

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

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50-362

License Nos.: NPF-10
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Report No.: 50-361/97-03
50-362/97-03

Licensee: Southern California Edison Co.

Facility: San Onofre Nuclear Generating Station, Units 2 and 3

Location: 5000 S. Pacific Coast Hwy.
San Clemente, California

Dates: February 24-28, 1997

Inspector: J. Blair Nicholas, Ph.D., Senior Radiation Specialist
Plant Support Branch

Approved By: Blaine Murray, Chief, Plant Support Branch
Division of Reactor Safety

ATTACHMENTS:

Attachment 1: Supplemental Information

Attachment 2: Airborne Effluent Releases

Attachment 3: Liquid Effluent Releases

EXECUTIVE SUMMARY

San Onofre Nuclear Generating Station, Units 2 and 3
NRC Inspection Report 50-361/97-03; 50-362/97-03

This routine, announced inspection focused on the licensee's radiological waste effluent management program.

Engineering

- No deviations to the commitments in Chapter 11 of the Updated Safety Analysis Report were identified (Section E2.1).

Plant Support

- The liquid and gaseous radioactive waste effluent management programs were properly implemented (Section R1.1).
- Inappropriate sample handling techniques were used while collecting and handling charcoal cartridge samples and airborne particulate filter samples (Section R1.1).
- Between 1994 and 1996, the curies of airborne fission and activation gases released from Units 2 and 3 were less than half of the curies released during 1992 and 1993 indicating a marked improvement in the gaseous effluents released (Section R1.2).
- Between 1992 and 1996, the curies of airborne iodine-131 and particulates and liquid dissolved and entrained fission and activation gases released from Units 2 and 3 remained about the same. The amount of liquid tritium released during 1996 increased significantly (Section R1.2).
- The engineered-safety-feature air cleaning ventilation systems were properly maintained and tested (Section R1.3).
- Housekeeping around the control room emergency air cleanup system filter units was not properly maintained (Section R1.3).
- The radiochemistry counting room instrumentation was properly maintained, tested, and calibrated (Section R2.1).
- Liquid and gaseous radioactive waste management systems were installed and operated properly (Section R2.1).
- The postaccident sampling system generally met the operational test criteria (Section R2.2).

- Liquid and gaseous effluent radiation monitoring instrumentation was operable and properly maintained, tested, and calibrated. New effluent radiation monitors was considered a program strength (Section R2.3).
- Implementing procedures for the liquid and gaseous radioactive waste effluent management programs provided proper guidance. Excellent annual radioactive effluent release reports for 1994 and 1995 were submitted in a timely manner (Section R3.1).
- Chemistry personnel and radwaste operations personnel had an excellent understanding of the radioactive liquid and gaseous waste management procedures, Offsite Dose Calculation Manual requirements, and regulatory requirements (Section R4).
- Training and qualification programs for chemistry technicians and radwaste operators were properly implemented. A trained and qualified staff for conducting radioactive waste effluent processing and release operations was maintained (Section R5).
- All chemistry technicians had completed the required biennial postaccident sampling system retraining (Section R5).
- In the past 2 years, the chemistry technician staff experienced a significant reduction. The radwaste operations staff changed very little (Section R6).
- Oversight of the radioactive waste effluent management program was excellent. The quality assurance audit, surveillances, and observation reports of the radiological waste effluent management program activities were technically comprehensive and provided excellent program evaluation and oversight (Section R7.1).
- There was appropriate evaluation of the contractors' performance (Section R7.2).

Report Details

Summary of Plant Status

Unit 1 was in a shutdown safe store condition. Unit 2 was in Mode 5 "cold shutdown" following a refueling outage, and Unit 3 was operating at power during the entire inspection.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Updated Safety Analysis Report (UFSAR) Review

a. Inspection Scope

Chapter 11, "Radioactive Waste Management," of the UFSAR was reviewed to ensure agreement with any commitments contained therein that pertained to the inspection.

b. Observations and Findings

A recent discovery of a licensee operating their facility in a manner contrary to the UFSAR description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the UFSAR descriptions. While performing the inspection discussed in this report, the inspector reviewed the applicable portions of the UFSAR that related to the areas inspected. The inspector verified that the UFSAR wording was consistent with the observed plant practices, procedures and/or parameters.

c. Conclusion

No deviations to the commitments in Chapter 11 of the UFSAR were identified.

IV. Plant Support

R1 Chemistry and Radioactive Waste Effluent Controls

R1.1 Radioactive Waste Effluent Management Programs

a. Inspection Scope (84750)

Implementation of the liquid and gaseous radioactive waste effluent management programs, as described in the Offsite Dose Calculation Manual, were reviewed. This review included: radioactive effluent waste processing, sampling and analyses,

analytical sensitivities and results; offsite dose results and performance of required surveillance tests. The following activities were observed:

- The collection of the Unit 3 containment vent samples, performance of radiochemistry analyses, and preparation of the vent release permit.
- The collection of a radioactive liquid waste sample from Radwaste Secondary Tank T-057, performance of radiochemistry analyses, preparation of the release permit, and the performance of the valve lineup.
- The collection of gaseous release samples from the Unit 3 condenser air ejector and performance of radiochemistry analyses.
- Ten batch radioactive liquid waste effluent release permits for the period January 1995 through December 1996 were reviewed
- Seven batch radioactive gaseous waste effluent release permits for waste gas decay tanks and containment purges for the period January 1995 through December 1996 were reviewed.
- Selected gaseous waste effluent sample analyses of samples from the plant vent stack, condenser air ejector, and south yard facility continuous releases for the period January 1995 through December 1996 were reviewed.

b. Observations and Findings

The chemistry technicians followed the appropriate sampling procedures. The sample analyses and release permit preparations were performed properly. The radioactive liquid and gaseous waste effluent releases were performed in accordance with approved procedures and the Offsite Dose Calculation Manual requirements. However, the inspector made the following observations during the sampling activities:

- While collecting the samples for the Unit 3 containment vent and condenser air ejector, the technician did not use gloves while handling the charcoal cartridge and particulate samples. Forceps were not used to remove the particulate filter from the sample holder.
- The particulate filter used in the sample holder was not the correct size, the filter diameter was too large. When the particulate filter was placed in the sample holder, the filter overlapped the inside edge of flange inside the sample holder. The inspector noted that the filter holder sealed when closed and no leaks were detected. The filter's diameter was also too large to fit properly in the petri dish counting geometry and had to be crimped on the edges when pushed into the petri dish for analysis. This did not provide a proper reproducible counting geometry.

Gloves were not used when handling the particulate filter and forming it into the petri dish counting geometry. These observations were discussed with the licensee during the inspection. The licensee stated that the chemistry technicians would be properly informed of the proper size filter paper to be used in the various filter holders and instructed to take proper protective actions when handling potentially radioactive samples.

- Radioactive liquid waste samples from the various waste processing tanks were collected at each individual tank's local sample point. These local sample points were located at very inaccessible locations near the individual tank's recirculation pump. The inspector observed that these local sample points were a concern because of the high potential for spread of contamination by sample spillage from the flexible tubing connected to the sample point. There was also a high potential for sample spillage due to the awkward position the technician must be in while collecting and handling the samples. This is due to the very inaccessible local sample locations.

A similar observation was identified in a previous NRC inspection report 50-361/94-19; 50-362/94-19. The observation stated that a sample sink was not provided to facilitate more accessible and efficient sampling of the radioactive liquid waste tanks. The inspector discussed this observation with the licensee during the 1994 inspection and during this inspection and at the exit meeting conducted on February 28, 1997. At the exit meeting in 1994, the licensee stated that they would evaluate the possibility of providing sample sinks at the radioactive waste tanks' local sample locations. The inspector noted that the licensee had installed a funnel at the local sample point for the miscellaneous waste evaporator condensate monitor tank local sample point, but had not upgraded the sample accessibility for all radioactive liquid waste tanks. At the February 28, 1997, exit meeting, the licensee stated that they would further evaluate the installation of appropriate sample areas for sampling the radioactive liquid waste tanks.

The following activities were conducted in accordance with Offsite Dose Calculation Manual requirements: (1) processing, sampling, and analyses of batch and continuous radioactive liquid and gaseous waste effluents, (2) approval and performance of batch radioactive liquid and gaseous waste discharges, and (3) monitoring of continuous liquid and gaseous waste effluents.

Quantities of radionuclides released in the radioactive liquid and gaseous waste effluents were below the limits specified in the Offsite Dose Calculation Manual. Offsite doses were calculated according to Offsite Dose Calculation Manual methodologies at the required frequencies. The radiation doses resulting from liquid and gaseous radioactive waste effluents were below regulatory limits. Required analyses of monthly and quarterly composite samples of batch radioactive liquid and gaseous waste effluent releases were performed in accordance with Offsite Dose Calculation Manual requirements.

c. Conclusions

The liquid and gaseous radioactive waste effluent management programs were properly implemented. Inappropriate sample handling techniques were used while collecting and handling charcoal cartridge samples and airborne particulate filter samples. Quantities of radionuclides released in the liquid and gaseous radioactive waste effluents were within the Offsite Dose Calculation Manual limits. Offsite doses to the environment from the liquid and gaseous radioactive waste effluents met regulatory limits.

R1.2 Radioactive Waste Effluent Data

a. Inspection Scope (84750)

Radioactive waste effluent data for Units 2 and 3 between 1991 and 1996 were reviewed.

b. Observations and Findings

Radioactive waste effluent data for Units 2 and 3 for the time period 1992 through 1995 and draft effluent data for 1996 are summarized in Attachments 2 and 3. Airborne fission and activation gases released between 1994 and 1996 were less than half of the curie amounts released during 1992 and 1993 indicating a marked improvement. The airborne iodine-131 and particulates released between 1994 and 1996 remained about the same as the curie amounts released during 1992 and 1993. The liquid dissolved and entrained fission and activation gases released between 1992 and 1996 remained relatively constant. The liquid tritium released between 1992 and 1995 remained relatively constant. However, the amount of liquid tritium released during 1996 increased significantly. This increase was attributed to the increased use of lithium chemical treatment in the reactor coolant water starting in late 1995 in Unit 2 and early 1996 in Unit 3. Also, quarterly 1996 liquid effluent data showed that six liquid batch releases were made during the fourth quarter of 1996. These six liquid batch releases contributed 500 curies of tritium causing a significant tritium increase to the total curie amount of tritium released in the liquid effluents during 1996.

The radioactive waste effluent data was discussed with the licensee. The licensee stated, that prior to the inspection, they had only a general knowledge of their overall effluent release performance when compared to the annual effluent performances of other operating pressurized water reactors nationally. The licensee stated that improvement in the reduction of effluent radioactivity released from Units 2 and 3 was a priority.

c. Conclusions

Between 1994 and 1996, the curies of airborne fission and activation gases released from Units 2 and 3 were less than half of the curies released during 1992 and 1993 indicating a marked improvement in the gaseous effluents released. Between 1992 and 1996, the curies of airborne iodine-131 and particulates and liquid dissolved and entrained fission and activation gases released from Units 2 and 3 remained about the same. The amount of liquid tritium released during 1996 increased significantly.

R1.3 Engineered-Safety-Feature Air Cleaning Systems

a. Inspection Scope (84750)

Surveillance and test results for the engineered-safety-feature air cleaning ventilation systems testing program were reviewed to determine compliance with the requirements in Technical Specifications 3/4.7.5 and 3/4.9.12.

b. Observations and Findings

The surveillance tests for periodic functional checking and testing of the engineered-safety-feature air cleaning ventilation systems' components were performed properly. The surveillance tests included evaluation of the high efficiency particulate air filters, activated charcoal adsorbers, and in-place filter testing of the control room emergency air cleanup system and the fuel handling building post-accident cleanup filter system. The in-place filter testing was performed by the licensee. The activated charcoal laboratory surveillance tests were performed by an offsite contract laboratory. All test results were verified to be within Technical Specification limits.

The inspector performed a walkdown inspection of the control room emergency air cleanup system filter units and the fuel handling building post-accident cleanup filter system filter units with the system engineer. No problems were identified with filter units' physical condition. However, the inspector observed that the areas surrounding the control room emergency air cleanup system filter units were not well maintained and lighted. The areas were crowded and scaffolding was left in place which did not allow good access to the filter units. This housekeeping observation was discussed with the licensee at the exit meeting. The licensee stated that they would evaluate the inspector's housekeeping concern.

c. Conclusions

The engineered-safety-feature air cleaning ventilation systems met the Technical Specification requirements. A good engineered-safety-feature air cleaning systems surveillance program was implemented. All surveillance test results met Technical

Specification requirements. Housekeeping around the control room emergency air cleanup system filter units was not properly maintained.

R2 Status of Chemistry and Radioactive Waste Effluent Facilities and Equipment

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

a. Inspection Scope (84750)

- Operations in the radiochemistry counting room were observed.
- The radioactive liquid and gaseous waste processing equipment was inspected. The equipment included the reactor coolant waste processing system, primary liquid waste tanks, secondary liquid waste tanks, and the gaseous radioactive waste processing system.

b. Observations and Findings

The radiochemistry counting room was equipped with state-of-the-art analytical instrumentation. The analytical instrumentation was properly maintained and calibrated.

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

No major equipment or design modifications were made to the liquid or gaseous radioactive waste management systems during 1995 and 1996.

c. Conclusions

The radiochemistry counting room instrumentation was properly maintained, tested, and calibrated. Liquid and gaseous radioactive waste management systems were installed and operated properly.

R2.2 Postaccident Sampling System

a. Inspection Scope (84750)

- Postaccident sampling system instrumentation and equipment were inspected to verify if an adequate operational surveillance program was implemented.
- Postaccident sampling system surveillance test results for 1995 and 1996 were reviewed.

- The performance of a postaccident sampling system monthly operational surveillance test was observed.

b. Observations and Findings

An annual surveillance program for testing all of the sampling and analytical capabilities of the postaccident sampling system for determining operability was implemented. The postaccident sampling system was generally operable. However, the surveillance test results indicated numerous in-line instrument problems. Maintenance on the postaccident sampling system instrumentation was performed in a timely manner. Alternate analytical methods were tested quarterly.

All chemistry technicians had completed biennial required training on the operation of the postaccident sampling system. The licensee's expectation was for each chemistry technician to perform at least one monthly postaccident sampling system operational surveillance test within a 24-month period. All but six chemistry technicians had performed the monthly postaccident sampling system operational surveillance test during the past 24-months.

A routine monthly postaccident sampling system operational surveillance test was observed by the inspector. The surveillance was performed according to an approved procedure. The in-line pH meter, which was out-of-service since October 1996, was calibrated and installed on January 29, 1997, but the pH results did not meet acceptance criteria during the performance of the observed February 1997 monthly surveillance test. An Action Request was written to initiate corrective maintenance.

c. Conclusions

The postaccident sampling system was operated monthly and generally met the operational test criteria.

R2.3 Liquid and Gaseous Effluent Radiation Monitors

a. Inspection Scope (84750)

- The liquid and gaseous effluent radiation monitors were inspected for operation, calibration, and reliability in accordance with the surveillance requirements specified in Offsite Dose Calculation Manual Tables 2-3 and 3-3.
- Liquid and gaseous radioactive waste effluent radiation monitor source check, channel check, channel operational test, and channel calibration

records, for the period of January 1995 through December 1996 were reviewed.

b. Observations and Findings

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

The older Nuclear Measurements Corporation effluent radiation monitoring instrumentation (eight monitors in Units 2 and 3) were being upgraded with new Merlin Gerin radiation monitors. The inspector witnessed the in-place field testing for one of the monitors. The new monitors' installation, testing, and calibration for operation is scheduled to be completed in 1997. The effluent radiation monitor upgrades were considered a program strength.

c. Conclusions

Liquid and gaseous effluent radiation monitoring instrumentation was operable and properly maintained, tested, and calibrated. New effluent radiation monitors were considered a program strength.

R3 Radioactive Waste Effluent Procedures and Documentation

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

a. Inspection Scope (84750)

- Procedures for the sampling, analysis, and release of radioactive liquid and gaseous waste effluents were reviewed.
- Revisions to the Offsite Dose Calculation Manual were reviewed.
- Annual radioactive effluent release reports for 1994 and 1995 and the 1996 draft effluent data were reviewed.

b. Observations and Findings

Chemistry and radwaste operations procedures for performing batch release of liquid and gaseous radioactive waste effluents provided proper guidance to personnel implementing the radioactive waste effluents program. The procedures were written with sufficient detail to properly perform the radioactive waste effluent program.

Annual radioactive effluent release reports were well written, used the format described in NRC Regulatory Guide 1.21, Revision 1, June 1974, and contained the required information. Summaries of the radioactive airborne and liquid radioactive effluent release data are presented in Attachments 2 and 3.

Changes to the Offsite Dose Calculation Manual were properly documented in the annual reports.

c. Conclusions

Implementing procedures for the liquid and gaseous radioactive waste effluent management programs provided proper guidance. Changes to the Offsite Dose Calculation Manual were properly documented. Excellent annual radioactive effluent release reports for 1994 and 1995 were submitted in a timely manner.

R4 Staff Knowledge and Performance

a. Inspection Scope (84750)

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

b. Observations and Findings

Chemistry personnel and radwaste operations personnel were knowledgeable of the programmatic procedures, Offsite Dose Calculation Manual requirements, and regulatory requirements.

c. Conclusion

Chemistry personnel and radwaste operations personnel had an excellent understanding of the radioactive liquid and gaseous 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 and radwaste operators were reviewed.
- Training and qualifications of chemistry technicians and radwaste operators were verified.
- The training and qualification program for operating the postaccident sampling system was reviewed.

b. Observations and Findings

Training and qualification matrices and attendance records for radwaste effluent training for chemistry technicians and operations crews included required formal classroom training and on-the-job training.

All chemistry technicians had completed the required classroom training and on-the-job training to be qualified to perform all radioactive waste effluent management program activities.

All chemistry technicians had completed the required biennial postaccident sampling system retraining and were qualified to independently operate the postaccident sampling system.

The inspector noted that all but four persons listed on the seven operations 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 and radwaste operators were properly implemented. The experience, training, and working knowledge of the chemistry department and the operations department personnel met the training and qualification requirements for conducting radioactive waste liquid and gaseous effluent processing and release operations. All chemistry technicians had completed the required biennial postaccident sampling system retraining.

R6 Chemistry Organization and Administration

a. Inspection Scope (84750)

- 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

Chemistry and radwaste operations personnel were responsible for the implementation of the radioactive waste effluent management program.

The chemistry department was adequately staffed. However, there had been a significant change in the chemistry technician staff during the past 2 years. The chemistry department reduced the number of chemistry technicians from 23 to 18. The plant chemistry supervisor was reassigned and replaced. The effluent chemistry supervisor was recently reassigned, and the vacant position had not been filled at the time of the inspection. The licensee's reduction in chemistry staff did not appear to have adversely affected implementation of the radioactive waste effluent management program.

The radwaste operations department was adequately staffed, and personnel had not changed significantly during the past 2 years.

c. Conclusions

Staffing of the chemistry and radwaste operations departments met Technical Specification requirements. In the past 2 years, the chemistry technician staff experienced a significant reduction. The radwaste operations staff changed very little.

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 audit and surveillance programs of the radioactive waste effluent management program activities were reviewed for scope, thoroughness of program evaluation, and timely followup of identified deficiencies. The following quality assurance items regarding the radioactive waste effluent management program activities were reviewed:

- Qualifications of personnel who performed the quality assurance audits and surveillances
- Quality assurance audit performed during 1994-1996
- Quality assurance surveillances performed during 1994-1996
- Nuclear Oversight Division Observation Reports performed during 1994-1996
- San Onofre Topical Report SCE-1A, "Quality Assurance Program Description," Amendment 18, Change Notice 41, dated July 1996

b. Observations and Findings

Audits of the radioactive waste effluent management program and Offsite Dose Calculation Manual and implementing procedures were scheduled periodically.

The quality assurance radioactive waste effluent management program audit, surveillances, and observation reports performed between January 1995 and December 1996 were conducted in accordance with quality assurance procedures by qualified auditors. The audit, surveillances, and observation reports of the radioactive waste effluent management program were of excellent quality, technically comprehensive, and provided excellent oversight and evaluation of the licensee's performance in implementing the radioactive waste effluent management program.

c. Conclusions

Oversight of the radioactive waste effluent management program was excellent. The quality assurance audit, surveillances, and observation reports of the radiological waste effluent management program activities were technically comprehensive and provided excellent program evaluation and oversight.

R7.2 Quality Assurance Program for Contractors

a. Inspection Scope (84750)

The quality assurance vendor 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

A contractor laboratory was used to perform required radiochemistry analyses of radioactive waste effluent composite samples. A second contractor laboratory was used to perform laboratory charcoal adsorber analyses on the station's engineered-

safety-feature air cleaning ventilation systems. The licensee used Nuclear Procurement Issues Committee audits of the two contractors to evaluate their performance in performing the surveillance testing requirements and to retaining their current status on the licensee's routine suppliers list. The audits of the two contractors evaluated the contractor's abilities to perform the Technical Specification required testing and surveillance activities.

c. Conclusion

There was appropriate evaluation of the contractors' performance.

V. Management Meetings

X1 Exit Meeting Summary

The results of the inspection were presented to members of licensee management at the conclusion of the inspection on February 28, 1997. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT 1

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Nunn, Vice President, Engineering and Technical Services
D. Axline, Licensing Engineer, Compliance
J. Beebe, Project Manager Radiation Monitors, Maintenance
R. Borden, Supervisor, Nuclear Oversight
L. Bray, Supervisor, Chemistry
J. Clark, Manager, Chemistry
J. Denlow, Auditor, Nuclear Oversight
D. Dick, Effluent Engineer, Chemistry
K. Flynn, Supervisor, Auxiliary Mechanical Systems
S. Gawne, Training Specialist, Training
G. Gibson, Manager, Compliance
G. Plumlee III, Compliance
K. Rauch, Supervisor, Operations Training
R. Sandstrom, Manager, Training
K. Slagle, Manager, Nuclear Oversight
P. Shaffer, Supervisor, Maintenance
M. Thurnburn, Radwaste Coordinator

NRC

J. Sloan, Senior Resident Inspector
J. Russell, Resident Inspector
J. Kramer, Resident Inspector

INSPECTION PROCEDURES USED

84750 Radioactive Waste Treatment, and Effluent and Environmental Monitoring

LIST OF DOCUMENTS REVIEWED

Organization Charts

Chemistry Department - January 31, 1997

Quality Assurance Documents

Quality Assurance Audit Schedules for 1993-1997

San Onofre Topical Report SCE-1A, "Quality Assurance Program Description,"
Amendment 18, Change Notice 41, dated July 1996

Draft Audit Plan for the Radioactive Effluent Controls Program

Topical Quality Assurance Manual (TQAM), Revision 13, December 20, 1996

Quality Assurance Audit

Quality Assurance Audit Report SCES-434-94, "Radioactive Effluent Controls Program," conducted July 25 through October 20, 1994

Quality Assurance Surveillances

Quality Assurance Surveillance Report SOS-017-94, "Units 2 and 3 Evaluation of the Waste Gas System," conducted February 23-24, 1994

Quality Assurance Surveillance Report SOS-043-94, "Unit 2 Process Equipment Calibration," conducted February 10 - March 18, 1994

Quality Assurance Surveillance Report SOS-091-94, "Unit 2 Liquid Effluent Sample Collection and Analysis," conducted May 6-9, 1994

Quality Assurance Surveillance Report SOS-200-94, "Units 2 and 3 Liquid Effluent Sample Collection," conducted September 30, 1994

Quality Assurance Surveillance Report SOS-234-94, "Units 2 and 3 Rad Monitor Design Change," conducted September 27 - December 12, 1994

Nuclear Oversight Division Observation Reports

Activity Observation Report AOR96-07502, "Liquid Batch Release of Coolant Radwaste Secondary Tank (T-057)," October 25, 1995

Activity Observation Report AOR96-07843, "Units 2 and 3 Containment Purge Permits," November 30, 1995

Activity Observation Report AOR96-00276, "Gaseous Effluent Release Permit," January 17, 1996

Activity Observation Report AOR96-01544, "Steam Generator Blowdown Monitor OOS Actions," February 29, 1996

Activity Observation Report AOR96-03012, "Chemistry Out-of-Service Effluent Monitor Response," May 29, 1996

Activity Observation Report AOR96-06822, "Chemistry Effluent Sampling," September 25, 1996

Activity Observation Report AOR96-09295, "Effluent Release Controls on Containment Atmosphere," December 1, 1996

Activity Observation Report AOR96-09584, "Air Sampling Analysis," December 6, 1996

Vendor Audits

NUPIC Joint Quality Assurance Audit of NUCON Corporation, conducted May 5, 1995

NUPIC Joint Quality Assurance Audit of Yankee Atomic Environmental Laboratory, conducted June 22-23, 1994

NUPIC Joint Quality Assurance Audit of Teledyne Brown Engineering Environmental Services, conducted August 26-30, 1996

Administrative Procedure

SO123-III-0, "Chemistry Organization and Administrative Policies," Revision 9

Chemistry Procedures

SO123-III-0.1, "Organization of Chemistry Division Procedures," Revision 16

SO123-III-4.10.4, "Operation and Calibration of Beckman LS6000 Liquid Scintillation Counter," Revision 2

SO123-III-4.5.3, "Operation of the VAX/VMS Gamma Spectrometer," Revision 5

SO123-III-5.1.23, "Units 2 and 3 Effluent Sampling and Analysis," Revision 17

SO123-III-5.2.23, "Units 2 and 3 Liquid Effluent Sample Collection," Revision 8

SO123-III-5.3.23, "Units 2 and 3 NMC Airborne Radioactivity Monitor Sample Collection," Revision 14

SO123-III-5.5.23, "Units 2 and 3 GA Airborne Radioactivity Monitor Sample Collection," Revision 9-3

SO123-III-5.10, "Liquid and Gaseous Effluent Dose Determinations," Revision 8

SO123-III-5.11.23, "Units 2 and 3 Liquid Effluent Releases," Revision 12-4

SO123-III-5.12.23, "Units 2 and 3 Gaseous Effluent Release Permit," Revision 10

SO123-III-5.23.23, "Units 2 and 3 Nuclear Data ND6685 Computer Operation for the Generation of Radioactive Effluent Release Permits," Revision 0-3

SO123-III-5.24.23, "Units 2 and 3 Nuclear Data ND6685 Computer Operation for the Generation of Radioactive Effluent Release Reports," Revision 0

Radwaste Operating Instruction

SO23-8-7, "Release of Radwaste Tanks," Revision 8

Chemistry Training Documentation

"Nuclear Chemistry Technician Task Qualification Matrix," dated February 24, 1997

"Nuclear Chemistry Technician Qualification Manual," QM5700-U23, Revision 8

Lesson Plan (CY038) "Miscellaneous Liquid Waste System"

Lesson Plan (CY039) "Coolant Radwaste System"

Lesson Plan (CY040) "Gaseous Radwaste System"

Lesson Plan (CY012) "Liquid Radwaste Treatment Program"

Lesson Plan (CY151) "Evaluation of Unplanned, Monitored, Radioactive, Gaseous Releases"

Lesson Plan (CY157) "Liquid Release Permit Generation"

Lesson Plan (CY158) "Gaseous Release Permit Generation"

Lesson Plan (CY211) "Release Permit Generation Using the ND6685 Computer"

Lesson Plan (CY015) "Wide Range Gas Monitoring System"

Lesson Plan (CY020) "Process and Effluent Radiation Monitoring System"

Lesson Plan (CY019) "Postaccident Sampling System Overview"

Lesson Plan (CY113) "Postaccident Sampling System Reactor Coolant System Purging and Sampling"

Lesson Plan (CY114) "Postaccident Sampling System Containment Atmosphere Purging and Sampling"

Lesson Plan (CY115) "Postaccident Sampling System Procedures Overview"

Lesson Plan (CY210) "Postaccident Biennial Retraining"

SO123-XXI-1.11.10, "Chemistry Training Program Description," Revision 4

SO123-III-0.14, "Chemistry Division On-The-Job Training and Evaluation Program,"
Revision 1

Operations Training Documentation

"Operations Crew Task Qualification Matrix," dated January 24, 1997

"Units 2 and 3 Radwaste Operator Qualification Guide," 2JQ202, Revision 3

Lesson Plan (2XRL04) "Miscellaneous Radwaste System"

Lesson Plan (2XRL05) "Coolant Radwaste System"

Lesson Plan (2XRL06) "Gaseous Radwaste System"

Lesson Plan (2XRL07) "Radiation Monitoring System"

Lesson Plan (2XRR07) "Release Permit/Offsite Dose Calculation Manual"

Postaccident Sampling System Procedures

SO123-III-8, "Postaccident Sampling Program and Analytical Requirements," Revision 11

SO123-III-8.1, "Postaccident Sampling System Surveillance Program," Revision 10-3

SO123-PS-1, "Postaccident Sampling System Program," Revision 2-1

Surveillance Operating Instructions

SO23-3-3.21, "Radiation Monitoring and Common Daily Surveillances - All Modes,"
Revision 9

Radiation Monitoring Procedures

SO23-XXV-4.12, "Condenser Evacuation System Loop 2/3RT-7818 Channel Functional
Test," Revision 4

SO23-XXV-4.13, "Condenser Evacuation System Loop 2/3RT-7818 Channel Calibration,"
Revision 0

SO23-XXV-4.14, "Containment Purge/Plant Vent Stack Wide Range Gas Monitoring
System Loop 3RT-7865-1 Channel Functional Test," Revision 3

SO23-XXV-4.16, "Liquid Radwaste Effluent Line Loop 2/3RT-7813 Channel Functional
Test," Revision 1

SO23-XXV-4.17, "Liquid Radwaste Effluent Line Loop 2/3RT-7813 Channel Calibration,"
Revision 2

SO23-XXV-4.18, "Plant Vent Stack/Waste Gas Holdup System Loop 2/3RT-7808 Channel Functional Test," Revision 2

SO23-XXV-4.22, "Neutralization Sump Discharge Radiation Monitor Loop 2/3RT-7817 Channel Calibration," Revision 2

SO23-XXV-4.23, "Turbine Plant Area Sump Radiation Monitor Loop 2/3RT-7821 Channel Calibration," Revision 4

SO23-XXV-4.36, "Steam Jet Air Ejector Wide Range Gas Monitoring System Loop 2/3RT-7870-1 Channel Functional Test," Revision 2

SO23-XXV-4.42, "Turbine Plant Area Sump Radiation Monitor Loop 2/3RT-7821 Channel Functional Test," Revision 5

SO23-XXV-4.43, "Neutralization Sump Discharge Radiation Monitor Loop 2/3RT-7817 Channel Functional Test," Revision 2

SO23-XXV-4.44, "Steam Generator (E089) Blowdown Bypass Effluent Line Radiation Monitor Loop 2/3RT-6753 Channel Calibration," Revision 1

SO23-XXV-4.50, "Containment Purge Stack Radiation Monitoring System Loop 2/3RT-7828 Channel Functional Test," Revision 2

SO23-XXV-4.51, "Containment Purge Stack Radiation Monitoring System Loop 2/3RT-7828 Channel Calibration," Revision 1

SO23-XXV-4.59, "Steam Generator (E088) Blowdown Bypass Effluent Line Radiation Monitor Loop 2/3RT-6759 Channel Functional Test," Revision 1

SO23-XXV-4.60, "Steam Generator (E089) Blowdown Bypass Effluent Line Radiation Monitor Loop 2/3RT-6753 Channel Functional Test," Revision 2

SO23-XXV-4.62, "Steam Generator (E088) Blowdown Bypass Effluent Line Radiation Monitor Loop 2/3RT-6759 Channel Functional Test," Revision 2

SO23-XXV-9.360, "Plant Vent Stack/Waste Gas Holdup System Loop 2/3RT-7808 Channel Calibration," Revision 0

SO23-XXV-9.464, "Containment Purge Stack Radiation Monitoring System Loop 2/3RT-7828 Channel Calibration," Revision 2

Instrumentation Procedures

SO23-II-8.489, "Radwaste Discharge Flow to Circulating Water Outfall 2/3FT-7643 Channel Functional Test," Revision 8

SO23-II-8.489.1, "Radwaste Discharge Flow to Circulating Water Outfall 2/3FT-7643 Channel Calibration," Revision 2

SO23-II-8.464, "BPS Neutralization Sump Overboard Discharge Flow 2/3FT-3772 Channel Calibration," Revision 6

SO23-II-8.852, "BPS Neutralization Sump Overboard Discharge Flow 2/3FT-3772 Channel Functional Test," Revision 5

SO23-II-8.597, "Waste Gas Holdup System Flow Rate Monitor Channel Functional Test," Revision 5

SO23-II-8.597.1, "Waste Gas Holdup System Flow Rate Monitor Channel Calibration," Revision 1

SO23-II-9.670, "Steam Generator (E088) and (E089) Blowdown Flow 2FT-4055 and 3FT-4056 Channel Calibration," Revision 4

SO23-II-9.712, "Steam Generator (E088) and (E089) Blowdown Flow 2FT-4055 and 3FT-4056 Channel Functional Test," Revision 1

Miscellaneous Documents

Selected Liquid and Gaseous Radioactive Waste Effluent Batch Release Permits

Annual Radioactive Effluent Release Reports - 1994 and 1995

SO23-ODCM "Offsite Dose Calculation Manual," Revision 29, dated July 31, 1996

ATTACHMENT 2

SUMMATION OF AIRBORNE EFFLUENT RELEASES

	1992	1993	1994	1995	1996*
Number of Batch Releases	13**	10**	2**	11**	7**
Fission & Activation Products (Curies)	1405	1542	365	696	426
Total Iodine-131 (Curies)	2.30E-2	4.98E-2	1.79E-3	4.76E-2	6.69E-3
Particulates with Half-Lives > 8 days (Curies)	4.91E-4	1.85E-3	5.79E-4	4.76E-4	5.18E-3
Gross Alpha (Curies)	4.86E-9	5.30E-6	3.06E-6	3.52E-6	***
Tritium (Curies)	25.8	50.1	49.7	39.6	25.6

* 1996 data is draft data.

** Gas Decay Tank batch releases only; containment purges are considered continuous releases.

*** Data was not available at the time of the inspection.

ATTACHMENT 3

SUMMATION OF LIQUID EFFLUENT RELEASES

	1992	1993	1994	1995	1996*
Number of Batch Releases	209	198	108	105	48
Fission & Activation Products (Curies)	7.70E-2	2.94E-1	2.81E-1	2.58E-1	1.28E-1
Tritium (Curies)	969	978	891	971	1451
Dissolved & Entrained Noble Gases (Curies)	0.232	1.27	0.028	1.403	0.115
Gross Alpha (Curies)	3.38E-5	1.13E-5	0	0	**
Waste Volume Released (liters)	1.31E+7	7.28E+7	3.45E+7	8.06E+7	**

* 1996 data is draft data.

** Data was not available at the time of the inspection.