience, training, and working knowledge of the health physics technical support technicians and health physics radwaste operators met the training and qualification requirements (Section R5).
- Quality assurance oversight was effective. The auditors and technical specialist assigned to perform the audit and surveillances of the radioactive waste effluent management program were experienced and well qualified to perform the program evaluations. The audit and surveillances were intrusive and thorough and provided management with a comprehensive assessment of the radioactive waste effluent management program. Audit and surveillance findings were properly documented in the station's suggestion occurrence solution reporting system and satisfactorily addressed in a timely manner. Suggestion occurrence solution reports identified issues at the proper threshold to provide management with the information needed to assess the radioactive waste effluent management program (Section R7).

Report Details

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Engineered-Safety-Feature Filter Ventilation Systems

a. Inspection Scope (84750)

The inspector performed visual inspections of the control room emergency ventilation and the emergency exhaust air cleaning systems and interviewed the system engineers assigned to test and maintain the ventilation systems.

b. Observations and Findings

During the external inspection of the control room emergency ventilation and emergency exhaust filtration systems, the inspector noted that the ventilation duct work and filter housings were well maintained. The inspector determined that there was no obvious physical damage to the air cleaning systems which would have prevented them from performing their required safety functions. All filter housing doors were tightly closed, and the door gaskets were not leaking. Test ports for in-place filter testing were installed and easy to access. Redundant ventilation systems were available, as required. From interviews with the system engineers responsible for the maintenance and performance of the air cleaning systems, the inspector concluded that the system engineers were knowledgeable of the air cleaning systems and their operation and were appropriately involved in the implementation of the filter testing program. Housekeeping in the areas surrounding the ventilation filtration units was good. The areas were well lighted and free of debris.

c. Conclusions

The engineered-safety-feature filter ventilation systems were properly maintained. The system engineers responsible for the engineered-safety-feature filter ventilation systems were knowledgeable of the systems and appropriately involved in implementing the filter testing program. The areas surrounding the ventilation filtration units were clean, well lighted, and free of debris.

E3 Engineering Procedures and Documentation

E3.1 Engineered-Safety-Feature Filter Ventilation System Equipment Testing Results

a. Inspection Scope (84750)

The inspector reviewed the following records to determine compliance with Technical Specification requirements:

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

b. Observations and Findings

Filter testing and run times of the engineered-safety-feature filter ventilation systems were properly tracked by the control room and system engineers. Through a review of the in-place filter test results, the inspector confirmed that the licensee complied with the Technical Specification requirements of Sections 4.7.6 (c)(1) and 4.9.13 (b)(1). The inspector also confirmed that laboratory testing of charcoal adsorber samples was performed by an offsite vendor laboratory in accordance with Sections 4.7.6 (c)(2) and 4.9.13 (b)(2) of the Technical Specifications.

c. Conclusions

Effective in-place filter and laboratory testing programs were implemented.

E7 Quality Assurance in Engineering Activities

The inspector confirmed that a Nuclear Procurement Issues Committee audit was performed of the vendor performing laboratory testing of the charcoal adsorber material samples. The inspector concluded from a review of the audit summary that there were no adverse findings which would render the vendor laboratory test results invalid.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Implementation of the Liquid and Gaseous Radioactive Waste Program

a. Inspection Scope (84750)

Implementation of the liquid and gaseous radioactive waste effluent management program, as described in the two part Offsite Dose Calculation Manual (Chapter 16 of the Final Safety Analysis Report and APA-ZZ-01003, "Offsite Dose Calculation Manual," Revision 9), was reviewed. Personnel involved in the radioactive waste effluent management program were interviewed. The following items were reviewed:

- Seven batch radioactive liquid effluent release permits performed during the period July 1998 through December 1999 from the discharge monitor tanks
- Six batch radioactive gaseous waste effluent release permits performed during the period July 1998 through December 1999 from the waste gas decay tanks and containment

- Selected gaseous waste effluent sample analyses of continuous release samples from the unit vent, radwaste building vent, and laundry decontamination facility dryer exhaust during the period July 1998 through December 1999
- Dose results calculated from liquid and gaseous radioactive waste effluent releases during 1998 and 1999
- Final Safety Analysis Report and Offsite Dose Calculation Manual requirements
- Quarterly and monthly liquid and gaseous effluent composite sample results

The inspector observed the following activities:

- The collection of gaseous effluent weekly grab samples from the unit vent; performance of radiochemistry analyses for airborne particulates, iodine, and noble gases; and the update of the weekly continuous release permit
- The collection of liquid samples from discharge monitor tank "B" for a liquid waste effluent batch release; performance of chemistry analyses for pH, total suspended solids, oil and grease, and hydrazine; performance of radiochemistry analyses for principal gamma emitters including iodine-131 and dissolved and entrained gases and tritium; preparation of the liquid waste effluent batch release permit; and performance of the batch release by the health physics technical support technicians and radwaste operators

b. Observations and Findings

On February 1, 2000, the inspector observed the sampling, analyses, and preparation of the liquid radioactive waste batch release permit for discharge monitor tank "B". Two independent samples of the tank were collected from the radwaste building sample station No. SJ-144 and analyzed according to station sampling and analytical procedures. Following the preparation of the liquid batch release permit, the inspector observed a health physics technical support technician obtain the required approval authorizations, set the liquid effluent discharge radiation monitor setpoints calculated for the release, and deliver the liquid batch release permit to the radwaste control room for health physics radwaste operators to perform the liquid batch release. After completion of the liquid batch release, the inspector observed a health physics technical support technician perform the post-release dose calculations. All aspects of the liquid batch release were performed in accordance with approved procedures.

On February 3, 2000, the inspector observed a health physics technical support technician perform the weekly grab sample collections from the unit vent and perform the required radiochemistry analyses. The inspector also observed the update of the unit vent continuous release permit and performance of dose calculations for the unit vent release pathway. The inspector noted that the health physics technical support technician referred to and followed the appropriate health physics procedures.

The radioactive liquid and gaseous waste effluent sampling and analyses were performed in accordance with approved procedures and the requirements of Tables 16.11-1 and 16-11-4 of the Final Safety Analysis Report. Quantities of radionuclides released in the liquid and gaseous radioactive waste effluents were within the limits specified in the Final Safety Analysis Report. Cumulative dose contributions and projected doses from liquid and gaseous effluents were determined at least once per 31 days in accordance with the methodologies and parameters described in the Offsite Dose Calculation Manual, and the calculated dose results were well within the regulatory limits.

From a review of data supplied by the licensee, the inspector noted that the volume of liquid radioactive waste discharged during the past 4 years (1996 - 1999) had remained relatively constant with an annual average discharge of approximately 22.3 million gallons. The inspector determined that the curie amount of mixed radioactive liquid effluent mixed fission and activation products released between 1996 and 1999 showed a declining trend from 0.77 curies to 0.07 curies, a 91 percent reduction. This reduction in liquid effluent curies released to the environment was the result of using a new radionuclide specific resin to remove cesium radioactivity and also better fuel integrity which released less fission products into the liquid waste effluent. As a result of the above reductions in liquid effluent discharges, the licensee's liquid effluent discharge performance was projected to be in the top (best) quartile for pressurized water reactors.

The whole-body dose from liquid effluents showed a declining trend since 1996. The whole body dose reduction between 1996 and 1999 was 73 percent. However, during the same 4-year time period, the maximum organ dose from liquid effluents showed a 38 percent increase. The 1999 whole body dose represented 0.81 percent of the annual regulatory limit, and the maximum organ dose from the liquid effluent releases represented 0.46 percent of the annual regulatory limit.

From 1996 through 1999, the gaseous effluent data showed a 70 percent reduction in the curie amount of airborne fission and activation radioactivity gases released from the station. This resulted in a gamma air dose reduction of 43 percent and a beta air dose reduction of 59 percent. The 1999 gamma and beta air doses calculated from the gaseous effluent releases represented less than 0.02 percent of the annual regulatory limit. As a result of the above reductions in gaseous effluent discharges, the licensee's gaseous effluent release performance was projected to be near the median for pressurized water reactors.

c. Conclusions

Overall, an effective radioactive effluent monitoring program was implemented. The processing, sampling, and analyses of radioactive liquid and gaseous waste effluents and the performance of effluent discharges were conducted in accordance with Final Safety Analysis Report and Offsite Dose Calculation Manual requirements. Improved performance was noted in the reduction of liquid and gaseous effluent radionuclide curies released and offsite doses during the period 1996 through 1999. Since 1996, the curie amount of radioactive liquid released was reduced 91 percent with a

corresponding whole body dose reduction of 73 percent. The curie amount of gaseous effluents released since 1996 was reduced 70 percent with gamma and beta dose reductions of approximately 43 and 59 percent, respectively.

R2 Status of Radiation Protection and Chemistry Facilities and Equipment

R2.1 Chemistry Counting Room

a. Inspection Scope (84750)

The counting room's analytical instrumentation was inspected to verify that appropriate calibration and quality control programs were implemented.

b. Observations and Findings

The inspector determined from observations and interviews with health physics technical support staff that the counting room maintained appropriate 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. Calibration and quality control data, in addition to direct observation, showed that the counting room instruments were operable, well maintained, and calibrated. Health physics technical support technicians were properly trained and experienced on the use of the counting room instrumentation.

c. Conclusions

The counting room's analytical instrumentation used to analyze radioactive effluent samples was properly maintained, tested, and calibrated.

R2.2 Liquid and Gaseous Effluent Radiation Monitors and Storage and Processing Equipment

a. Inspection Scope (84750)

The inspector interviewed licensee personnel and reviewed the following items:

- Radioactive waste effluent storage and processing equipment
- Effluent radiation monitor physical condition and operability
- Effluent radiation monitor checks and calibrations

b. Observations and Findings

During the inspection of the liquid and gaseous effluent radiation monitors and flow measurement equipment, radioactive waste effluent storage tanks, and effluent processing equipment, the inspector found all radiation effluent monitors and effluent processing equipment operable, and all were in good material condition. Additionally, the above areas in the radwaste building were clean and well maintained. The inspector

determined that gaseous and liquid radioactive waste effluents were properly stored and processed, and effluent inventories were properly maintained. The inspector verified that source checks, channel checks, channel functional checks, and calibrations were properly performed on the liquid and gaseous effluent radiation monitors and flow measurement equipment in accordance with procedures and the requirements specified in Tables 16.11-3 and 16.11-6 of the Final Safety Analysis Report.

c. Conclusions

A comprehensive effluent monitor calibration and channel check program was in place. Effluent radiation monitors were properly calibrated, and channel checks were performed in accordance with Final Safety Analysis Report requirements. Effluent radiation monitors, storage tanks, and effluent processing equipment were in good material condition. The areas where effluent radiation monitors and radioactive waste effluent storage tanks and processing equipment were located were clean and well maintained.

R3 Radiological Protection and Chemistry Procedures and Documentation

a. Inspection Scope (84750)

The following items were reviewed:

- 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 management program
- 1998 Annual Radioactive Effluent Release Reports

b. Observations and Findings

Health physics procedures assigned the responsibilities for implementation of the radioactive waste effluent management program and provided proper instruction to effectively perform the required radioactive waste effluent program activities. Health physics procedures also provided proper guidance in the use of quality controlled 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 Offsite Dose Calculation Manual was revised and divided into two parts: Chapter 16.11 of the Final Safety Analysis Report, titled Radioactive Effluent Controls, and Administrative Procedure APA-ZZ-01003, "Offsite Dose Calculation Manual," Revision 9. These revisions to the Offsite Dose Calculation Manual were issued on March 6, 1998. The inspector determined that the revision changes did not reduce the effectiveness of

the radioactive waste effluent management program and the radiological environmental monitoring program. The revision changes were documented in the appropriate annual radioactive effluent release report as required by the Technical Specifications.

The 1998 Annual Radioactive Effluent Release Report was 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 report was issued in accordance with the time requirements stated in the Technical Specifications and Offsite Dose Calculation Manual.

c. Conclusions

Implementing procedures for the radioactive waste effluent program provided proper guidance. A revision to the Offsite Dose Calculation Manual was appropriately implemented and did not reduce the effectiveness of the radioactive waste effluent program. The 1998 Annual Radioactive Effluent Release Report was submitted in a timely manner and contained the required information.

R5 Staff Training and Qualification

a. Inspection Scope (84750)

Personnel involved with the radioactive waste effluent training program were interviewed. Training and qualification programs for health physics technical support technicians and health physics radwaste operators involved in conducting the radioactive waste effluent management program were reviewed. Training and qualifications of the health physics technical support technicians and health physics radwaste operators were verified.

b. Observations and Findings

The inspector determined that appropriate training and qualification programs were implemented for the health physics technical support technicians and health physics radwaste operators which included formal classroom training and on-the-job training. The review of the health physics technical support technician training program course materials revealed that the training materials were well organized and included the subject areas needed to independently sample and analyze liquid and gaseous effluents and prepare effluent batch release permits. Additionally, continuing training course material provided the health physics technical support technicians with the appropriate topics to ensure that their technical competence was maintained.

The inspector verified that eight health physics technical support technicians had completed the required training to independently perform radioactive waste effluent program activities. The inspector noted that the licensee was in the process of filling the two vacant health physics technical support technician positions.

The inspector reviewed the staffing of the health physics radwaste operations group. Based on the inspector's review of the current health physics radwaste operations

staffing, the inspector noted that seven health physics radwaste operators were fully trained and qualified to man the seven operating shifts. The inspector noted that the licensee was actively trying to fill three additional health physics radwaste operator positions as a result of proposed organizational changes during the past 2 years.

c. Conclusions

An effective radioactive waste effluent training program for health physics technical support technicians and health physics radwaste operators was implemented. The course materials for the health physics technical support technician and health physics radwaste operator training programs were well organized and included the subject areas needed to qualify the health physics technical support technicians and health physics radwaste operators to perform the required radioactive waste management activities. The experience, training, and working knowledge of the health physics technical support technicians and health physics radwaste operators met the training and qualification requirements.

R7 Quality Assurance in Radiation Protection and Chemistry Activities

a. Inspection Scope (84750)

The following items were reviewed:

- Qualifications of personnel who performed quality assurance department audits
- Quality assurance audit of the environmental monitoring plan including areas of the radioactive waste effluent management program performed during 1998
- Quality assurance surveillances of radioactive waste effluent management program activities
- Selected radioactive waste effluent management program suggestion occurrence solution reports

b. Observations and Findings

Quality Assurance Audits

A review of the qualifications of the lead auditor, audit team members, and technical specialist involved in the oversight of the radioactive waste effluent management program identified that the auditors had extensive auditing and technical experience to perform effective audits of the radioactive waste effluent management program. The inspector noted that the technical specialist used to assist the audit team in the performance of the audit also had extensive operational experience and knowledge of the program areas audited.

One quality assurance department audit of the environmental monitoring plan (June 1998), which covered the Offsite Dose Calculation Manual and the radioactive waste

effluent management program, was performed just prior to the last inspection of this area in July 1998, and the audit report was issued after the completion of the NRC inspection. Therefore, the audit report was not reviewed during the last NRC inspection. The inspector determined that the audit was intrusive and thorough, providing management with a comprehensive assessment of the radioactive waste effluent management program. A number of non-regulatory issues were identified in the audit and were properly documented, tracked in the station's suggestion occurrence solution reporting system, and satisfactorily addressed in a timely manner. The inspector determined that the scope and frequency of the audit reviewed met the audit performance requirements.

Quality Assurance Surveillances

Two quality assurance surveillances of activities related to the radioactive waste effluent management program were performed since the July 1998 inspection. The surveillances were performed by the auditor who was the lead auditor for the biennial audit of the environmental monitoring plan discussed above. The inspector determined that the quality assurance surveillances provided an effective additional assessment of outage related radioactive waste effluent management activities. Two non-regulatory issues, concerning the installation and operation of the laundry decon facility dryer exhaust, were identified in one of the surveillances. Both issues were properly documented in the station's suggestion occurrence solution reporting system and satisfactorily addressed in a timely manner.

Suggestion Occurrence Solution Reports

A review of selected radioactive waste effluent management program suggestion occurrence solution reports written since July 1, 1998, revealed that the licensee identified issues at the proper threshold to provide management with the information needed to assess the radioactive waste effluent management program. The review also identified that, in general, response timeliness was appropriate and, overall, corrective actions appeared to be effective to correct the issue identified. No negative trends were identified during the review.

c. Conclusions

Quality assurance oversight was effective. The auditors and technical specialist assigned to perform the audit and surveillances of the radioactive waste effluent management program were experienced and well qualified to perform the program evaluations. The audit and surveillances were intrusive and thorough and provided management with a comprehensive assessment of the radioactive waste effluent management program. Audit and surveillance findings were properly documented, tracked in the station's suggestion occurrence solution reporting system, and satisfactorily addressed in a timely manner. Suggestion occurrence solution reports identified issues at the proper threshold to provide management with the information needed to assess the radioactive waste effluent management program. No negative trends were identified during the review of radioactive waste effluent management program suggestion occurrence solution reports written since July 1998.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at an exit meeting on February 4, 2000. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

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D. Anderson, Instructor, Radwaste Operator Training
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M. Evans, Superintendent, Protective Services
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D. Fuller, System Engineer, Ventilation Systems
J. Gloe, Superintendent, Training
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G. Hamilton, Supervisor Engineer, Quality Assurance - Self Assessments
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W. Johnson, Radiation Protection Technician, Chemistry
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J. Laux, Manager, Quality Assurance
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J. Patterson, Superintendent, Maintenance
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C. Slizewski, Supervising Engineer, Quality Assurance
C. Smith, Instructor, Radiation Protection and Chemistry Training
A. Stevens, Radiation Protection/Chemistry Technician, Health Physics Technical Support
M. Taylor, Manager, Nuclear Engineering
M. Trusty, Counting Room Supervisor, Radiation Protection and Chemistry Technical Support
W. Witt, Assistant Plant Manager

NRC

V. Gaddy, Senior Resident Inspector
J. Hanna, Resident Inspector

LIST OF INSPECTION PROCEDURES USED

IP 84750 Radioactive Waste Treatment and Effluent and Environmental Monitoring

LIST OF DOCUMENTS REVIEWED

ORGANIZATION CHARTS

Radiation Protection and Chemistry Department - January 2000

TRAINING DOCUMENTATION

TDP-ZZ-00056, "Rad Chem Technician - Health Physics Training Program," Revision 8

Health Physics Technical Support Technician Training and Qualification Matrix

Selected health physics technical support technician training records

TDP-ZZ-00054, "Rad Chem Technician - Radwaste Training Program," Revision 14

Radwaste Operator Training and Qualification Matrix

Selected health physics radwaste operator training records

Selected health physics technical support technician and radwaste operator lesson plans for effluent activities

QUALITY ASSURANCE DOCUMENTS

Quality Assurance Assessment Schedules for 1998 through 2001

Operating Quality Assurance Manual, Section 18, Revision 20

Audit

Quality Assurance Audit of the Environmental Monitoring Plan, conducted June 10-24, 1998

Surveillances

Quality Assurance Surveillance Report of Spent Filter and Resin Changeout, conducted April 1 through October 7, 1998

Quality Assurance Surveillance Report of Outage Related Effluent and Environmental Monitoring, conducted April 1 through June 10, 1998

Independent Safety Evaluation Group Report of Radioactive Effluent Release Report Review, dated March 3, 1998

Vendor Audits

NUPIC Joint Quality Assurance Audit of NCS Corporation, conducted December 8-10, 1998

NUPIC Joint Quality Assurance Audit of Duke Engineering and Services Environmental Laboratory, conducted March 24-26, 1998

PROCEDURES

APA-ZZ-01003 "Offsite Dose Calculation Manual," Revision 9

CTP-SJ-01120 "Radwaste Sample Station (SJ-144) Operation," Revision 10

CTP-ZZ-02510 "Tritium in Liquids," Revision 11

CTP-ZZ-02530 "DMT Composite Sample," Revision 4

HTP-ZZ-02006 "Liquid Radwaste Release Permit (Batch)," Revision 50

HTP-ZZ-02007 "Gaseous Radwaste Release Permit (Gas Decay Tank)," Revision 24

HTP-ZZ-02008 "Gaseous Radwaste Release Permit (Auxiliary/Fuel Building Ventilation),"
Revision 13

HTP-ZZ-02009 "Gaseous Radwaste Release Permit (Radwaste Building Ventilation),"
Revision 13

HTP-ZZ-02012 "Gaseous Radwaste Release Permit (Containment)," Revision 31

HTP-ZZ-02014 "Release Permit Processing Using the VAX/EMS Application Software,"
Revision 37

HTP-ZZ-02021 "Gaseous Radwaste Release Permit (Miscellaneous Turbine Building
Release Points)," Revision 3

HTP-ZZ-04561 "VAX Gamma Spec Operation," Revision 5

HDP-ZZ-04700 "Count Room Quality Control Program," Revision 9

OSP-ZZ-00001 "Control Room Shift and Daily Log Readings and Channel Checks,"
Revision 31

MISCELLANEOUS DOCUMENTS

Selected surveillance tests for liquid and gaseous radiation effluent monitor calibrations and channel checks

Selected surveillance tests for engineered-safety-feature ventilation systems

Selected radioactive waste effluent management program Suggestion Occurrence Solution Reports (07/01/98 - 12/31/99)

Annual Radioactive Effluent Release Report for 1998