

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket Nos.: 50-498; 50-499

License Nos.: NPF-76; NPF-80

Report No.: 50-498/97-19; 50-499/97-19

Licensee: Houston Lighting & Power Company

Facility: South Texas Project Electric Generating Station, Units 1 and 2

Location: FM 521 - 8 miles west of Wadsworth  
Wadsworth, Texas

Dates: August 25-28, 1997

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

Michael P. Shannon, Radiation Specialist  
Plant Support Branch

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

ATTACHMENTS:

Attachment 1: Supplemental Information

Attachment 2: Summary of Annual Radioactive Effluent Release Report Data

## EXECUTIVE SUMMARY

### South Texas Project Electric Generating Station, Units 1 and 2 NRC Inspection Report 50-498/97-19; 50-499/97-19

This announced, routine inspection reviewed the implementation of the liquid and gaseous radioactive waste effluent management program. Training, procedural guidance and quality assurance oversight were also reviewed.

#### Plant Support

- The liquid and gaseous radioactive waste effluent management programs were effectively implemented. Offsite doses to the environment from the liquid and gaseous radioactive waste effluents met regulatory limits (Section R1.1).
- Inappropriate sample handling techniques were used while handling potentially contaminated samples (Section R1.1).
- The engineered-safety feature air cleaning ventilation systems' surveillance program was properly maintained and tested (Section R1.2).
- Interior lighting in the control room cleanup filtration units needed improvement (Section R1.2).
- The radiochemistry counting room analytical 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).
- Liquid and gaseous effluent radiation monitoring instrumentation was operable and properly maintained, tested, and calibrated (Section R2.2).
- Implementing procedures for the liquid and gaseous radioactive waste effluent management programs provided proper guidance (Section R3.1).
- Excellent annual radiological effluent release reports were submitted in a timely manner (Section R3.2).
- Chemistry personnel had an excellent understanding of the radioactive liquid and gaseous radioactive waste effluent management program, offsite dose calculation manual, 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).
- An effective quality assurance program was maintained. The quality assurance audit, monitoring reports, and chemistry department field observation reports provided good management oversight (Section R7.1).
- There was appropriate evaluation of the contractors' performance (Section R7.2).
- A noncited violation was identified for the failure to calculate the proper alarm setpoints for the unit vent gaseous effluent monitors in accordance with the offsite dose calculation manual methodologies (Section R8.1).

### Report Details

#### Summary of Plant Status

Units 1 and 2 were at full power during this inspection. No events occurred during this inspection that adversely affected the inspection results.

### IV. Plant Support

#### R1 Radiological Protection and Chemistry Controls

##### R1.1 Radiological Waste Effluent Management Program

###### 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 activities were observed:

- Collection of a sample from Unit 1 Waste Monitor Tank 1E on August 26, 1997, performance of the radiochemistry analysis (principal gamma emitters) of the sample, and preparation of the batch liquid release permit.
- Collection of the weekly air particulate filter and charcoal cartridge samples from the Unit 1 unit vent on August 27, 1997, and the performance of radiochemistry analyses (principal gamma emitters) of the samples.
- Collection of the monthly tritium and noble gas samples from the Unit 1 unit vent on August 27, 1997, and the performance of the required surveillance testing analyses to monitor the continuous effluent release point.

###### b. Observations and Findings

The inspectors observed a chemistry technician collect a sample from the Unit 1 Waste Monitor Tank 1E on August 26, 1997, for analysis and preparation of a batch liquid effluent release permit. The chemistry technician referred to and followed the appropriate sampling procedure while collecting the sample. The inspectors noted that the chemistry technician used good sample handling techniques while collecting the sample and transferring the sample to the primary chemistry laboratory for analysis and compositing and storage. However, the

inspectors noted that the chemistry technician used poor radiological practices (not always using gloves while handling the monitor tank sample in the primary chemistry laboratory). Also, the chemistry technician did not hand frisk after handling the monitor tank sample and when leaving the primary chemistry laboratory, although he handled potentially contaminated items.

The inspectors observed a chemistry technician collect the following samples: an air particulate filter, iodine charcoal cartridge, noble gas, and tritium from the Unit 1 unit vent on August 27, 1997. These samples were collected for analyses and update of the continuous release permit for the unit vent. The inspectors noted that the chemistry technician carried, referred to, and followed the appropriate sampling procedures while performing the sample collections. The inspectors noted that the chemistry technician used forceps while removing the air particulate sample from the sample holder. However, even though the chemistry technician had gloves available during the collection and handling of the samples, the chemistry technician did not use the gloves while handling and placing the samples into plastic bags for transfer to the radiochemistry counting room for analyses. The inspectors reviewed the protective clothing requirements for Radiation Work Permit 1997-O-0095, "Perform Chemical Analysis Duties to Include Sample, Sample Transport, and Daily Quality Control Checks of Laboratory Equipment to Support Plant Operations," used by the chemistry technician to perform the observed activities. The radiation work permit required the use of disposable gloves for sampling contaminated systems outside a sample hood and while working in non-contaminated areas of the radiochemistry laboratory on contaminated counter tops. The Unit 1 unit vent radiation monitor which was sampled was not posted as a contaminated system. The radiation survey of the radiochemistry laboratory showed that the counter top where the chemistry technician performed the observed activities was not contaminated. Therefore, there was no violation of the radiation work permit protective clothing requirements. These observations of poor radiological practices while handling radioactive samples were discussed with the licensee during the inspection. The licensee stated that the chemistry technicians would be reminded to take proper radiological protective actions when handling potentially contaminated samples.

The inspectors observed a chemistry technician perform the radiochemistry analyses (principal gamma emitters) on the samples in the radiochemistry counting room. All aspects of the sample collections and analyses were performed in accordance with approved station procedures and offsite dose calculation manual requirements.

The inspectors observed a chemistry technician prepare the batch liquid release permit and a radwaste operator perform the batch liquid release. The inspectors noted that the radwaste operator had to use three procedures simultaneously to perform the batch release. This was very time consuming and had the potential to cause errors during the system lineup. This observation was discussed with the licensee during the inspection. The licensee stated that they would evaluate the inspectors' concerns.

Condition Report 97-13618 was written to track and evaluate the inspectors' observations and concerns including the lack of proper radiological protection techniques while handling potentially contaminated samples and the use of three procedures simultaneously to perform a batch liquid release.

The inspectors verified that the processing, sampling, analyses, and monitoring of the batch liquid radioactive waste effluents, containment purges, and continuous releases of the radioactive gaseous waste effluents were conducted properly for the period January 1996 through July 1997. Quantities of radionuclides released were within the limits specified in the offsite dose calculation manual. Offsite doses were calculated according to offsite dose calculation manual 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 programs were effectively implemented. Inappropriate sample handling techniques were used while handling potentially contaminated 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 Engineered-Safety Feature Air Cleaning and Control Room Habitability 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 the requirements in the Technical Specifications.

b. Observations and Findings

The inspectors performed a visual inspection with the system engineers responsible for the control room makeup and cleanup filtration system and the fuel handling building exhaust air system. The external visual inspection of the filtration systems did not identify any problems. No external damage to the filtration units was identified. All filter housings and ducts were well maintained. The areas surrounding the filtration units were clean and free of debris. In general, the filtration units were adequately lighted inside and outside to provide for visual inspection of housings and components. However, the inspectors noted that approximately 15 percent of the light bulbs in the control room cleanup filtration units were burned out. The system engineer wrote a condition report to have the light bulbs replaced.

The surveillance testing program included the required periodic functional checking of the ventilation systems' components, evaluation of the high efficiency particulate air filters and activated charcoal adsorbers, and in-place filter testing of the high efficiency particulate air filters and charcoal systems. Since some of the surveillance tests were only required to be performed every 18-months, the inspectors reviewed the last completed surveillance test and verified that the previous two surveillance tests were performed as required at the 18-month frequency. Selected records and results of surveillance tests for the period January 1996 through July 1997 for the control room makeup and cleanup filtration system and the fuel handling building exhaust air system in each unit verified that the surveillance tests were performed as required. The activated charcoal efficiency tests were properly performed by an offsite contract laboratory. All surveillance test results were verified to be within Technical Specification limits.

The Technical Specification requirement for testing the air cleaning ventilation systems' activated charcoal adsorber material after every 720 hours of operation following the previous laboratory testing was tracked by the control room and the cognizant system engineer in accordance with Procedure OPGP03-ZE-0008, "Nuclear Air-Cleaning Systems Filter Test Program Description," Revision 5.

c. Conclusions

The engineered-safety feature air cleaning ventilation systems' surveillance program was properly implemented. All surveillance test results met Technical Specification requirements. Interior lighting in the control room cleanup filtration units needed improvement.

**R2 Status of Facilities and Equipment**

**R2.1 Radiochemistry Counting Room and Radioactive Waste Effluent Processing System**

a. Inspection Scope (84750)

The inspectors observed analytical measurements of radiological effluent samples performed in the radiochemistry counting room. The radioactive liquid waste processing equipment was inspected. Equipment inspected included the waste holdup tanks, floor drain tanks, laundry and hot shower tanks, waste monitor tanks, the advanced liquid waste processing equipment, and the gaseous radioactive waste processing system in each unit.

b. Observations and Findings

The radiochemistry counting room in each unit maintained sufficient state-of-the-art analytical instrumentation to perform the required sample analyses of the liquid and gaseous radioactive waste effluents. The instrumentation was properly calibrated

and well maintained. Records of calibrations and daily operational quality control checks were properly maintained.

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

During 1994, 1995, and 1996, no major equipment or design modifications were made to the liquid or gaseous radioactive waste treatment systems.

c. Conclusions

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

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, digital channel operational test, and channel calibration records were reviewed to determine compliance with the offsite dose calculation manual Sections.

b. Observations and Findings

All surveillance test records reviewed for the period January 1996 through July 1997 indicated that the liquid and gaseous radioactive waste effluent radiation monitoring instrumentation were properly maintained, tested, and calibrated in compliance with the surveillance requirements specified in the offsite dose calculation manual.

c. Conclusion

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

### R3 Procedures and Documentation

#### R3.1 Changes to the Offsite Dose Calculation Manual and Procedures

##### a. Inspection Scope (84750)

Revisions to the offsite dose calculation manual were reviewed for any changes to the radioactive waste effluent management program and the radwaste system design and operation, including the performance of proper 10 CFR 50.59 reviews and changes to the implementing procedures regarding the radioactive waste effluent management program.

Procedures for the sampling, analysis, and release of radioactive liquid and gaseous waste effluents were reviewed.

##### b. Observations and Findings

Revisions 7 and 8 to the offsite dose calculation manual were issued since the last NRC inspection conducted in September 1993. Changes to the offsite dose calculation manual were documented in the annual radiological effluent release reports as required.

Revision 7, effective January 1, 1995, implemented minor changes to Tables B4-1, B5-1, and B5-2. These changes added several new radionuclides to the monthly and quarterly radioactive waste effluent surveillance analyses and incorporated changes to the vector and/or location descriptions for several radiological environmental monitoring program sample stations.

Revision 8, effective January 1, 1997, implemented changes to the description of the interlaboratory comparison program, changes to the environmental data reporting format in the radiological environmental operating report, added a section to demonstrate compliance with the 10 CFR 20.1301 dose limits for members of the public, and changes to the alarm setpoint calculation methods for the liquid effluent monitors.

The radioactive waste effluent management program's implementing procedures described the responsibilities for collection and analyses of liquid and gaseous radioactive waste effluent samples. Procedures for batch release of liquid radioactive waste effluents provided proper guidance regarding sampling, tank recirculation, analyses, release limits, monitoring, and approvals. Procedures for batch release of gaseous radioactive waste effluents provided proper guidance regarding sampling, analyses, and monitoring. The procedures were written with sufficient detail to effectively conduct the required radioactive waste management program activities. The inspectors reviewed the sample collection procedures and identified no concerns.

c. Conclusions

Revisions to the offsite dose calculation manual were properly documented. Implementing procedures for the liquid and gaseous radioactive waste effluent management programs provided proper guidance.

R3.2 Annual Reports

a. Inspection Scope (84750)

Annual radiological effluent release reports for 1994, 1995, and 1996 were reviewed.

b. Observations and Findings

The annual radioactive effluent release reports for 1994, 1995, and 1996 were 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 in the reports. A summary of the radioactive liquid and gaseous effluent releases and associated doses is presented in Attachment 2 to this report.

During 1994, 1995, and 1996, effluent monitoring instrumentation was not out of service in excess of Technical Specification requirements, and no abnormal (unplanned) liquid or gaseous radioactive effluent releases occurred.

c. Conclusions

Excellent annual radiological effluent release reports for 1994, 1995, and 1996 were submitted in a timely manner and contained the required information.

R4 Staff Knowledge and Performance

a. Inspection Scope (84750)

Personnel in the chemistry department were observed and interviewed to determine their knowledge of regulatory and offsite dose calculation manual requirements regarding the implementation of the liquid and gaseous radioactive waste effluent management program.

b. Observations and Findings

The inspectors observed chemistry technicians perform some of their duties and responsibilities in the implementation of the radioactive waste effluents program and determined that they were familiar with the requirements of the radioactive waste

management program. Chemistry personnel including supervisors and technical staff were knowledgeable of the programmatic procedures, offsite dose calculation manual requirements, 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 the period January 1996 through July 1997.

c. Conclusions

Chemistry personnel had an excellent understanding of the radioactive liquid and gaseous radioactive waste effluent management program, offsite dose calculation manual, and regulatory requirements.

**R5 Staff Training and Qualification**

a. Inspection Scope (84750)

Training and qualification programs for the chemistry technicians and radwaste operators responsible for implementing the radioactive waste effluents management program were reviewed.

Training and qualifications of the chemistry technicians and radwaste operators were verified.

b. Observations and Findings

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

Eight of the nine chemistry technicians currently assigned to each unit had completed the required training and were qualified to independently perform all radioactive waste effluent management program activities.

Completed qualification cards documented that there was a sufficient number of radwaste operators who were trained and qualified and assigned to shift operations.

c. Conclusions

Training and qualification programs for chemistry technicians and radwaste operators were properly implemented. The experience, training, and working knowledge of the chemistry division and the radwaste operations department personnel met the training and qualification requirements for conducting liquid and gaseous radioactive waste effluent processing and release operations.

**R6 Radiological Protection and Chemistry Organization and Administration**

a. Inspection Scope (84750)

Organization, staffing, and lines of authority of the chemistry division and radwaste operations department were reviewed.

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

Management controls were effective in implementing the liquid and gaseous radioactive waste effluent management program.

The chemistry division was adequately staffed. There had been very few personnel changes in the chemistry technician staff during the past 1½ years, and there was no reduction in the number of chemistry technicians assigned to each unit. The personnel changes in the chemistry technician 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 1½ years.

c. Conclusions

Staffing of the chemistry division and radwaste operations department met Technical Specification requirements. The chemistry technician and radwaste operations staffs changed very little during the past 1½ years.

**R7 Quality Assurance in Radiological Protection and Chemistry Activities**

**R7.1 Radioactive Waste Effluent Quality Assurance Program**

a. Inspection Scope (86750)

The following items were reviewed:

- Qualifications and resumes of auditors and technical specialist
- Quality assurance audit performed since January 1996
- Quality assurance monitoring reports since January 1996
- Radiological condition reports written since January 1996

b. Observations and Findings

The lead quality assurance auditor for the offsite dose calculation manual audit was qualified and experienced in radioactive waste effluent management program activities. A technical specialist, who was experienced in the radioactive waste effluent management program area, was a member of the audit team which performed the 1997 quality assurance audit of the offsite dose calculation manual.

The inspectors determined that the offsite dose calculation manual audit was comprehensive and provided a thorough overview of the liquid and gaseous radioactive waste effluent management program. The audit identified one deficiency and seven recommendations. The deficiency was tracked by the licensee's condition reporting system. The inspectors reviewed the corrective actions and determined that they were appropriate to correct the deficiency identified.

Quality assurance monitoring reports and chemistry department field observations were performed. No problems were identified with the reports and field observations.

No negative trends were identified during the review of radiological condition reports of the radioactive waste effluent management program area. The inspectors noted that recommendations to prevent a recurrence appeared to be appropriate and corrective actions were closed in a timely manner.

c. Conclusions

An effective quality assurance program was maintained. Comprehensive biennial audits of the liquid and gaseous radioactive waste effluent management program were performed. Condition reports related to liquid and gaseous radioactive waste effluent management program activities were closed in a timely manner. The quality assurance audit, monitoring reports, and chemistry department field observation reports provided good management 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 management program and the engineered-safety feature air cleaning ventilation systems was reviewed.

b. Observations and Findings

A contractor laboratory was used to perform required radiochemistry analyses of liquid and airborne particulate radioactive waste effluent composite samples. A

second contractor was used to perform in-place filter testing of the station's engineered-safety feature ventilation systems and perform laboratory analyses of the charcoal adsorber material.

The licensee used nuclear procurement issues committee audits of the two contractors to evaluate the performance of the contractors in performing their respective surveillance testing requirements. The audits were comprehensive and satisfactory to evaluate each of the contractor's abilities to perform their respective Technical Specification required analyses and surveillance testing activities.

c. Conclusion

There was appropriate evaluation of the contractors' performance.

R8 Miscellaneous Radiation Protection Issues

R8.1 (Closed) Licensee Event Report 94-017: Gaseous Effluent Monitor Setpoints not Calculated in Accordance with the Offsite Dose Calculation Manual

Licensee Event Report 94-017 documented a quality assurance audit finding that the alarm setpoints for the Unit 1 vent noble gas radiation monitor had not been calculated in accordance with the offsite dose calculation manual for the period January 1989 to June 1991. The Unit 1 vent noble gas radiation monitor's alarm setpoints were set to a value that was greater than the setpoint calculated using the offsite dose calculation manual methodologies. The gaseous effluent radiation monitor setpoints had not been properly calculated as a result of a revision to the offsite dose calculation manual. The licensee's review of the actual noble gas release rate data concluded that the dose rate due to noble gases during the affected time period of 2½ years did not exceed the limits of Technical Specification 3.11.2.1 or Offsite Dose Calculation Manual 3.11.2.1. The inspectors verified that the corrective actions described in the licensee event report were implemented. No similar problems were identified.

The failure to properly calculate the gaseous effluent radiation monitor setpoints in accordance with the offsite dose calculation manual methodologies is a violation of Offsite Dose Calculation Manual Section 3.2. However, this failure constituted a violation of minor significance. Therefore, this licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-498; 499/9719-01).

V. Management Meetings

X1    Exit Meeting Summary

The inspectors presented the inspection results to members of licensee's management at an exit meeting on August 28, 1997. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT 1  
SUPPLEMENTAL INFORMATION  
PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Bryant, Nuclear Chemist, Chemistry  
R. Gangluff, Manager, Chemistry  
P. Green, Senior Chemistry Technician, Chemistry  
S. Head, Senior Consulting Engineer, Licensing  
T. Koser, Staff Engineering Specialist, Licensing  
R. Logan, Manager, Radiation Protection  
R. Lovell, Manager, Unit 1 Operations  
M. Markovich, Senior Specialist, Quality Assurance  
L. Martin, General Manager, Nuclear Assurance and Licensing  
R. Masse, Plant Manager, Unit 2  
M. McBurnett, Manager, Licensing  
B. Mookhock, Staff Engineer, Licensing  
G. Parkey, Plant Manager, Unit 1  
R. Rehkugler, Director, Quality Assurance  
M. Rejcek, Radwaste Consulting Engineer, Chemistry  
K. Reynolds, Effluent Tracking Chemist, Chemistry  
J. Sheppard, Assistant to Executive Vice President  
S. Smith, Specialist, Quality Assurance

NRC

D. Loveless, Senior Resident Inspector

INSPECTION PROCEDURES USED

IP 84750                    Radioactive Waste Treatment and Effluent and Environmental Monitoring

ITEMS OPENED AND CLOSED

Opened

50-498; 499/9719-1        NCV    Gaseous Effluent Monitor Setpoints not Calculated in Accordance with the Offsite Dose Calculation Manual

Closed

50-498; 499/9719-01        NCV    Gaseous Effluent Monitor Setpoints not Calculated in Accordance with the Offsite Dose Calculation Manual

## LIST OF DOCUMENTS REVIEWED

### ORGANIZATION CHART

Chemistry Division Organization Chart - April 1997

### QUALITY ASSURANCE DOCUMENTS

OPQP01-ZA-0001, "Plant Audits," Revision 1

OPQP01-ZA-0015, "Oversight Planning and Scheduling Process," Revision 4

#### Quality Assurance Audits

Quality Audit Report 97-07, "Offsite Dose Calculation Manual," July 28, 1997

#### Quality Assurance Monitoring Reports

Quality Monitoring Report MN-96-1-0110, "ODCM Calculations," February 27, 1996

Quality Monitoring Report MN-96-2-0136, "Perform Sample Collection and Analysis of Unit Vent Particulate and Iodine Samples," February 29, 1996

Quality Monitoring Report MN-96-1-0187, "Preparation of a Weekly Unit Vent Permit for Unit 1," March 25, 1996

Quality Monitoring Report MN-97-0-0046, "Review of 1994 and 1995 Annual Effluent Reports," January 9, 1997

#### Vendor Audits

NUPIC Vendor Audit 94-102, NCS Corporation, performed November 15-17, 1994

NUPIC Vendor Audit 95-079, Yankee Atomic Electric Company (Laboratory), performed June 19, 1995

### PROCEDURES

OPCP01-ZA-0021, "Liquid Radwaste Processing and Water Management Guidelines," Revision 6

OPCP07-ZS-0010, "Waste Monitor Tank Sampling," Revision 0

OPCP07-ZS-0016, "Continuous Atmospheric Monitors," Revision 14

OPGP03-ZA-0097, "Changes to the Offsite Dose Calculation Manual," Revision 3

OPGP03-ZE-0008, "Nuclear Air-Cleaning Systems Filter Test Program Description," Revision 5

OPGP03-ZO-0024, "Reactor Containment Purge Release Permit," Revision 7

OPOP02-WL-0005, "Waste Monitor Tank (WMT) Operations," Revision 2

OPSP03-ZQ-0028, "Operator Logs," Revision 32

OPSP02-RA-8010, "Unit Vent Radiation Monitors Source Check," Revision 2

OPSP02-RA-8010A, "Unit Vent Particulate and Iodine Effluent Monitor DCOT (RT-8010A)," Revision 2

OPSP02-RA-8010B, "Unit Vent Gaseous Effluent Monitor DCOT (RT-8010B)," Revision 8

OPSP02-RA-8038, "Liquid Effluent Monitor DCOT (RT-8038)," Revision 7

1PSP05-WL-4078, "Plant Liquid Waste Discharge Flow Calibration (F-4078)," Revision 1

2PSP05-WL-4078, "Plant Liquid Waste Discharge Flow Calibration (F-4078)," Revision 0

OPSP07-WL-0002, "Radiochemical Surveillance for Liquid Waste Process System Monthly Composites," Revision 6

OPSP07-WL-0003, "Liquid Waste Processing System Quarterly Composites," Revision 4

OPSP07-WL-0005, "Liquid Waste Tank Batch Effluent Release," Revision 7

OPSP07-VE-0002, "Unit Vent Particulate and Iodine Analyses," Revision 7

OPSP07-VE-0003, "Unit Vent Noble Gas, Tritium, and Composite Analyses," Revision 9

OPSP14-RA-1017, "MAB Unit Vent Wide Range Gas Monitor (N1RA-RT-8010B or N2RA-RT-8010B) Calibration," Revision 6

OPSP14-RA-1022, "Liquid Waste Processing System No. 1 Monitor (N1RA-RT-8038 or N2RA-RT-8038) Calibration," Revision 4

OPSP14-RA-1023, "MAB Unit Vent Particulate and Iodine Monitor (N1RA-RT-8010A or N2RA-RT-8010A) Calibration," Revision 2

REPORTS

Annual Radioactive Effluent Release Reports - 1994, 1995, and 1996

MISCELLANEOUS DOCUMENTS

Summary of radwaste condition reports written since January 1996

Chemistry department training records

Radwaste operations department training records

Attachment 2

Unit 1

Summary of All Liquid Effluent Releases				
	1993	1994	1995	1996
Number of Batch Releases	343	198	275	201
Fission & Activation Products (Curies)	0.5737	0.2926	0.6057	0.7465
Tritium (Curies)	112.90	650.99	2,504.14	738.27
Dissolved & Entrained Noble Gases (Curies)	0.00693	0.00337	0.0701	0.0764
Waste Volume Released (Liters)	1.760E+07	2.730E+07	7.564E+07	2.990E+07

Summary of All Airborne Effluent Releases				
	1993	1994	1995	1996
Batch and Continuous Releases				
Fission & Activation Products (Curies)	24.27	36.10	9.56	30.96
Total Iodine-131 (Curies)	0.000	3.964E-08	7.950E-07	3.872E-05
Particulates w/T <sub>1/2</sub> > 8 Days (Curies)	4.847E-05	2.799E-05	5.570E-05	1.415E-04
Gross Alpha (Curies)	4.362E-07	0.000	0.000	0.000
Tritium (Curies)	8.10	137.85	151.86	17.87

Maximum Annual Doses From Gaseous & Liquid Effluent Releases				
	1993	1994	1995	1996
Liquid Effluents				
Organ (GI) (mrem)	0.00325	0.00491	0.0153	0.00528
Whole Body (mrem)	0.00186	0.00402	0.0145	0.00443
Gaseous Effluents				
Gamma Air Dose (mrads)	0.000476	0.00218	0.00076	0.00370
Beta Air Dose (mrads)	0.00141	0.00266	0.000713	0.00514
Iodine-131, 133, Tritium, and Particulates w/T <sub>1/2</sub> > 8 Days (mrem)	0.00197	0.0205	0.0243	0.0141

Summary of All Liquid Effluent Releases				
	1993	1994	1995	1996
Number of Batch Releases	291	189	241	143
Fission & Activation Products (Curies)	0.2951	0.1947	0.2793	0.3048
Tritium (Curies)	106.90	97.85	1,195.34	878.51
Dissolved & Entrained Noble Gases (Curies)	1.131	0.001386	0.02029	0.01737
Waste Volume Released (Liters)	1.623E+07	2.205E+07	3.492E+07	1.906E+07

Summary of All Airborne Effluent Releases				
	1993	1994	1995	1996
Batch and Continuous Releases				
Fission & Activation Products (Curies)	17.89	18.57	21.98	0.776
Total Iodine-131 (Curies)	5.950E-06	0.000	1.384E-05	1.110E-06
Particulates w/T <sub>1/2</sub> > 8 Days (Curies)	4.812E-04	7.610E-06	4.058E-04	1.373E-05
Gross Alpha (Curies)	1.227E-07	0.000	0.000	0.000
Tritium (Curies)	6.46	24.05	18.31	129.67

Maximum Annual Doses From Gaseous & Liquid Effluent Releases				
	1993	1994	1995	1996
Liquid Effluents				
Organ (GI) (mrem)	0.00204	0.00167	0.00774	0.00613
Whole Body (mrem)	0.00143	0.00118	0.00704	0.00527
Gaseous Effluents				
Gamma Air Dose (mrads)	0.000485	0.000957	0.000939	0.00370
Beta Air Dose (mrads)	0.00138	0.00191	0.00118	0.00514
Iodine-131, 133, Tritium, and Particulates w/T <sub>1/2</sub> > 8 Days (mrem)	0.00272	0.00360	0.00372	0.0141