APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report Nos. 50-445/92-18; 50-446/92-18

Operating License No. NPF-87

Construction Permit No. CPPR-127

Licensee: TU Electric
Skyway Tower
400 North Olive Street, L.B. 81
Dallas, Texas 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES)

Inspection At: CPSES Site, Glen Rose, Somervell County, Texas

Inspection Conducted: May 18-22, 1992

Inspectors: L. T. Ricketson, P.E., Senior Radiation Specialist
J. B. Nicholas, Ph.D., Senior Radiation Specialist

Approved: for J. Blair Nicholas 6/26/92
Blaine Murray, Chief, Facilities Inspection Programs Section — Date

Inspection Summary

Inspection Conducted May 18-22, 1992 (Report 50-445/92-18; 50-446/92-18)

Areas Inspected: Routine, unannounced inspection of the Unit 1 programs for liquid and gaseous radioactive waste management; air cleaning systems testing; reactor coolant and secondary water chemistry controls; and a preoperational inspection of the Unit 2 liquid, gaseous, and solid radioactive waste systems and the plant systems affecting water chemistry.

Results: Within the areas inspected, no violations or deviations were identified. The following are the inspection results for Units 1 and 2.

Unit 1

- The quality assurance audit of the liquid and gaseous effluent program was comprehensive and had utilized technically knowledgeable personnel as team members.

- The liquid and gaseous radioactive waste effluent programs received little attention in the form of surveillances.
- Little attention was given by quality assurance to the auditing of the operations and testing of the air cleaning systems.
- The radioactive waste effluent management program was well implemented.
- Good procedures had been established for the radioactive waste effluent management program.
- A good air cleaning systems testing program had been implemented.
- Semiannual effluent release reports were timely and their format followed regulatory guidance.
- Reactor coolant and secondary water chemistry water quality data did not indicate any excessive chemicals or radioactivity which would have caused an adverse affect on the liquid radioactive waste effluents.

Unit 2

- The liquid radioactive waste processing system construction was near completion. Preoperational tests were being written and approved for testing the liquid waste processing system.
- Primary and secondary water sampling systems were in their final stages of construction.
- Liquid process instrumentation had been installed, but it had not been tested and calibrated.
- Sampling procedures to operate the various water system sampling panels were written and approved.
- The postaccident sampling system reactor coolant and containment air sample modules were missing numerous parts. A preoperational test was written and approved and was scheduled to be performed during hot functional testing.
- Procedures concerning operation of the liquid, gaseous, and solid radwaste systems had been written and approved.
- The gaseous and solid radioactive waste effluent processing systems were common to both Units 1 and 2 and were installed and operational. No preoperational tests were planned for the common components during the Unit 2 startup.
- All gaseous radioactive waste effluent monitors were common to both Units 1 and 2, and they were calibrated and operational.

- Good water chemistry and radiochemistry programs had been established.
- Chemistry staff had been supplemented with qualified contract personnel to support Unit 2 preoperational testing and startup.
- Water chemistry control procedures were written and approved. Unit 2 preoperational water chemistry control program was properly implemented.
- Construction of the Unit 2 plant systems affecting water chemistry was completed. Preoperational tests had been written and scheduled to be performed on the various systems.

DETAILS

1. PERSONS CONTACTED

TU Electric

*D. M. McAfee, Quality Assurance Manager
*R. P. Baker, Licensing Compliance Manger
*M. R. Blevins, Nuclear Overview Director
R. L. Brackeen, Instruments and Controls Superintendent, Unit 2
D. R. Christensen, Heating, Ventilation, and Air Conditioning Systems Engineer
K. E. Cooper, Staff Chemist, Unit 2
N. S. Cowling, Chemistry Technician, Unit 1
J. R. Crabtree, Startup Engineer, Unit 2
R. Dern, System Test Engineer, Unit 2
*J. M. Edwards, Radwaste Operations Supervisor
D. H. Evans, Staff Chemist, Unit 2
*R. E. Fishencord, Radiation Protection Supervisor
*E. T. Floyd, Staff Health Physicist
*J. H. Greene, Licensing Engineer, Unit 2
N. S. Harris, Licensing Engineer, Unit 1
C. Henton, Balance of Plant Startup Lead, Unit 2
J. L. Hill, Staff Chemist, Unit 1
T. A. Hope, Licensing Manager, Unit 2
D. C. Kay, Technical Support Supervisor
M. T. McVean, Heating, Ventilation, and Air Condition Systems Engineer
*M. W. Mitchum, Instruments and Controls Supervisor, Unit 1
G. B. Moore, Chemistry Supervisor, Unit 1
G. G. Nichols, Staff Chemist, Unit 1
C. A. Oakley, Nuclear Steam Support System Startup Lead, Unit 2
G. Ondriska, Preoperational Procedures/Results Programs Superintendent, Unit 2
R. E. Parsons, Instruments and Controls Startup Lead, Unit 2
A. Pietrovich, Nuclear Steam Support System Startup Engineer, Unit 2
B. Pineda, Radwaste Operator
*R. J. Prince, Radiation Protection Manager
*G. H. Ruszala, Radwaste Contractor
*E. J. Schmitt, Independent Safety Engineering Group Manager
*J. M. Stevens, Acting Chemistry and Environmental Manager
R. L. Theimer, Chemistry Supervisor, Unit 2

CASE

*O. L. Thero, Consultant

NRC

W. B. Jones, Senior Resident Inspector, Unit 1
*D. N. Graves, Senior Resident Inspector, Unit 2

*Indicates those present during the exit meeting on May 22, 1992.

2. UNIT 1 RADIOACTIVE WASTE SYSTEMS (84750)

The Unit 1 liquid and gaseous radioactive waste management, effluent monitor calibration, air cleaning unit testing, and reactor coolant and secondary water chemistry control programs were reviewed to determine compliance with Technical Specifications 3/4.3.3.4, 3/4.3.3.5, 3/4.7.7, 3/4.7.8, 3/4.11.1, 3/4.11.2, 6.8, and 6.9.1.6; and agreement with commitments in Chapters 1 and 11 of the Final Safety Analysis Report and the recommendations of industry standard ANSI/ASME N510-1980 and Regulatory Guides 1.21, 1.52, and 1.140.

2.1 Audits and Appraisals

The inspectors reviewed Quality Assurance Audit Report QAA-91-136, "Effluent and Environmental Monitoring Program." The inspectors determined that the audit report provided a comprehensive review of the radioactive waste management program. This quality assurance audit also included a review of the environmental monitoring program which was inspected during NRC Inspection 50-445/91-65; 50-446/91-65. The inspectors noted that a technical specialist from another nuclear power facility was utilized on the audit team. The audit team determined that the radioactive waste effluent program was being implemented well and offered only one recommendation for improvement. No response to the audit recommendation was required.

The inspectors also reviewed Quality Assurance Audit QAA-91-130, "Technical Specifications," which included a portion of the air cleaning system testing program. The audit confirmed that Technical Specification 4.7.7 requirements, dealing with the control room ventilation system, had been met. Licensee representatives stated that Technical Specification 4.7.8, dealing with the engineered safety feature filtration trains in the primary plant ventilation system will be audited in the fourth year (from fuel load) of the audit cycle; therefore, the two engineered safety feature ventilation systems would be checked every 6 years. Non-engineered safety feature filtration units were included on the list of quality assurance systems (Table 17A-1 of the Final Safety Analysis Report); however, no quality assurance audit had been performed concerning the testing of these units. Licensee representatives stated that provisions for auditing the non-engineered safety feature air filtration units were included in the operations master quality assurance audit plans for both radiation protection and test controls audits, but that particular portion had not yet been performed.

The inspectors reviewed surveillances performed concerning liquid and gaseous radioactive effluents. The inspectors identified that only one surveillance dealing with the radioactive waste liquid and gaseous effluent programs was performed in 1991. This surveillance had been reviewed during the previous NRC inspection of this area conducted in September 1991. One surveillance was performed thus far in 1992, and it resulted from a reactive investigation of a radioactive waste liquid effluent release which had a higher than normal projected thyroid dose. The inspectors discussed the relative scarcity of surveillances with licensee representatives who stated that the surveillance

program for 1992 included one surveillance for each of the radioactive waste liquid and gaseous effluent programs and added that the surveillance program was flexible enough to expand the surveillance effort if problems were identified.

2.2 Changes

Licensee representatives stated that there were no changes in the equipment, facilities, or instrumentation dealing with the liquid and gaseous radioactive waste systems since the previous NRC inspection of this area. Radwaste systems operations procedures were reconfigured to make them easier to use. Construction was underway on two 30,000 gallon liquid radioactive waste holdup tanks located outside, next to the fuel handling building. Construction of the tanks is expected to be completed in August or September 1992. Licensee representatives discussed with the inspectors proposed changes to the Final Safety Analysis Report. See paragraph 2.3.1.

2.3 Implementation of Liquid and Gaseous Radioactive Waste Program

2.3.1 Effluents

The radioactive waste management program consisted of activities performed by the radwaste operations, radiation protection, and chemistry departments. The inspectors determined that personnel from these departments functioned well together.

The inspectors reviewed selected components of the liquid and gaseous waste systems and confirmed that the components and systems were as described in the Final Safety Analysis Report. Selected radiation protection, radwaste, and chemistry procedures were reviewed, and it was determined that the procedures provided good guidance to individuals implementing the liquid and gaseous radioactive waste effluent programs.

The inspectors reviewed the radioactive waste liquid and gaseous release permit program and determined that proper sampling and analyses were performed prior to release, that the release permits were properly reviewed by the appropriate licensee personnel, that the proper instrument setpoints were selected, and that Technical Specification radioactivity limits and offsite dose limits were not exceeded.

The inspectors reviewed the semiannual effluent release report filed since the previous NRC inspection of this area and noted that there had been no abnormal releases during the period of July 1 through December 31, 1991. Licensee representatives stated that two abnormal gaseous releases would be reported in the upcoming report covering the period of January 1 through June 30, 1992. Station problem reports were filed on these two releases. Corrective actions were implemented, and no Technical Specification was exceeded.

The 1991 semiannual effluent release reports documented that the licensee released 460 Curies of tritium in the form of liquid effluent. Table 11A-1 of the Final Safety Analysis Report listed the expected liquid tritium release to

be 80 Curies for the two unit operation per year. The licensee formed a task force in 1991 to evaluate this situation. The inspectors interviewed selected representatives of the task force regarding their findings and conclusions. Licensee representatives stated that they now think the early figures, which currently appear in the Final Safety Analysis Report were unreasonably low. They referenced tritium releases at two other similar pressurized water reactors in Region IV, which they had contacted for information, to support this conclusion. Licensee representatives acknowledged a change in philosophy in the operation of certain radioactive waste processing systems and components, such as the evaporators, but added that this change was in keeping with the state-of-the-art in the industry. The task force planned to submit its findings and an amendment proposal to Chapter 11.2 of the Final Safety Analysis Report to the Station Operations Review Committee for its approval. The amendment will reflect the current plant design and operation.

2.3.2 Instrumentation

The inspectors met with the Instruments and Controls personnel responsible for the calibration of the radioactive waste effluent radiation monitors. The licensee personnel stated that they had not identified any generic or recurrent maintenance problems with the radiation monitors. The inspectors reviewed calibration records for selected radiation monitors and determined that the calibration requirements were met. The inspectors also observed selected radiation monitors in operation in the plant and did not identify any deviations from the Final Safety Analysis Report or circumstances which would prevent the radiation monitors from functioning as designed.

2.3.3 Air Cleaning Systems

The inspectors reviewed the results of the testing of the high efficiency particulate air filters and charcoal adsorbers in the control room heating ventilation and air conditioning system and the engineered safety feature filtration units of the primary plant ventilation system.

The inspectors confirmed that the systems' tests conformed to the requirements of Technical Specifications 4.7.7 and 4.7.8, respectively. The tests of the high efficiency particulate air filters and charcoal adsorbers were performed by a vendor under the supervision of the licensee's Performance and Test Group. Control room logs confirmed that operational tests of the systems were performed as required.

The inspectors noted that the licensee had developed a Technical Evaluation (TE-SG-90-689) which supplied guidance in determining when Technical Specification surveillances were necessary following painting, fire (smoke), or chemical release. The technical evaluation was based on the guidelines developed by Diablo Canyon Power Plant as presented at the 19th Department of Energy/NRC Nuclear Air Cleaning Conference. The guidance was modified by the licensee to address the licensee's more stringent Technical Specification methyl iodide requirements, and the guidance quantified circumstances necessitating high efficiency particulate air filter and charcoal adsorber testing.

2.3.4 Reactor Coolant and Secondary Water

The inspectors reviewed reactor coolant and secondary water chemistry data for 1991 and 1992 to determine compliance with Technical Specification requirements. The review included an inspection of the recorded trends of the reactor coolant chemistry data and the secondary water quality data. The records reviewed indicated that all required sampling and analyses were performed at the frequencies required by the Technical Specifications and that the analytical results did not indicate excessive chemicals or radioactivity which would influence the chemical composition or radioactivity of the liquid waste effluents discharged.

No violations or deviations were identified.

2.4 Conclusions

The quality assurance audit of the radioactive waste liquid and gaseous effluent programs was comprehensive and used technically knowledgeable personnel as audit team members. The liquid and gaseous radwaste programs received little attention in the form of surveillances. Little attention was given by quality assurance to the auditing of operations and testing of the air cleaning systems.

The radioactive waste effluent management program was well implemented and performed excellently in ensuring compliance with the Offsite Dose Calculation Manual and Technical Specification limits.

Good procedures had been established for the radioactive waste effluent management program.

A good air cleaning systems testing program had been implemented.

Semiannual effluent release reports were timely and their format followed regulatory guidance.

Reactor coolant and secondary water chemistry water quality data were in compliance with Technical Specification requirements and did not indicate excessive chemicals or radioactivity which would have caused an adverse affect on the liquid radioactive waste effluents.

3. UNIT 2 LIQUIDS AND LIQUID WASTES (84523)

The inspectors reviewed the Unit 2 liquid radioactive waste effluent program to determine whether the components and the installation of the liquid waste processing system were as described in Chapter 11 of the Final Safety Analysis Report; whether preoperational tests had been performed on the liquid radioactive waste systems to verify operability; whether the radioactive waste effluent and process radiation monitoring program was adequate and conformed to the Final Safety Analysis Report description; and whether preoperational, startup, and operational procedures had been written and approved.

3.1 Liquid Waste System Construction and Installation

The liquid radioactive waste effluent system was mostly common to both Units 1 and 2 and was installed in the plants' common auxiliary building. The liquid radioactive waste effluent system was operational except for floor drain tank No. 2 and the piping required to connect floor drain tank No. 2 to the common liquid waste processing system. Floor drain tank No. 2 was installed in the Unit 2 safeguards building with adequate shielding and was currently modified with auxiliary pumps and piping to support preoperational flushing of the various Unit 2 water systems. Preoperational Test 2CP-PT-41-01, "Liquid Waste Processing Channel 'B'," was being drafted and was scheduled for Joint Test Group approval on June 12, 1992. The performance of the Preoperational Test 2CP-PT-41-01 was scheduled to start on July 12, 1992. The preoperational testing was to include the verification of the floor drain tank No. 2 volume and the determination of the floor drain tank No. 2 recirculation time to provide a representative sample of the floor drain tank contents. The Unit 2 reactor coolant drain tank was installed and system flushing was completed. Preoperational Test 2CP-PT-41-02, "Reactor Coolant Drain Tank," was approved by the Joint Test Group on May 1, 1992, and preoperational testing of the reactor coolant drain tank system began on May 5, 1992. Preoperational Test 2CP-PT-23-01, "Radioactive Vents and Drains," was being drafted and was scheduled for Joint Test Group approval on May 19, 1992, but had not been approved by the Joint Test Group at the time of this inspection. The performance of the Preoperational Test 2CP-PT-23-01 was scheduled to start August 19, 1992.

The following incompleted tests will be reviewed during a future inspection after they are completed.

- 2CP-PT-41-01, "Liquid Waste Processing Channel 'B'"
- 2CP-PT-41-02, "Reactor Coolant Drain Tank"
- 2CP-PT-23-01, "Radioactive Vents and Drains"

3.2 Liquid Leakage, Overflow, and Spillage

The inspectors verified that the Unit 2 floor drain tank No. 2 and the various other water system tanks had been installed in rooms which had been constructed to prevent and collect leakage, overflows, and spillage. The various Unit 2 tank rooms were inspected, and the inspectors verified that all tank rooms were constructed with a raised threshold to contain leakage or overflow water from the tanks. All tank rooms were constructed with floor drains to a sump or with a sump and a pump installed within the room to manage any tank leakage or overflow.

3.3 Liquid Sampling

The inspectors inspected the Unit 2 primary sampling area. The primary sampling system brings samples from the reactor coolant system and auxiliary water systems to a common location on the Unit 2 Grab Sample Hood Assembly,

CP2-PSMEPS-01, located in the Unit 2 safeguards building. Grab sample provisions had been provided for both pressurized and nonpressurized samples of the various primary water systems. At the time of the inspection, the Unit 2 Grab Sample Hood Assembly and associated process instrumentation were installed, but construction was not completed, and several design modifications were being made to CP2-PSMEPS-01 as a result of Unit 1 operational experience. All sample lines had not been flushed and verified, and the process instrumentation had not been tested and calibrated.

The inspectors also inspected the Unit 2 Steam Generator Blowdown Sample Panel, CP2-PSMEPS-03. The Unit 2 Steam Generator Blowdown Sample Panel was still under construction and approximately 80 percent complete. All sample lines had not been flushed and verified. All major equipment and process instrumentation were installed. However, the conductivity instruments and sodium analyzers had not been tested and calibrated.

The inspectors inspected the various Unit 2 secondary chemistry sampling areas. The sampling areas included those for the secondary water support systems, condenser, and condensate polishing system. Grab sample provisions had been provided for all sample types on each of the sampling panels so as to perform water quality laboratory analyses for the control of the secondary water chemistry. The various Unit 2 secondary water sampling panels and associated process instrumentation were installed and final construction was near completion. All sample lines had not been flushed and verified. The necessary process instrumentation including silica, sodium, hydrazine, dissolved oxygen, conductivity, and pH analyzers had been installed at the various Unit 2 secondary water sampling panels but had not been tested and calibrated.

The licensee had developed sampling procedures to operate the sampling panels for the various water systems in Unit 1 and these procedures were common for both Units 1 and 2 operation. The licensee's approved procedures had been reviewed during previous NRC inspections and provided the necessary information required for obtaining a representative sample from the various sample points.

The inspectors inspected the sample sink for sampling the liquid effluent monitor tanks and laundry waste holdup tanks which was located in the auxiliary building and common to both Units 1 and 2. The monitor tank and laundry holdup tank sampling equipment was found to be satisfactory.

The following incompleted tests and calibrations will be reviewed during a future inspection after they are completed.

- Complete checkout and testing of the Unit 2 Grab Sample Hood Assembly and verification of all sample points.
- Complete checkout and testing of the Unit 2 Steam Generator Blowdown Sample Panel and verification of all sample points.
- Complete checkout and testing of the various secondary water systems sampling panels and verification of all sample points.

- Complete testing and calibration of all the process analyzers.

- Performance of the Preoperational Test 2CP-PT-59-02, "Process Sampling System," and approval of the test results by the Joint Test Group.

The inspectors reviewed the status of the Unit 2 postaccident sampling system. The postaccident sampling system remote operating modules for the reactor coolant sample (CP2-PSMEPS-8A, CP2-PSMEPS-8B, and CP2-PSMEPS-8C) were installed and had been turned over to TU for testing, calibration, and operation. The containment air sample module, CP2-PSMEPS-06; the postaccident sampling system reactor coolant sample module, CP2-PSMEPS-04; and the postaccident sampling system reactor coolant system flush module were installed. However, it was noted that numerous parts had been taken from the Unit 2 postaccident sampling system sample modules to support the operation of the Unit 1 postaccident sampling system. Replacement parts had been ordered. The Postaccident Sampling System Preoperational Test 2CP-PT-59-01 was being drafted and was scheduled for Joint Test Group approval on June 22, 1992. The performance of the Preoperational Test 2CP-PT-59-01 was scheduled to start on July 1, 1992, during hot functional testing.

The following items concerning this system will be reviewed during a future inspection.

- Replacement of the missing parts in the postaccident sampling system sampling modules to make the modules operational.

- Completion of the Preoperational Test 2CP-PT-59-01, "Postaccident Sampling System," and the approval of the test results by the Joint Test Group.

3.4 Test Program for the Liquid Waste System

The inspectors determined that a preoperational test program for the Unit 2 liquid waste system was being developed. Since most of the radioactive waste liquid processing system was common to both Units 1 and 2 and had already been tested, inspected, and operational, the only liquid waste system in Unit 2 to be tested was floor drain tank No. 2 and the associated piping required to connect floor drain tank No. 2 to the common liquid waste processing system. The licensee was in the process of drafting the Preoperational Tests 2CP-PT-41-01, "Liquid Waste Processing Channel 'B'," and 2CP-PT-23-01, "Radioactive Vents and Drains," for Joint Test Group approval.

3.5 Test Results Completion for the Liquid Waste System

The preoperational tests of the Unit 2 liquid waste system had not been performed at the time of the inspection. The preoperational test results of the Unit 2 liquid waste system will be reviewed during a future NRC inspection after they have been approved by the Joint Test Group.

3.6 Liquid Process and Effluent Monitors

The inspectors determined that most of the liquid process and effluent radiation monitors for the liquid radioactive waste system were common to both Units 1 and 2, and that they were installed, tested, calibrated, and operational in the common auxiliary building. The results of this Unit 1 operational inspection of the liquid process and effluent radiation monitors were discussed in paragraph 2.3.2 of this inspection report. The liquid process and effluent radiation monitors solely in Unit 2 included the turbine building sump monitor, 2RE-5100, and the station service water system monitors, 2RE-4269 and 2RE-4270. The inspectors verified that these radiation monitors were installed and had been turned over from construction to startup for preoperational testing and calibration. Preoperational Test 2CP-PT-70-01, "Radiation Monitoring System," was being drafted and was scheduled for Joint Test Group approval on June 6, 1992. The performance of the Preoperational Test 2CP-PT-70-01 was scheduled to start on July 6, 1992. The Unit 2 liquid effluent radiation monitors required testing and an initial primary calibration with radioactive liquid standards traceable to the National Institute of Standards and Technology over the full range of the instruments.

The following incompleted test and calibrations will be reviewed during a future inspection after they are completed.

- Completion of the Preoperational Test 2CP-PT-70-01, "Radiation Monitoring System," and the approval of the test results by the Joint Test Group.

- Completion of the initial primary calibration of the Unit 2 turbine building sump monitor, 2RE-5100 and the Unit 2 station service water system monitors, 2RE-4269 and 2RE-4270.

3.7 Programs, Plans, and Procedures for the Liquid Waste and Effluent Systems

The liquid radioactive waste effluent system was mostly common to both Units 1 and 2 and had an established program and approved implementing procedures which had been reviewed during previous NRC inspections of Unit 1 operation and were reviewed and discussed in paragraph 2.3.1 of this inspection report. The inspectors noted that Radwaste Systems Procedure RWS-103, "Drain Channel B," had been revised to include instructions for the recirculation of floor drain tank No. 2 and the transferring of its contents to floor drain tank No. 3 in the auxiliary building in anticipation of incorporating floor drain tank No. 2 into the normal operation of the radioactive liquid waste effluent system. Radwaste Systems Procedure RWS-108, "Vents and Drains," was being drafted to provide comprehensive instructions for effluent discharges from all of the Units 1 and 2 discharge points including the turbine building sumps in each unit.

No violations or deviations were identified.

3.8 Conclusions

The Unit 2 liquid radioactive waste processing system construction was near completion, and the various components were being installed as described in the Final Safety Analysis Report. Preoperational tests were being written and approved for testing the Unit 2 liquid waste processing system and associated equipment. Some preoperational testing had been completed, and the remaining preoperational testing will be scheduled as components and system piping become available for startup from construction.

The primary and secondary water sampling systems were in their final stages of construction and design modifications, but all sample lines had not been flushed and verified. The process instrumentation had been installed, but it had not been tested and calibrated. Sampling procedures to operate the various water system sampling panels were written and approved for both Units 1 and 2. A preoperational test was being written to test the Unit 2 process sampling systems, and it was scheduled to be performed during hot functional testing.

The postaccident sampling system reactor coolant and containment air sample modules were missing numerous parts. A preoperational test was written and approved and was scheduled to be performed during hot functional testing.

Most of the liquid process and effluent radiation monitors for the liquid radioactive waste system were common to both Units 1 and 2. The Unit 2 turbine building sump monitor and the Unit 2 station service water system monitors were installed and waiting preoperational testing and calibration. A preoperational test was being written to test the Unit 2 radiation monitoring system, and it was scheduled to be performed after hot functional testing.

A radwaste systems procedure was written and approved, and it included instructions for the processing of liquid radioactive waste generated from the operation of both Units 1 and 2.

Preoperational test results will be reviewed during a future NRC inspection after they have been approved by the Joint Test Group.

4. UNIT 2 GASEOUS WASTE SYSTEM (84524)

The inspectors reviewed the Unit 2 gaseous radioactive waste effluent program to determine whether the gaseous waste system was installed as described in Chapter 11 of the Final Safety Analysis Report; whether preoperational tests had been performed on the gaseous waste systems to verify operability; whether the gaseous radioactive waste effluent and process radiation monitoring program was adequate and conformed to the Final Safety Analysis Report description; whether procedures, instrumentation, and equipment to sample and handle gases and particulates were adequate and operational under accident conditions; and whether preoperational, startup, and operational procedures had been written and approved.

4.1 Gaseous Waste System Construction and Installation

The gaseous radioactive waste effluent processing system including the waste gas compressors, waste gas decay tanks, and hydrogen recombiners was common to both Units 1 and 2 and was installed and operational in the common auxiliary building except for the piping required to connect the gas spaces from the Unit 2 volume control tank, reactor coolant drain tank, and the primary process sampling system to the common suction header of the waste gas compressors. Preoperational Test 2CP-PT-23-01, "Radioactive Vents and Drains," was being drafted and was scheduled for Joint Test Group approval on May 19, 1992, but had not been approved by the Joint Test Group at the time of the inspection.

4.2 Gaseous Sampling

The gaseous radioactive waste effluent sampling system for normal operation was common to both Units 1 and 2 and was installed and operational in the common auxiliary building. This sampling system was inspected during previous NRC inspections of Unit 1 operation and was found to be satisfactory. Sampling procedures had been written, approved, and implemented to obtain representative samples from the gaseous radioactive waste effluent processing system during normal operation.

The status of the Unit 2 postaccident sampling system was discussed in paragraph 3.3 of this inspection report. The Unit 2 postaccident sampling system containment air sample module, CP2-PSMEPS-06 was installed, but it was missing several components which were on order.

4.3 Test Program for the Gaseous Waste System

All the major components of the gaseous radioactive waste effluent processing system were installed and operational in the common auxiliary building. These components had been inspected during previous NRC inspections of Unit 1 operation. No preoperational tests were planned for these common components during the startup of Unit 2. Piping in the Unit 2 safeguards building required to connect the gas spaces of the various Unit 2 systems to the common suction header of the waste gas compressors will be tested in conjunction with the specific individual system tests prior to system connection to the common waste gas header in the auxiliary building. Most of this piping preoperational testing was included in the Preoperational Test 2CP-PT-23-01, "Radioactive Vents and Drains."

4.4 Test Results Completion for the Gaseous Waste System

The preoperational tests of the Unit 2 gaseous waste system piping had not been performed at the time of the inspection. The preoperational test results of the Unit 2 gaseous waste system piping will be reviewed during a future NRC inspection after they have been approved by the Joint Test Group.

4.5 Proces and Effluent Radiation Monitoring

All gaseous radioactive waste effluent radiation monitors were common to both Units 1 and 2 and were installed, tested, calibrated, and operational in the common auxiliary building. The results of this Unit 1 operational inspection of the gaseous effluent radiation monitors were discussed in paragrapn 2.3.2 of this inspection report.

4.6 Programs, Plans, and Procedures for the Gaseous Waste and Effluent Systems

The gaseous radioactive waste effluent system was common to both Units 1 and 2 and had an established program and approved implementing procedures which had been reviewed during previous NRC inspections of Unit 1 operation and were reviewed and discussed in paragraph 2.3.1 of this inspection report. The inspectors noted that Radwaste Systems Procedure RWS-201, "Gaseous Waste Processing System," included instructions for processing gaseous radioactive waste generated from both Units 1 and 2 operation.

No deviatic or violations were identified.

4.7 Conclusions

The gaseous radioactive waste effluent processing system was common to both Units 1 and 2 and was installed and operational. Sampling procedures were written and approved to obtain representative samples during normal operation. Since all major components of the gaseous radioactive waste effluent processing system were common, installed, and operational, no preoperational tests were planned for the common components during the Unit 2 startup. Unit 2 safeguards building piping required to connect the gas spaces of the various Unit 2 systems to the common suction header of the waste gas compressors will be tested in conjunction with the performance of the individual system preoperational tests prior to the individual system connections to the common waste gas processing system.

Preoperational tests of the Unit 2 gaseous waste system piping had not been performed. The preoperational test results will be reviewed during a future NRC inspection after the results have been approved by the Joint Test Group.

All gaseous radioactive waste effluent radiation monitors were common to both Units 1 and 2, and they were calibrated and operational.

A radwaste systems procedure was written and approved, and it included instructions for the processing of gaseous radioactive waste generated from the operation of both Units 1 and 2.

5. UNIT 2 SOLID WASTES (84522)

The inspectors reviewed the Unit 2 solid radioactive waste management program to determine whether the solid waste systems were installed as described in Chapter 11 of the Final Safety Analysis Report and whether preoperational tests had been performed on the solid waste systems to verify operability.

The solid radioactive waste management systems were common to both Units 1 and 2, and all major components were installed and operational in the common auxiliary building. These systems had been inspected during previous NRC operational inspections of Unit 1 and were found to be satisfactory. It was determined that there were no radioactive pathways from Unit 2 to the common solid radioactive waste management systems. Radwaste Systems

Procedures RWS-302, "Nuclear Steam Support System Spent Resin Handling System," and RWS-304, "Steam Generator Blowdown Spent Resin Handling System," had been revised to include instructions for processing Unit 2 spent resins.

No violations or deviations were identified.

5.1 Conclusions

The solid radioactive waste processing systems were common to both Units 1 and 2. No preoperational tests were planned for the common components during Unit 2 startup.

Radwaste systems procedures were written and approved, and they included instructions for processing Unit 2 spent resins.

6. UNIT 2 REACTOR WATER CHEMISTRY CONTROL AND CHEMICAL ANALYSIS (79501)

The inspectors reviewed the Unit 2 water chemistry control program to determine the licensee's capability to control and make chemical measurements necessary to maintain the chemical quality of Unit 2's process water. The water chemistry control program was common to both Units 1 and 2. This program had been inspected during previous Unit 1 NRC operational inspections and found to be satisfactory.

6.1 Establishment of a Water Chemistry Control Program

The inspectors had previously reviewed the Unit 1 operational water chemistry control program and had determined that the licensee had established an effective and well documented program for controlling the quality of primary coolant water and secondary water. The licensee's water chemistry control program included written and approved management policies and procedures to implement the policies. These management policies and procedures assigned the authority and responsibilities to implement and maintain the Units 1 and 2 water chemistry control program to the Chemistry and Environmental department. To support Unit 2 startup and operation, the licensee had increased the chemistry staff by hiring two contract staff chemists, 12 contract chemistry

technicians, and two contract clerical staff. The 12 contract chemistry technicians were divided into 2-person shift crews to maintain a six shift rotation schedule. The increased Chemistry and Environmental department staffing appeared to be adequate to support Unit 2 preoperational systems flushing, testing, and startup.

6.2 Implementation of the Water Chemistry Control Program

The inspectors' review of the plant's water chemistry control program indicated that the licensee had approved administrative procedures, surveillance procedures, chemistry control procedures, instrument calibration and quality control procedures, and analytical procedures. A review of selected procedures indicated that the licensee had sufficient programmatic procedures to meet Final Safety Analysis Report commitments and Technical Specification requirements. The Unit 2 preoperational and startup water chemistry control program was being implemented in accordance with existing procedures.

6.3 Water Sampling

The Unit 2 primary and secondary water sampling systems were discussed in paragraph 3.3 of this inspection report.

No violations or deviations were identified.

6.4 Conclusions

The water chemistry and radiochemistry programs had been established and implemented in accordance with NRC requirements. The chemistry staff had been supplemented with qualified contract personnel to support Unit 2 preoperational testing and startup. Water chemistry control procedures were written and approved for both Units 1 and 2. The Unit 2 preoperational water chemistry control program was being implemented according to procedures.

7. UNIT 2 PLANT SYSTEMS AFFECTING PLANT WATER CHEMISTRY (79502)

The inspectors reviewed the licensee's status of the construction, installation, preoperational testing, and startup of the Unit 2's primary, secondary, and auxiliary water systems. The review included the condensate system, condensate polishing system, feedwater system, auxiliary feedwater system, service water system, chemical and volume control system, boron thermal regeneration system, and reactor coolant system.

7.1 Condensate System

The inspectors reviewed the status of the Unit 2 condensate system. The system had been cleaned and flushed, and the system was in operation to support flushing operations of other Unit 2 water systems. Chemicals had not been added and will not be added until just prior to acceptance testing. Preoperational Acceptance Test 2CP-AT-19-01, "Condensate System," was approved on April 23, 1992, by the Joint Test Group. The performance of the

Preoperational Acceptance Test 2CP-AT-19-01 was scheduled to be performed after hot functional testing.

The incompleted test will be reviewed during a future inspection after it is completed.

7.2 Condensate Polishing System

The inspectors reviewed the status of the Unit 2 condensate polishing system. The condensate polishing system contains five polishing vessels of which a minimum of two are necessary to support hot functional testing. The system had been cleaned and flushed, and the polishing vessels were left empty. A minimum of two vessels will be loaded with filters prior to and in support of hot functional testing. Preoperational Acceptance Test 2CP-AT-25-01, "Condensate Polishing," was being drafted and was scheduled for Joint Test Group approval on June 15, 1992. The performance of the Preoperational Acceptance Test 2CP-AT-25-01 was scheduled to be performed just prior to or during hot functional testing.

The incompleted test will be reviewed during a future inspection after it is completed.

7.3 Feedwater System

The inspectors reviewed the status of the Unit 2 feedwater system. The feedwater system had been cleaned and flushed up to the steam generators. The two feedwater pumps had been rebuilt, and the feedwater heaters had been isolated and placed in wet layup with hydrazine added. Preoperational Acceptance Test 2CP-AT-28-01, "Feedwater System," was being reviewed and was scheduled for Joint Test Group approval on May 30, 1992. The performance of the Preoperational Acceptance Test 2CP-AT-28-01 was scheduled to be performed during hot functional testing.

The incompleted test will be reviewed during a future inspection after it is completed.

7.4 Auxiliary Feedwater System

The inspectors reviewed the status of the Unit 2 auxiliary feedwater system. The auxiliary feedwater system had been cleaned and flushed including the condensate storage tank. The system was partially filled and placed in a standby condition. Preoperational Test 2CP-PT-37-01, "Auxiliary Feedwater System," was being reviewed and was scheduled for Joint Test Group approval on June 13, 1992. The performance of the Preoperational Test 2CP-PT-37-01 was scheduled to be performed prior to hot functional testing.

The incompleted test will be reviewed during a future inspection after it is completed.

7.5 Service Water System

The inspectors reviewed the status of the Unit 2 service water system. The service water system had been cleaned and flushed. The system was in service and available to support hot functional testing. Water chemistry was being maintained, and routine sampling and analyses were being performed. Preoperational Test 2CP-PT-04-01, "Service Water System," was being reviewed and was scheduled for Joint Test Group approval on June 9, 1992. The performance of the Preoperational Test 2CP-PT-04-01 was scheduled to be performed after hot functional testing.

The incompleted test will be reviewed during a future inspection after it is completed.

7.6 Chemical and Volume Control System

The inspectors reviewed the status of the Unit 2 chemical and volume control system. The chemical and volume control system had been cleaned and flushed. The system was dry and placed in a standby condition. Portions of the chemical and volume control system had been preoperationally tested. Resin had been installed in two of the three demineralizers to support hot functional testing. Preoperational Test 2CP-PT-49-01, "CVCS Seal Water Injection," was being reviewed and was scheduled for Joint Test Group approval on May 28, 1992. Preoperational Tests 2CP-PT-49-02, "Seal Water and Letdown Flow," and 2CP-PT-49-03, "CVCS Purification and Makeup," were written and approved by the Joint Test Group. The performance of the Preoperational Tests 2CP-PT-49-01, 2CP-PT-49-02, and 2CP-PT-49-03 was scheduled to be performed prior to or during hot functional testing.

The following incompleted tests will be reviewed during a future inspection after they are completed.

- Completion of the Preoperational Test 2CP-PT-49-01, "CVCS Seal Water Injection," and the approval of the test results by the Joint Test Group.

- Completion of the Preoperational Test 2CP-PT-49-02, "Seal Water and Letdown Flow," and the approval of the test results by the Joint Test Group.

- Completion of the Preoperational Test 2CP-PT-49-03, "CVCS Purification and Makeup," and the approval of the test results by the Joint Test Group.

7.7 Boron Thermal Regeneration System

The inspectors reviewed the status of the Unit 2 boron thermal regeneration system. The boron thermal regeneration system was undergoing cleaning and flushing. The five demineralizers had not been loaded with resin. Preoperational Test 2CP-PT-49-04, "Boron Thermal Regeneration System," was approved by the Joint Test Group on May 5, 1992. The performance of the

Preoperational Test 2CP-PT-49-04 was scheduled to be performed during hot functional testing.

The incompleted test will be reviewed during a future inspection after it is completed.

7.8 Reactor Coolant System

The inspectors reviewed the status of the Unit 2 reactor coolant system. The reactor coolant system had been cleaned, flushed, and swipe tested. The system was dry and placed in a standby condition. The system was scheduled to be filled to support hot functional testing. Preoperational Test 2CP-PT-55-01, "RCS Cold Hydro," was approved by the Joint Test Group on February 17, 1992, and performed on March 7, 1992. Preoperational Test 2CP-PT-55-02, "Hot Functional Test," was being reviewed and was scheduled for Joint Test Group approval on June 1, 1992. The performance of the Preoperational Test 2CP-PT-55-02 was scheduled to be performed prior to hot functional testing. Preoperational Test 2CP-PT-55-10, "Reactor Coolant System Inspection," had not been written and was scheduled for Joint Test Group approval on August 1, 1992. The performance of the Preoperational Test 2CP-PT-55-10 was scheduled to be performed August 31, 1992.

The following incompleted tests will be reviewed during a future inspection after they are completed.

- Approval of the test results by the Joint Test Group from the performance of the Preoperational Test 2CP-PT-55-01, "Reactor Coolant System Cold Hydro."

- Completion of the Preoperational Test 2CP-PT-55-02, "Hot Functional Test," and the approval of the test results by the Joint Test Group.

- Completion of the Preoperational Test 2CP-PT-55-10, "Reactor Coolant System Inspection," and the approval of the test results by the Joint Test Group.

No violations or deviations were identified.

7.9 Conclusions

Construction of the Unit 2 plant systems affecting water chemistry was completed, and the systems reviewed were turned over to the Unit 2 startup engineers for preoperational testing. All of the systems reviewed had been cleaned and flushed. Preoperational tests had been written and scheduled to be performed on the various systems. Preoperational test results will be reviewed during a future NRC inspection after the results have been approved by the Joint Test Group.

8. EXIT MEETING

The inspectors met with the Unit 2 NRC senior resident inspector and the licensee representatives identified in paragraph 1 of this report at the conclusion of the inspection on May 22, 1992. The inspectors summarized the scope and findings of the inspection. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspectors during the inspection.