

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-482
License No.: NPF-42
Report No.: 50-482/98-03
Licensee: Wolf Creek Nuclear Operating Corporation
Facility: Wolf Creek Nuclear Station
Location: 1550 Oxen Lane, NE
Burlington, Kansas
Dates: February 2 to 6, 1998
Inspector: J. Blair Nicholas, Ph.D., Senior Radiation Specialist
Plant Support Branch
Approved By: Blaine Murray, Chief, Plant Support Branch
Division of Reactor Safety
Attachment: Supplemental Information

EXECUTIVE SUMMARY

Wolf Creek Nuclear Station NRC Inspection Report 50-482/98-03

This announced, routine inspection reviewed the implementation of the liquid and gaseous radioactive waste management program. Training and qualifications, quality assurance oversight, facilities and equipment, and annual reports were also reviewed.

Plant Support

- The liquid and gaseous radioactive waste effluent management program was properly implemented. Between 1993 and 1996, the licensee was in the first quartile (best performance) for airborne iodine/particulates and near the median for airborne tritium for pressurized water reactors; however, the licensee was in the third and fourth quartiles for airborne gas, liquid mixed isotopes, and liquid tritium. The licensee's 1997 effluent data showed a significant reduction in the liquid and gaseous effluent curies released and a continuing reduction in the volume of liquid effluents discharged (Sections R1.1, R1.2, and R3.1).
- The engineered-safety-feature air cleaning ventilation systems' surveillance testing program was properly implemented (Section R1.3).
- Liquid and gaseous radioactive waste management systems were operated properly and more efficiently (Section R2.1).
- All liquid and gaseous effluent radiation monitoring instrumentation were operable and properly maintained, tested, and calibrated (Section R2.2).
- Training and qualification programs for chemistry technicians, radwaste operators, and nuclear station operators were properly implemented. Chemistry personnel had an excellent understanding of the radioactive liquid and gaseous waste management program (Sections R4 and R5).
- Effective quality assurance and self-assessment programs were maintained regarding the radioactive waste effluent activities. Program improvement requests were closed in a timely manner (Section R7.1).
- An effective performance evaluation program had been established for contractor chemistry laboratories (Section R7.2).
- During the exit meeting, Mr Clay Warren, Vice President, Operations/Chief Operating Officer, stated that the meteorological validation program will be in effect, and the 1997 meteorological instrument tower data will be validated by March 15, 1998.

Report Details

Summary of Plant Status

The plant was operating at full power during the entire inspection.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Radiological Waste Effluent Management Programs

a. Inspection Scope (84750)

Implementation of the radioactive waste effluent management program, as described in the Offsite Dose Calculation Manual, was reviewed. This review included: radioactive effluent waste processing, radioactive effluent waste sampling and analyses, analytical sensitivities and results, offsite dose results, and performance of required surveillance tests. The following documentation was reviewed:

- Selected batch radioactive liquid waste effluent release permits for the period January through December 1997
- Selected batch radioactive gaseous waste effluent release permits for the period January through December 1997
- Selected gaseous waste effluent sample analyses for samples from the plant's unit vent stack and the radwaste building continuous releases for the period January through December 1997

The following activities were observed:

- Collection of the weekly air particulate filter and iodine charcoal cartridge samples and monthly tritium and noble gas samples from the plant's unit vent stack and the radwaste building vent stack and the performance of the required surveillance testing analyses to monitor the continuous effluent release points

b. Observations and Findings

The inspector observed the collection of air particulate filter, iodine charcoal cartridge, noble gas, and tritium samples from the unit vent stack and the radwaste building vent stack for analyses and update of the continuous gaseous release permits for the unit vent and the radwaste building vent. The inspector noted that the chemistry technician referred to and followed the appropriate sampling procedures while performing the sample collections. The inspector observed a chemistry technician perform the required radiochemistry analyses (principal gamma emitters tritium, and gross alpha) on the samples in the radiochemistry counting room. All aspects of the sample collections and

analyses were properly performed. The inspector observed that the chemistry technician properly performed the weekly update of the continuous gaseous release permits for the unit vent and radwaste building vent to monitor the gaseous effluent discharged.

The inspector verified that the processing, sampling, analyses, and monitoring of the batch liquid radioactive waste effluents, batch gaseous radioactive waste effluents, containment purges, and continuous releases of the liquid and gaseous radioactive waste effluents were conducted properly. Quantities of radionuclides released in the liquid and gaseous radioactive waste effluents were within the limits specified in the Offsite Dose Calculation Manual. Offsite doses were calculated according to proper methodologies and were within regulatory limits. Required analyses of monthly and quarterly composite samples of liquid and gaseous radioactive waste effluents were performed in accordance with Offsite Dose Calculation Manual requirements.

c. Conclusions

The liquid and gaseous radioactive waste effluent management program was properly implemented. Quantities of radionuclides released in the liquid and gaseous radioactive waste effluents and offsite doses to the environment from the liquid and gaseous radioactive waste effluents were within regulatory limits.

R1.2 Radioactive Waste Effluent Data

a. Inspection Scope (84750)

The inspector evaluated the radioactive waste effluent data and the licensee's effectiveness in identifying, resolving, and preventing problems in the processing and treatment of radwaste effluents.

b. Observations and Findings

The licensee's effluent data, when compared with the industry's effluent data for pressurized water reactors, showed that between 1993 and 1996 the amount of gaseous curies released was in the third and fourth quartiles (worst) for airborne gas, in the second and first quartiles (best) for airborne iodine/particulates, and in the second quartile for airborne tritium. The 1997 estimated gaseous effluent value showed a significant decrease in the curies of airborne gas released. The amount was less than 4 percent of the curies released during 1996 which indicated a marked improvement and approached the estimated 1997 median value for the industry. The licensee's estimated curies of airborne/particulates released during 1997 maintained the licensee in the estimated first quartile. The liquid effluent data showed that between 1993 and 1996 the licensee was in the third and fourth quartiles for liquid mixed isotopes and in the fourth quartile for liquid tritium. The estimated curies of liquid mixed isotopes released during 1996 showed a significant increase which was attributed to the inefficient processing of the radioactive liquid waste by the primary waste processing skid prior to release. In 1997, the licensee installed a leased ultra-filtration skid in the liquid waste processing system upstream to the primary liquid waste processing skid. The installation and use of

the ultra-filtration skid improved the performance of the liquid waste processing system and significantly reduced the curies of liquid mixed isotopes released. The 1997 data showed an order of magnitude decrease indicating a marked improvement. The estimated curies released approached the estimated median value for curies released by pressurized water reactors during 1997. The total volume of liquid effluents discharged has shown a continual decrease since 1994.

The licensee informed the inspector that they were aware of their status in the industry relative to their effluent discharges and stated that improvement in the reduction of effluent radioactivity released from the plant had a high priority. The 1997 estimated effluent data reflected the licensee's efforts to reduce the curies discharged to the environment.

c. Conclusions

Between 1993 and 1996, the licensee was in the first quartile (best performance) for airborne iodine/particulates and near the median for airborne tritium for pressurized water reactors; however, the licensee was in the third and fourth quartiles for airborne gas, liquid mixed isotopes, and liquid tritium. The licensee's 1997 effluent data showed a significant reduction in the liquid and airborne effluent curies released and a continuing reduction in the volume of liquid effluents discharged.

R1.3 Engineered-Safety-Feature Air Cleaning Systems

a. Inspection Scope (84750)

Selected surveillance tests and test results for the engineered-safety-feature air cleaning ventilation systems' testing program were reviewed to determine compliance with Technical Specification requirements.

b. Observations and Findings

The inspector verified that the required surveillance tests of the control room emergency ventilation system, emergency exhaust system - auxiliary building, and emergency exhaust system - fuel building were performed. The inspector reviewed the last performed surveillance tests' results for each of the safety-related air cleaning ventilation systems and verified that the previous surveillance tests were performed at the required 18-month frequency. The licensee performed the in-place filter testing. A contractor laboratory performed the activated charcoal laboratory surveillance tests. The surveillance test results were verified to be within Technical Specification limits.

The inspector performed a visual inspection of the control room emergency ventilation system and the emergency exhaust systems with the system engineer. The visual inspection of the engineered-safety-feature ventilation systems indicated no problems. All filter housing doors were tightly closed, and all door gaskets were in place and not leaking. The filter housings and ducts were well maintained. The areas surrounding the

ventilation units were clean, free of debris, and adequately lighted to provide for visual inspection of housings and components.

c. Conclusions

The engineered-safety feature air cleaning ventilation systems' surveillance testing program was properly implemented, and the systems were properly maintained.

R2 Status of Chemistry and Radiological Waste Effluents Facilities and Equipment

R2.1 Radiochemistry Counting Room and Radioactive Waste Effluent Processing Systems

a. Inspection Scope (Q4750)

The inspector observed/reviewed/inspected the following:

- Analyses of radiological effluent samples
- Radiochemistry counting room instrumentation calibration and quality control documentation
- Liquid and gaseous radioactive waste processing equipment including waste monitor tanks, secondary liquid waste monitor tanks, liquid waste effluent processing equipment, waste gas decay tanks, and radwaste control room

b. Observations and Findings

The radiochemistry counting room maintained sufficient state-of-the-art analytical instrumentation to perform the required radiochemistry analytical measurements of the radioactive waste effluents. The analytical instrumentation was properly maintained and calibrated. Records of calibrations and daily operational quality control checks were properly maintained.

The liquid and gaseous radioactive waste processing and storage systems were installed as described in the Updated Safety Analysis Report and were operated in accordance with station procedures.

No permanent major equipment or design modifications were made to the liquid or gaseous radioactive waste management systems during 1997. A leased ultra-filtration skid was temporarily installed in the liquid waste processing system upstream to the primary liquid waste processing skid. The ultra-filtration skid was used as a pretreatment to the liquid radwaste water prior to being processed by the primary waste processing system. The ultra-filtration skid helped prevent the inefficient clogging of the primary waste processing skid and improved the efficiency of the primary waste processing skid to remove radioactive nuclides from the liquid radioactive effluent prior to discharge.

c. Conclusions

The radiochemistry counting room was equipped with state-of-the-art analytical instrumentation. The analytical instrumentation was properly maintained, tested, and calibrated. Liquid and gaseous radioactive waste management systems were properly operated and more efficiently.

R2.2 Liquid and Gaseous Effluent Radiation Monitors

a. Inspection Scope (84750)

The liquid and gaseous effluent radiation monitors were inspected for operation, calibration, and reliability. The liquid and gaseous radioactive waste effluent radiation monitor source check, channel check, channel functional test, and channel calibration records were reviewed to determine compliance with the Offsite Dose Calculation Manual requirements for the time period January through December 1997.

b. Observations and Findings

All records and surveillance tests reviewed indicated that the liquid and gaseous radioactive waste effluent monitoring instrumentation was properly maintained, tested, and calibrated in compliance with the surveillance requirements specified in the Offsite Dose Calculation Manual.

During 1997, effluent radiation monitoring instrumentation was not out of service in excess of Offsite Dose Calculation Manual requirements.

c. Conclusion

All liquid and gaseous effluent radiation monitoring instrumentation was operable and properly maintained, tested, and calibrated.

R3 **Radioactive Waste Effluent 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)

Revisions to the procedures for sampling, analysis, and release of radioactive liquid and gaseous waste effluents were reviewed. Revision 1 to the Offsite Dose Calculation Manual was reviewed. The 1997 Annual Radioactive Effluent Release Report was reviewed.

b. Observations and Findings

The radioactive waste effluent program's implementing procedures described the responsibilities for collection and analyses of liquid and gaseous radioactive waste effluent samples. 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. The procedures were written with sufficient detail to effectively conduct the required radioactive waste effluent program activities.

The annual radioactive effluent release report for 1997 was written in the format described in NRC Regulatory Guide 1.21, Revision 1, June 1974, and contained the required information. Summaries of the quantities of radioactive liquid and gaseous effluents released to the environment, and their associated doses to members of the public were properly documented. A summary of the radioactive liquid and gaseous effluent releases and associated doses is presented in Attachment 3 to this report.

No unplanned releases of radioactive liquid or gaseous waste were reported during 1997.

c. Conclusions

Implementing procedures for the liquid and gaseous radioactive waste effluent management program provided proper guidance. Changes to the Offsite Dose Calculation Manual were properly documented. The annual radioactive effluent release report for 1997 was submitted in a timely manner and contained the required information.

R4 Staff Knowledge and Performance

a. Inspection Scope (84750)

Chemistry personnel were observed and interviewed to determine their knowledge of regulatory and Offsite Dose Calculation Manual requirements for the implementation of the liquid and gaseous radioactive waste effluent management program.

b. Observations and Findings

The inspector observed chemistry technicians perform some of the duties and responsibilities required for the implementation of the radioactive waste effluents program and determined that they were familiar with the requirements. Chemistry personnel including the radwaste supervisor and technicians were knowledgeable of the programmatic procedures and regulatory requirements and maintained a high level of performance. Batch radioactive liquid waste effluent releases and batch and continuous radioactive gaseous waste effluent releases were properly performed during 1997.

c. Conclusion

Chemistry personnel had an excellent understanding of the liquid and gaseous radioactive waste management procedures, Offsite Dose Calculation Manual, and regulatory requirements.

R5 Staff Training and Qualification

a. Inspection Scope (84750)

Training and qualification programs for chemistry technicians, radwaste operators, nuclear station operators involved in conducting the radioactive waste effluent management program were reviewed. Training and qualifications of the chemistry technicians, radwaste operators, and nuclear station operators were verified.

b. Observations and Findings

The inspector determined that appropriate training and qualification programs were implemented for the chemistry technicians and radwaste operators which included required formal classroom training and on-the-job training.

The inspector verified that 14 of the 17 chemistry technicians had completed the required training to be shift qualified and, therefore, were qualified to independently perform all routine radioactive waste effluent management program activities. Three recently hired chemistry technicians were in the process of completing their required training and qualifications to be shift qualified.

The inspector verified that the five radwaste operators and at least one nuclear station operator on each of the six operating shift crews were trained and qualified to conduct radioactive waste liquid and gaseous effluent batch releases and operate the radioactive waste processing equipment.

c. Conclusions

Training and qualification programs for chemistry technicians, radwaste operators, and nuclear station operators were implemented properly. The experience, training, and working knowledge of the chemistry and radwaste operations personnel met the training and qualification requirements.

R6 Chemistry Organization and Administration

a. Inspection Scope (84750)

The organization, staffing, and assignment of the radioactive waste effluent management program responsibilities were reviewed. Administrative and chemistry departmental procedures were reviewed for the assignment of responsibilities for the management and implementation of the radioactive waste effluent management program.

b. Observations and Findings

The inspector verified that the chemistry and radwaste operations organizations and staff were responsible for the implementation of the radioactive waste effluent management program.

The inspector determined that the chemistry and radwaste operations organizations were adequately staffed. The chemistry and health physics departments were recently combined and reorganized under one manager. The new chemistry/health physics department manager was fully qualified and had been the previous chemistry superintendent. A new, fully qualified chemistry radwaste supervisor was recently assigned under the new organization. Three new chemistry technicians were hired during the past year. The radwaste operations staff of five operators was supplemented with qualified nuclear station operators and had experienced little change during the past year.

c. Conclusion

The chemistry and radwaste operations organizations were properly staffed.

R7 Quality Assurance in Chemistry and Radiological Waste Effluents Activities

R7.1 Radioactive Waste Effluent Quality Assurance Program

a. Inspection Scope (84750)

The quality assurance program of the radioactive waste effluent management program activities was reviewed for scope, thoroughness of program evaluation, and timely followup of identified deficiencies. The review included:

- Quality assurance audit performed since January 1997
- Qualifications of auditors and technical specialists
- Chemistry department self-easements performed since January 1997

b. Observations and Findings

The review of the quality assurance biennial audit schedule revised on January 29, 1997, indicated that the environmental management audit, which included the radiological environmental monitoring program, Offsite Dose Calculations Manual and implementing procedures, and effluent and environmental monitoring program, was scheduled on a 12-month frequency in compliance with Technical Specifications 6.5.2.8.g and j. The audit of the Offsite Dose Calculation Manual and implementing procedures was scheduled on a 24-month frequency in compliance with Technical Specification 6.5.2.8.h.

The quality assurance audit of the radioactive waste effluent management program activities and the Offsite Dose Calculation Manual was performed during 1997. Qualified auditors and technical specialists from nuclear power facilities, who were knowledgeable

of radioactive waste effluent programs and Offsite Dose Calculation Manual requirements, performed this audit. The audit provided good oversight and evaluation of the licensee's performance in implementing the radioactive waste effluent management program.

The self-assessments conducted by the chemistry department of the activities required by the Offsite Dose Calculation Manual and the chemistry training program provided detailed observations and evaluations in those program areas. The self-assessments were an enhancement to the required quality assurance audit program.

No negative trends were identified during the review of program improvement request reports written since January 1987. It was noted that recommendations to prevent recurrence of issues identified in the program improvement requests were appropriate, and corrective actions were closed in a timely manner.

c. Conclusions

An effective quality assurance program was maintained. Management oversight of the radioactive waste effluent management program was good. The quality assurance audit of the radiological waste effluent management program activities provided good program evaluation. Good chemistry department self-assessments of the chemistry department's implementation of the radioactive waste effluent management program were performed and were an enhancement to the quality assurance audit program. Program improvement requests related to liquid and gaseous radioactive waste management program activities were closed in a timely manner.

R7.2 Quality Assurance Program for Contractors

a. Inspection Scope (84750)

The quality assurance audit program regarding contractors performing surveillance activities involving the radioactive waste effluent program and safety-related air cleaning ventilation systems was reviewed.

b. Observations and Findings

The licensee used a contractor laboratory to perform required radiochemistry analyses of radioactive waste effluent composite samples. The licensee used another contractor to perform laboratory charcoal adsorber analyses on the station's engineered-safety-feature air cleaning ventilation systems. The licensee obtained Nuclear Procurement Issues Committee audits regarding the contractors responsible for performing radiochemistry and charcoal adsorber analyses. The licensee used these audits to evaluate the performance of the contractors in performing the surveillance testing requirements and to retain their current status on the licensee's routine suppliers list. The inspector reviewed the audits performed on the contractors and determined that the audits were satisfactory to evaluate the contractor's abilities to perform the Technical Specification required testing and surveillance activities.

c. Conclusion

An effective performance evaluation program had been established for the contractor chemistry laboratories.

R8 Miscellaneous Radiological Protection and Chemistry Issues

R8.1 (Open) Inspection Followup Item 9617-01: Evaluation and Validation of Meteorological Monitoring Data

This item was discussed in NRC Inspection Report 50-482/96-17 and involved the lack of proper validation of meteorological data. The meteorological tower design engineer was not properly trained to evaluate and validate the meteorological data. No instructions or validation criteria had been developed to provide the frequency and methods to accurately validate the meteorological data. The licensee had previously relied on the plant computer's radiological release information system to monitor and validate the meteorological data. However, in 1990, the radiological release information system was replaced with the nuclear plant information system. The computer program used for meteorological data verification and validation that was formerly in the radiological release information system was not subsequently included in the nuclear plant information system.

The licensee reviewed the Updated Safety Analysis Report Table 2.3-29b, "Data Recovery Statistics," for March 1980 to March 1981, and the semiannual and Annual Radioactive Effluent Release Reports from July 1985 to December 1990 to assure that the meteorological data recovery percentage was greater than 90 percent. The 1995 and 1996 equipment out-of-service logs, Technical Specification surveillance tests, and computer down time were used to generate accurate meteorological data in the 1996 Annual Radioactive Effluent Release Report. The licensee was working to generate validation criteria which can be programmed into the nuclear plant information system computer to verify and validate meteorological tower instrument data.

The inspector determined that the licensee was in the process of testing the proposed meteorological data screening criteria on the 1997 meteorological tower instrumentation data and developing a computer program to perform the meteorological data validation. At the exit meeting on February 6, 1998, Mr. Clay Warren, Vice President, Operations/Chief Operating Officer, stated that the testing of the meteorological data screening criteria and development of a computer program to validate the meteorological tower instrumentation data would be completed by March 15, 1998. The licensee also stated that: (1) the meteorological tower instrumentation data for 1997 will be validated by March 15, 1998, using the tested criteria and computer program, (2) the meteorological validation program will be procedurally controlled, (3) the meteorological tower instrumentation data for the years 1990 through 1996 will be validated using the meteorological validation program, and (4) the results will be reported in the 1997 Annual Effluent Release Report as stated in the 1996 Annual Effluent Release Report. This inspection followup item will remain open pending the implementation of the

meteorological validation program and the verification and validation of the meteorological tower instrument data from 1990 through 1997.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at an exit meeting on February 6, 1998. The licensee acknowledged the findings presented. No proprietary information was identified. During the exit meeting, Mr Clay Warren, Vice President, Operations/Chief Operating Officer, stated that the meteorological validation program will be in effect, and the 1997 meteorological instrument tower data will be validated by March 15, 1998.

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

C. Warren, Vice President, Operations/Chief Operating Officer
M. Angus, Manager, Licensing and Corrective Action
M. Blow, Superintendent, Chemistry
S. Burkdoll, Supervising Instructor, Health Physics/Chemistry
R Butz, System Engineer, Radiation Monitors
V. Canales, Supervisor, Suppliers/Materials Quality/Purchasing and Material Services
T. Damashek, Supervisor, Licensing
R. Denton, Quality Specialist, Quality Evaluations
S. Devena, System Engineer
S. Koenig, Supervisor, Quality Evaluations
R. Hubbard, Superintendent, Operations
B. McKinney, Plant Manager
T. Morrill, Assistant to Vice President of Engineering
M. McMullen, Senior Engineer, Design Engineering
K. Mitchell, Chemistry Technician
R. Muench, Vice President, Engineering
W. Norton, Manager, Performance Improvement and Assessment
C. Palmer, Supervisor, Chemistry
R. Parker, Supervisor, Chemistry
G. Pendergrass, Supervising Engineer, Performance
J. Pippin, Manager, Training
C. Reekie, Engineering Specialist, Regulatory Compliance
L. Rockers, Chemistry Technician
S. Steen, Supervisor, Chemistry
H. Stubby, Supervisor, Technical Training
T. Wilson, Supervisor, Operations Treatment Systems

NRC

F. Ringwald, Senior Resident Inspector
J. Pellet, Chief, Operations Branch
G. Guerra, Radiation Specialist
T. McKernon, Operations Examiner
D. Graves, Senior Project Engineer

LIST OF INSPECTION PROCEDURES USED

IP 84750

Radioactive Waste Treatment and Effluent and Environmental Monitoring

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Discussed

50-482/9617-01 IFI Evaluation and Validation of Meteorological Monitoring Data

LIST OF DOCUMENTS REVIEWED

ORGANIZATION CHARTS

Chemistry/Health Physics Department - January 1998
Operating Crews - January 1998

TRAINING DOCUMENTATION

Chemistry department training records
Senior nuclear station operator training records
Raowaste operator training records

QUALITY ASSURANCE DOCUMENTS

Quality Evaluations Biennial Audit Schedule, Revision 13, dated January 29, 1997

Quality Assurance Audit

Quality Evaluations Audit Report K-477, "Environmental Management (REMP/ODCM/EEMP)," conducted April 10 through June 30, 1997

Vendor Audits

NUPIC Joint Quality Assurance Audit of NCS Corporation, conducted November 18-21, 1996

NUPIC Joint Quality Assurance Audit of Teledyne Brown Engineering Environmental Services, conducted April 21-24, 1997

NUPIC Joint Quality Assurance Audit of Flanders/CSC, conducted January 14-17, 1997

Self Assessments

Self Assessment Report SEL 97-008, "Assessment of Chemistry Actions Required by the ODCM, Technical Specifications, USAR, and NPDES Permit," dated March 7, 1997

Self Assessment Report SEL 97-019, "Self Assessment of the Chemistry Training Program," dated June 13, 1997

PROCEDURES

Administrative Procedures

- GEN 00-020 "Liquid Waste Processing," Revision 12, January 14, 1997
- AP 02-002 "Chemistry Surveillance Program," Revision 5, December 30, 1997
- AP 02-009 "Chemistry Group Organization," Revision 0, June 19, 1997
- AP 02E-001 "Chemistry Calibration Program," Revision 5, May 6, 1997
- AP 07B-001 "Radioactive Releases," Revision 3, February 17, 1997
- AP 16I-001 "I&C Group Calibration of Process Instrumentation and Special Maintenance," Revision 0, September 15, 1995
- AP 17C-009 "Nuclear Station Operator Qualifications and Responsibilities," Revision 3, May 2, 1997
- AP 17C-015 "Operations Watchstation Qualifications," Revision 4, March 26, 1996
- AP 17C-017 "Superintendent Chemistry Duties and Responsibilities," Revision 1, May 10, 1996
- AP 20A-003 "Audit/Surveillance Scheduling," Revision 2, February 12, 1997
- AP 20A-004 "Audit Procedure," Revision 3, March 13, 1997
- AP 30B-002 "Nuclear Station Operator (NSO) Requalification Training," Revision 3, August 15, 1997
- AP 30D-006 "Chemistry Technician Training Program," Revision 3, November 18, 1997

Administrative Instructions

- AI 07B-019 "Effluent Management System (EMS) Instructions for Liquid Release Permits," Revision 5, May 3, 1996
- AI 07B-020 "Instructions for Composite Preparation," Revision 6, August 16, 1997
- AI 07B-022 "Effluent Management System (EMS) Instructions for Gas Decay Tank Permits," Revision 3, February 3, 1997
- AI 07B-024 "Effluent Management System (EMS) Instructions for Containment Purge Permits," Revision 5, November 9, 1997
- AI 07B-026 "Effluent Management System (EMS) Instructions for Unit and Radwaste Vent Permits," Revision 3, August 22, 1997

- AI 07B-027 "Instructions for Updating the Effluent Management System (EMS) with Isotopic Composite Results," Revision 1, May 14, 1997
- AI 07B-028 "Instructions for Calculation of the Low Setpoint for Gaseous Effluent Monitors," Revision 0, February 22, 1996
- AI 07B-032 "Chemistry Radioactive Release Reports," Revision 1, September 12, 1996

Chemistry Procedures

- CHA RC-001 "Gross Alpha Measurement," Revision 0, May 31, 1996
- CHA RC-003 "Tritium Analysis," Revision 4, October 23, 1997
- CHA RC-004 "Gamma Isotopic Analysis," Revision 2, April 14, 1997
- CHA RC-005 "Determination of Gas Activity," Revision 3, February 25, 1997
- CHS AX-G01 "Sampling of the Unit and Radwaste Vents for Radioactive Gas and Tritium," Revision 2, April 18, 1997
- CHS AX-G02 "Exchange of Radioactive Gaseous Monitor Particulate and Iodine Filters," Revision 8, October 31, 1997
- CHS AX-G03 "Sampling of Building Atmosphere for Radioactive Gas and Tritium," Revision 2, June 19, 1997
- CHS RW-G01 "Sampling of the Waste Gas Decay Tanks," Revision 0, October 3, 1994
- CHS RW-L01 "Radwaste Building Local Liquid Sampling Instructions," Revision 4, December 12, 1997
- CHS SJ-144 "Radwaste Building Sample Station SJ-144 Sampling Instruction," Revision 5, October 31, 1997
- CHS TB-L01 "Turbine Building Local Liquid Sampling," Revision 9, December 9, 1997

Surveillance Tests

- STN SP-018 "Analog Channel Operational Test Liquid Radwaste Discharge Radiation Monitor HBRE18," Revision 8, July 10, 1996
- STN SP-045 "Analog Channel Operational Test Secondary Liquid Waste System Radiation Monitor HFRE45," Revision 5, February 22, 1996
- STN SP-052 "Analog Channel Operational Test Steam Generator Blowdown Discharge Radiation Monitor BMRE52," Revision 5, February 20, 1996
- STN SP-059 "Analog Channel Operational Test Turbine Building Drain Radiation Monitor LERE59," Revision 6, March 23, 1996

- STN SP-095 "Analog Channel Calibration Test High and Low TDS Discharge to Waste Water Treatment Radiation Monitor HFRE95," Revision 7, February 23, 1996
- STN SP-110A "Channel Calibration Radwaste Building Vent Radiation Monitor GHRE10A," Revision 2, February 11, 1994
- STN SP-110B "Channel Calibration Radwaste Building Vent Radiation Monitor GHRE10B," Revision 3, August 24, 1995
- STN SP-118 "Channel Calibration Liquid Radwaste Discharge Radiation Monitor HBRE18," Revision 2, October 31, 1995
- STN SP-122 "Channel Calibration Containment Purge System Radiation Monitor GTRE22," Revision 5, November 21, 1994
- STN SP-133 "Channel Calibration Containment Purge System Radiation Monitor GTRE33," Revision 4, December 9, 1994
- STN SP-145 "Channel Calibration Secondary Liquid Waste Radiation Monitor HFRE45," Revision 3, December 15, 1995
- STN SP-152 "Channel Calibration Steam Generator Blowdown Discharge Radiation Monitor BMRE52," Revision 1, November 10, 1995
- STN SP-158 "Channel Calibration Turbine Building Effluent Radiation Monitor LERE59," Revision 2, December 8, 1995
- STN SP-195 "Channel Calibration Hi/Lo TDS Discharge to Waste Water Treatment Radiation Monitor HFRE95," Revision 2, November 30, 1995
- STS IC-474B "Channel Calibration Unit Ventilation System Radiation Monitor GTRE21B," Revision 7, August 24, 1995
- STN CH-011 "Calibration of the Particulate Detector for Gaseous Monitors," Revision 1, July 18, 1991
- STN CH-012 "Calibration of the Iodine Detector for Gaseous Monitors," Revision 1, July 23, 1991
- STN CH-013 "Calibration of the Gaseous Detector for Gaseous Radiation Monitors," Revision 2, February 19, 1992

MISCELLANEOUS DOCUMENTS

Selected Liquid and Gaseous Radioactive Waste Batch Release Permits

Engineered-safety-feature air cleaning systems surveillance test records

Annual Operating Radioactive Effluent Report - 1996

AP 07B-003 "Offsite Dose Calculation Manual," Revision 1, January 19, 1998