The Light company
Houston Lighting & Power South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

August 29, 1990
ST-HL-AE-3552
File No.: G02
10CFR50.36a

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project Electric Generating Station
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Semiannual Radioactive Effluent
Release Report for the First Half of 1990

Pursuant to the South Texas Project Electric Generating Station (STPEGS) Technical Specification 6.9.1.4 and 10CFR50.36a, attached is the Semiannual Radioactive Effluent Release Report for the first half of 1990. The report covers the period from January 1, 1990 to June 30, 1990.

If you should have any questions on this matter, please contact Mr. C.A. Ayala at (512) 972-8628.

M. A. McBurnett
Manager,
Nuclear Licensing

RAD/sgs

Attachment: Semiannual Radioactive Effluent
Release Report for the First Half
of 1990.

NL.90.058.01

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cc:

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Note: The above copies distributed without the attachment, except as noted by asterisk (*)

Revised 12/15/89

LA/NRC/

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

FOR FIRST HALF, 1990

STP M-[illegible]008

HOUSTON LIGHTING AND POWER COMPANY

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNIT ONE

LICENSE NO. NPF-76

AND

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION UNIT TWO

LICENSE NO. NPF-80

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

JANUARY 1, THROUGH JUNE 30, 1990

Prepared by: _____ 8/28/90
Chemical Operations and Analysis Manager — Date

Reviewed by: _____ 8/28/90
Technical Services Manager — Date

Reviewed by: _____ 8/29/90
Plant Manager — Date

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1.0 Introduction

This Semiannual Radioactive Effluent Release Report for the period January 1, 1990, through June 30, 1990, is submitted in accordance with Appendix A of License NPF-76 and NPF-80, Technical Specifications.

A single submittal is made for both units which combines those sections that are common. Separate tables of releases and release totals are included where separate processing systems exist.

In accordance with Technical Specifications 6.9.1.4 the hourly meteorological data and assessment of radiation doses due to radioactive effluents shall be included in the Semiannual Radioactive Effluent Release Report submitted within 60 days after January 1 of each year, and therefore is not included in this report.

Liquid quarterly composites for Strontium-89, Strontium-90 and Iron-55 for the 2nd quarter, 1990, will be updated in the next Semiannual Radioactive Effluent Release Report if appropriate.

All assessments of radiation doses are performed in accordance with the STPEGS Offsite Dose Calculation Manual (ODCM).

2.0 Supplemental Information for Effluent and Waste Disposal

Unit Number 1	
Type: PWR	Houston Lighting & Power Co.
Docket No. 50-498	Power (MWT)- 3800
Cooling Water Source: Main Cooling Reservoir	Initial Criticality-(March 8, 1988)

Unit Number 2	
Type: PWR	Houston Lighting & Power Co.
Docket No. 50-499	Power (MWT)- 3800
Cooling Water Source: Main Cooling Reservoir	Initial Criticality-(March 12, 1989)

2.1 Regulatory Limits

2.1.1 Fissio. and activation gases

The air dose due to noble gases released in gaseous effluents, from each unit, to areas at and beyond the Site Boundary shall be limited to the following:

a. During any calendar quarter: Less than or equal to 5 mrads for gamma radiation and less than or equal to 10 mrads for beta radiation, and

b. During any calendar year: Less than or equal to 10 mrads for gamma radiation and less than or equal to 20 mrads for beta radiation.

2.1.2 Iodines and Particulates, half-lives > 8 days

The dose to a Member of the Public from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released, from each unit, to areas at and beyond the Site Boundary shall be limited to the following:

a. During any calendar quarter: Less than or equal to 7.5 mrems to any organ and,

b. During any calendar year: Less than or equal to 15 mrems to any organ.

2.1.3 Liquid Effluents

The dose or dose commitment to a Member of the Public from radioactive materials in liquid effluents released, from each unit, to Unrestricted Areas shall be limited to:

a. During any calendar quarter to less than or equal to 1.5 mrems to the whole body and to less than or equal to 5 mrems to any organ, and

b. During any calendar year to less than or equal to 3 mrems to the whole body and to less than or equal to 10 mrems to any organ.

2.2 Maximum Permissible Concentrations

2.2.1 Gaseous Effluents

The dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the Site Boundary shall be limited to the following:

a. For noble gases: Less than or equal to 500 mrems/yr to the whole body and less than or equal to 3000 mrems/yr to the skin and

b. For Iodine-131, for Iodine-133, for tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to 1500 mrems/yr to any organ.

2.2.2 Liquid Effluents

The concentration of radioactive material released in liquid effluents to Unrestricted Areas shall be limited to the concentrations specified in 10CFR Part 20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases the concentration shall be limited to 2.0E-04 micro curie/ml total activity.

2.3 Average Energy (MeV/Disintegration)

The Average Energy (or E-bar) shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration for the isotopes other than Iodines, with half-lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

E-bar (MeV/Disintegration) 0.833 Unit 1

0.729 Unit 2

2.4 Measurement and Approximations of Total Activity

The following discussions detail the methods used to measure and approximate total activity for the following:

a. Fission and Activation Gases
b. Iodines
c. Particulates
d. Liquid Effluents

Tables A3-1 and A4-1 of the STPEGS Offsite Dose Calculation Manual (ODCM) give sampling frequencies and minimum detectable concentration requirements for the analysis of liquid and gaseous effluent streams.

2.4.1 Gaseous Effluents

2.4.1.1 Fission and Activation Gases

The following noble gases are considered in evaluating gaseous airborne discharges:

Ar-41	Xe-131m
Kr-83m	Xe-133m
Kr-85m	Xe-133
Kr-85	Xe-135m
Kr-87	Xe-135
Kr-88	Xe-137
Kr-89	Xe-138
Kr-90	

2.4.1.2 Iodines and Particulates

The radioiodines and radioactive materials in particulate forms to be considered are:

Cr-51	Sb-124	H-3
Mn-54	I-131	Mo-99
Fe-59	I-133	
Co-58	Cs-134	
Co-60	Cs-136	
Zn-65	Cs-137	
Sr-89	Ba-140	
Sr-90	Ce-141	
Zr-95	Ce-144	
Other nuclides with half-lives greater than 8 days		

2.4.1.3 Analytic Methods

a. Batch Gaseous Releases

Pre-release grab samples from the plant containment atmosphere, prior to issuance of weekly permits, and pre-release grab samples from the RCS Vacuum Degassing System are analyzed on a Gamma Spectroscopy System utilizing high purity germanium detectors (HPGe) for noble gas, iodine and particulate activity.

The radionuclide values obtained are used in conjunction with the gross noble gas release rate monitoring data collected by the radiation monitoring system to estimate the release rate of each radionuclide in the effluent streams.

b. Continuous Gaseous Releases

Periodic noble gas and tritium grab samples are taken from the continuous release points (i.e. the Unit Vent and the condenser vacuum pump exhaust). Continuous sampling for particulates and iodine is also performed on the effluent streams. They are analyzed for gross alpha and gamma radionuclides, as described above for batch releases. Strontium-89 and Strontium-90 analysis is performed by an offsite laboratory.

2.4.2 Liquid Effluents

The radionuclides listed below are considered when evaluating liquid effluents:

H3	Y-90	I-133
Na-24	Y-91m	I-134
Cr-51	Y-91	I-135
Mn-54	Y-93	Cs-134
Mn-56	Zr-95	Cs-136
Fe-55	Zr-97	Cs-137
Fe-59	Nb-95	Cs-138
Co-58	Mo-99	Ba-139
Co-60	Tc-99m	Ba-140
Ni-65	Tc-101	Ba-141
Cu-64	Ru-105	Ba-142
Zn-65	Ru-106	La-140
Zn-69	Ag-110m	La-142
Br-83	Te-125m	Ce-141
Br-84	Te-127m	Ce-143
Br-85	Te-127	Ce-144
Rb-86	Te-129m	Pr-143
Rb-88	Te-129	Pr-144
Rb-89	Te-131m	Nd-147
Sr-89	Te-131	W-187
Sr-90	Te-132	Np-239
Sr-91	I-130	.LIQ*
Sr-92	I-131	.ALPHA (Gross Alpha)
	I-132	.Xe-133
		.Xe-135

*includes other gamma peaks that are identified

2.4.2.1 Analytic Methods

a. Batch Liquid Releases

All liquid effluents are released as batches. Representative pre-release grab samples are taken and analyzed in accordance with Table A3-1 of the ODCM. Radionuclide analyses are performed using the Gamma Spectroscopy System. Aliquots of each pre-release sample are composited in accordance with the requirements in Table A3-1 of the ODCM. Gross alpha determinations are made using the Gas-Flow Proportional Counting System. Tritium concentrations are determined using Liquid Scintillation Counting techniques. Dissolved and entrained gas concentrations are determined by counting grab samples on the Gamma Spectroscopy System. Strontium 89 and 90 and Iron-55 determinations are performed by an offsite laboratory.

The radionuclide concentrations obtained are used with the flow total for each batch release. The error associated with the flow total is small in relation to the counting uncertainty of the radionuclide concentration analysis. The average uncertainty associated with counting measurements is 5% or less at the 95% confidence level.

2.5 Batch Releases

2.5.1 Liquid (Unit 1)	Quarter 1	Quarter 2
a. Number of releases:	50	102
b. Total time period for releases (min):	2693	6964
c. Maximum time period for a release (min):	66	656
d. Average time period for a release (min):	54	68
e. Minimum time period for a release (min):	51	2

		Quarter 1	Quarter 2
2.5.2	Gaseous (Unit 1)		
	a. Number of releases:	69	55
	b. Total time period for releases (min):	901	64179
	c. Maximum time period for a release (min):	59	3896
	d. Average time period for a release (min):	13	1167
	e. Minimum time period for a release (min):	3	3
2.5.3	Liquid (Unit 2)		
	a. Number of releases:	69	94
	b. Total time period for releases (min):	3666	5573
	c. Maximum time period for a release (min):	62	177
	d. Average time period for a release (min):	53	59
	e. Minimum time period for a release (min):	22	4
2.5.4	Gaseous (Unit 2)		
	a. Number of releases:	80	82
	b. Total time period for releases (min):	3022	4701
	c. Maximum time period for a release (min):	808	763
	d. Average time period for a release (min):	38	57
	e. Minimum time period for a release (min):	1	3

2.6 Abnormal (Unplanned) Releases

		Quarter 1	Quarter 2
2.6.1	Liquid (Unit 1)		
	a. Number of releases:	0	0
	b. Total activity released (curies):	0.000E+00	0.000E+0
2.6.2	Gaseous (Unit 1)		
	a. Number of releases:	0	0
	b. Total activity released (curies):	0.000E+00	0.000E+00
2.6.3	Liquid (Unit 2)		
	a. Number of releases:	0	0
	b. Total activity released (curies):	0.000E+00	0.000E+0
2.6.4	Gaseous (Unit 2)		
	a. Number of releases:	0	0
	b. Total activity released (curies):	0.000E+00	0.000E+00

2.7 Estimate of Total Error

2.7.1 Liquid

a. The maximum error associated with volume and flow measurements, based upon plant ca' ›ration practice is estimated to be +/- 0.08%.

b. The average uncertainty associated with counting measurements is 5% or less at the 95% confidence level.

c. The error associated with dilution volume is estimated to be +/- 10%.

2.7.2 Gaseous

a. The maximum error associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedures are collectively estimated to be:

Fission and Activation Gases	±25%
Iodines	±25%
Particulates	±25%
Tritium	±25%

b. The average uncertainty associated with counting measurements is 5% or less at the 95% confidence level for fission and activation gases, iodines, particulates and tritium.

2.7.3 Solid Radioactive Waste

The error associated in determining the contents and volume of solid radwaste shipments is estimated to be +/- 5% significance levels and ± 1%, respectively.

2.8 Solid Waste Shipments

A total of seven radioactive shipments of dry active waste and resin were made during the reporting period. A summary of the data is provided in the Solid Waste and Irradiated Fuel Shipments Table.

2.9 Radiological Impact on Man (ref. Technical Specifications 6.9.1.4)

This data shall be included in the Semiannual Radioactive Effluent Release Report to be submitted within 60 days after January 1 of each year.

2.10 Meteorological Data

This data shall be included in the Semiannual Radioactive Effluent Release Report to be submitted within 60 days after January 1 of each year.

2.11 Lower Limit of Detection (LLD)

The LLD (an a priori limit) is defined as the smallest concentration of radioactive material in a sample that will yield a net count, above system background, that will be detected with 95% probability, and only a 5% probability of falsely concluding that a blank observation represents a "real" signal.

2.12 Dose to MEMBERS OF THE PUBLIC On Site

In accordance with Technical Specifications 6.9.1.4, this data shall be submitted within 60 days after January 1 of each year.

3.0 Technical Specifications Reporting Requirements

3.1 Radioactive Waste Treatment System Design Modification Description (ref. Technical Specifications 6.15)

A Unit 2 liquid radioactive waste treatment system design modification was completed during this reporting period (Appendix A). No changes were made to Unit 1 solid, liquid, or gaseous radioactive waste treatment systems or to Unit 2 solid or gaseous radioactive waste treatment systems.

3.2 Inoperable Effluent Monitoring Instrumentation Explanation (ref. Technical Specifications 6.9.1.4)

Condenser Vacuum Pump Wide Range Gas Monitors N1RA-RT-8027 and N2RA-RT-8027 were removed from service on November 1, 1988 at 0100. Since the problems with the monitors were not repaired within 30 days, the following is provided as an explanation.

The Condenser Vacuum Pump Wide Range Gas Monitors N1RA-RT-8027 and N2RA-RT-8027 have similar problems with the process fluid stream. In both cases, the actual process flowrate is less than the designed process flowrate and the fluid is humid air instead of a mixture of steam and air as expected. Plant Modifications were written to redesign the output of the condenser to flow to the Unit Vent. This solution is expected to relieve N1RA-RT-8027 and N2RA-RT-8027 of the burden of being isokinetically sampled monitors and will eliminate the need for measurement of wet process and wet sample flows. Unit 1 Plant Modification (89-066) installation has been scheduled for the end of September, 1990. The Unit 2 Plant Modification (89-067) is expected to be completed the middle of October, 1990. Operation is contingent upon implementation of the change to Technical Specification 3.3.3.11.

3.3 Gas Storage Tank Curie Limit Violation Description (ref. Technical Specifications 6.9.1.4)

The RCS Vacuum Degassing System was not used during this reporting period.

3.4 Unprotected Outdoor Tank Curie Limit Violation Description (ref. Technical Specifications 6.9.1.4)

There are no Unprotected Outdoor Tanks at STPEGS.

3.5 Abnormal (Unplanned) Release Description (ref. Technical Specifications 6.9.1.4)

No abnormal releases of liquid waste from STPEGS Unit 1 or Unit 2 to UNRESTRICTED AREAS occurred during this reporting period.

3.6 Radioactive Waste Process Control Program Changes (ref. Technical Specifications 6.13.2)

There were no changes to the Radioactive Waste Process Control Program (PCP) during this reporting period.

3.7 Offsite Dose Calculation Manual Change (ref. Technical Specifications 6.14.2.a)

No changes were made to the Offsite Dose Calculation Manual (ODCM) during this reporting period.

3.8 New Land Use Census Location(s) Identification (ref. Technical Specifications 3.12.2.a)

The Land Use Census was not conducted during the report period.

4.0 Revisions to Previous Reports

4.1 Quarterly Composite Updates

The Unit 1 fourth quarter 1989 quarterly composite analysis for Iron-55 added 1.19 E-3 mrem to the total body and 2.72 E-3 mrem to the applicable organ of the highest receptor. Applicable dose limits were not exceeded by this addition. (Appendix B)

GASEOUS EFFLUENT

FOR 1990

1st and 2nd Quarter

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 1	QUARTER 2	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION GASES				
1. TOTAL RELEASE	CI	0.457E+02	0.421E+02	0.250E+02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.588E+01	0.536E+01	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.218E-02	0.198E-02	
B. IODINES				
1. TOTAL IODINE-131	CI	0.950E-04	0.217E-03	0.250E+02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.122E-04	0.275E-04	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.134E-04	0.303E-04	
C. PARTICULATES				
1. PARTICULATES WITH HALF-LIVES > 8 DAYS	CI	0.410E-05	0.393E-03	0.250E+02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.527E-06	0.500E-04	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.579E-06	0.549E-04	
4. GROSS ALPHA RADIOACTIVITY	CI	0.113E-05	0.000E+00	
D. TRITIUM				
1. TOTAL RELEASE	CI	0.108E+01	0.506E+01	0.250E+02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.139E+00	0.643E+00	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.771E-04	0.357E-03	

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR RELEASE POINT: 1 (UNIT VENT)

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
1. FISSION GASES					
AR41	CI	0.184E+01	0.000E+00	0.316E+00	0.233E+00
KR83M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR85M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR85	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR87	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR88	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR89	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR90	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE131M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE133M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE133	CI	0.373E+02	0.179E+02	0.235E+01	0.240E+02
XE135M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE135	CI	0.387E+01	0.000E+00	0.507E-01	0.000E+00
XE137	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE138	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
UNIDENT.	CI	0.000E+00	0.000E+00	0.000E+00	0.283E-05
TOTAL FOR PERIOD (ABOVE)	CI	0.430E+02	0.179E+02	0.271E+01	0.242E+02

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR RELEASE POINT: 1 (UNIT VENT)

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
2. IODINES					
I131	CI	0.850E-04	0.762E-05	0.100E-04	0.209E-03
I133	CI	0.870E-04	0.283E-06	0.848E-05	0.947E-05
TOTAL FOR PERIOD (ABOVE)	CI	0.172E-03	0.791E-05	0.185E-04	0.218E-03
3. PARTICULATES					
C14	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CR51	CI	0.000E+00	0.126E-04	0.000E+00	0.989E-04
MN54	CI	0.000E+00	0.000E+00	0.000E+00	0.119E-05
FE59	CI	0.000E+00	0.688E-06	0.000E+00	0.273E-05
CO58	CI	0.327E-05	0.203E-04	0.640E-07	0.230E-03
CO60	CI	0.765E-06	0.184E-05	0.000E+00	0.159E-04
ZN65	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR89	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR90	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR95	CI	0.000E+00	0.413E-06	0.000E+00	0.357E-05
SB124	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS134	CI	0.000E+00	0.000E+00	0.387E-08	0.000E+00
CS136	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS137	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR RELEASE POINT: 1 (UNIT VENT)

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
3. PARTICULATES (CONTD)					
BA140	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE141	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE144	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
UNIDENT.	CI	0.000E+00	0.842E-06	0.000E+00	0.392E-05
TOTAL FOR PERIOD (ABOVE)	CI	0.403E-05	0.367E-04	0.679E-07	0.356E-03

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

CASEOUS EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 1	QUARTER 2	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION GASES				
1. TOTAL RELEASE	CI	0.530E+01	0.231E+02	0.250E+02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.681E+00	0.293E+01	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.252E-03	0.109E-02	
B. IODINES				
1. TOTAL IODINE-131	CI	0.000E+00	0.467E-05	0.250E+02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.000E+00	0.593E-06	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.000E+00	0.652E-06	
C. PARTICULATES				
1. PARTICULATES WITH HALF-LIVES > 8 DAYS	CI	0.212E-04	0.191E-04	0.250E+02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.272E-05	0.243E-05	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.299E-05	0.266E-05	
4. GROSS ALPHA RADIOACTIVITY	CI	0.261E-05	0.000E+00	
D. TRITIUM				
1. TOTAL RELEASE	CI	0.497E+01	0.226E+01	0.250E+02
2. AVERAGE RELEASE RATE FOR PERIOD	UCI/SEC	0.639E+00	0.287E+00	
3. PERCENT OF TECHNICAL SPECIFICATION LIMIT	%	0.355E-03	0.159E-03	

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR RELEASE POINT: 1 (UNIT VENT)

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
1. FISSION GASES					
AR41	CI	0.000E+00	0.000E+00	0.254E+00	0.529E+00
KR83M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR85M	CI	0.000E+00	0.463E-01	0.000E+00	0.145E-01
KR85	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR87	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR88	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR89	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
KR90	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE131M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE133M	CI	0.000E+00	0.000E+00	0.000E+00	0.161E-01
XE133	CI	0.427E+01	0.160E+02	0.721E+00	0.482E+01
XE135M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE135	CI	0.434E-01	0.148E+01	0.746E-02	0.199E+00
XE137	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE138	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
UNIDENT.	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL FOR PERIOD (ABOVE)	CI	0.432E+01	0.175E+02	0.983E+00	0.558E+01

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR RELEASE POINT: 1 (UNIT VENT)

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
2. IODINES					
I131	CI	0.000E+00	0.360E-05	0.000E+00	0.107E-05
I133	CI	0.000E+00	0.169E-04	0.000E+00	0.612E-05
TOTAL FOR PERIOD (ABOVE)	CI	0.000E+00	0.205E-04	0.000E+00	0.718E-05
3. PARTICULATES					
C14	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CR51	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MN54	CI	0.000E+00	0.000E+00	0.000E+00	0.140E-05
FE59	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CO58	CI	0.433E-06	0.547E-05	0.849E-07	0.348E-05
CO60	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN65	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR89	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR90	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR95	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SB124	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS134	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS136	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS137	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

GASEOUS EFFLUENTS FOR RELEASE POINT: 1 (UNIT VENT)

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
3. PARTICULATES (CONTD)					
BA140	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE141	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE144	CI	0.000E+00	0.000E+00	0.000E+00	0.871E-05
UNIDENT.	CI	0.189E-04	0.000E+00	0.178E-05	0.000E+00
TOTAL FOR PERIOD (ABOVE)	CI	0.193E-04	0.547E-05	0.187E-05	0.136E-04

LIQUID EFFLUENT

FOR 1990

1st and 2nd Quarter

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 1	QUARTER 2	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION PRODUCTS				
1. TOTAL RELEASE (EXCL. TRIT., GASES, ALPHA)	CI	0.758E-01	0.540E+01	0.500E+01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	0.409E-09	0.291E-07	
3. PERCENT OF APPLICABLE LIMIT	%	0.266E-02	0.974E-01	
B. TRITIUM				
1. TOTAL RELEASE	CI	0.630E+02	0.631E+02	0.500E+01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	0.341E-06	0.340E-06	
3. PERCENT OF APPLICABLE LIMIT	%	0.362E+00	0.362E+00	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CI	0.105E+00	0.131E+00	0.500E+01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	0.568E-09	0.708E-09	
3. PERCENT OF APPLICABLE LIMIT	%	0.568E-03	0.708E-03	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CI	0.000E+00	0.000E+00	0.500E+01
E. VOLUME WASTE RELEASED (PRIOR TO DILUTION)	LITERS	0.246E+07	0.496E+07	0.800E-01
F. VOLUME DILUTION WATER USED DURING PERIOD *	LITERS	0.185E+12	0.185E+12	0.100E+02

*Dilution water volumes have been adjusted to reflect the reservior volume as defined in the ODCM. Volume used in previous reports used a conservative volume which was controlled in the Radiation Monitoring System Computer.

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
H3	CI	0.000E+00	0.000E+00	0.630E+02	0.631E+02
C14	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NA24	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
P32	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CR51	CI	0.000E+00	0.000E+00	0.278E-02	0.889E+00
MN54	CI	0.000E+00	0.000E+00	0.365E-02	0.820E-01
MN56	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FE55	CI	0.000E+00	0.000E+00	0.295E-01	0.000E+00
FE59	CI	0.000E+00	0.000E+00	0.476E-03	0.860E-01
CO58	CI	0.000E+00	0.000E+00	0.230E-01	0.388E+01
CO60	CI	0.000E+00	0.000E+00	0.892E-02	0.247E+00
NI63	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NI65	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU64	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN65	CI	0.000E+00	0.000E+00	0.533E-04	0.318E-02
ZN69	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR83	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR84	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR85	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

NUCLIDES RELEASED	UNITS	CONTINUOUS MODE QUARTER 1	CONTINUOUS MODE QUARTER 2	BATCH MODE QUARTER 1	BATCH MODE QUARTER 2
LIQUID EFFLUENTS (CONTD)					
RB86	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB88	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB89	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR89	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR90	CI	0.000E+00	0.000E+00	0.320E-04	0.000E+00
SR91	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR92	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y90	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y91M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y91	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y92	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y93	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR95	CI	0.000E+00	0.000E+00	0.899E-03	0.380E-01
ZR97	CI	0.000E+00	0.000E+00	0.000E+00	0.175E-03
NB95	CI	0.000E+00	0.000E+00	0.176E-02	0.663E-01
MO99	CI	0.000E+00	0.000E+00	0.000E+00	0.198E-04
TC99M	CI	0.000E+00	0.000E+00	0.000E+00	0.201E-04
TC101	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
LIQUID EFFLUENTS (CONTD)					
RU103	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU105	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU106	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG110M	CI	0.000E+00	0.000E+00	0.317E-04	0.124E-01
TE125M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE127M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE127	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE129M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE129	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE131M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE131	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE132	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I130	CI	000E+00	0.000E+00	0.000E+00	0.000E+00
I131	CI	0.000E+00	0.000E+00	0.690E-04	0.173E-02
I132	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I133	CI	0.000E+00	0.000E+00	0.919E-05	0.513E-04
I134	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I135	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

LIQUID EFFLUENTS (CONTD)

NUCLIDES RELEASED	UNITS	CONTINUOUS MODE QUARTER 1	CONTINUOUS MODE QUARTER 2	BATCH MODE QUARTER 1	BATCH MODE QUARTER 2
CS134	CI	0.000E+00	0.000E+00	0.345E-04	0.253E-03
CS136	CI	0.000E+00	0.000E+00	0.000E+00	0.000E-00
CS137	CI	0.000E+00	0.000E+00	0.205E-03	0.334E-03
CS138	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA139	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA140	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA141	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA142	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA140	CI	0.000E+00	0.000E+00	0.247E-04	0.102E-02
LA142	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE141	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE143	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE144	CI	0.000E+00	0.000E+00	0.000E+00	0.436E-03
PR143	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND147	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
W187	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP239	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
LIQUID EFFLUENTS (CONTD)					
.LIQ	CI	0.000E+00	0.000E+00	0.433E-02	0.864E-01
TOTAL FOR PERIOD (ABOVE)	CI	0.000E+00	0.000E+00	0.631E+02	0.685E+02
XE-133	CI	0.000E+00	0.000E+00	0.102E+00	0.130E+00
XE-135	CI	0.000E+00	0.000E+00	0.298E-02	0.636E-03

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 1	QUARTER 2	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION PRODUCTS				
1. TOTAL RELEASE (EXCL. TRIT., GASES, ALPHA)	CI	0.222E-01	0.392E-01	0.500E+01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	0.120E-09	0.212E-09	
3. PERCENT OF APPLICABLE LIMIT	%	0.416E-03	0.124E-01	
B. TRITIUM				
1. TOTAL RELEASE	CI	0.671E+02	0.190E+03	0.500E+01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	0.362E-06	0.102E-05	
3. PERCENT OF APPLICABLE LIMIT	%	0.364E+00	0.408E+00	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CI	0.510E-02	0.150E+01	0.500E+01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	0.276E-10	0.811E-08	
3. PERCENT OF APPLICABLE LIMIT	%	0.276E-04	0.811E-02	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CI	0.130E-04	0.000E+00	0.500E+01
E. VOLUME WASTE RELEASED (PRIOR TO DILUTION)	LITERS	0.303E+07	0.461E+07	0.800E-01
F. VOLUME DILUTION WATER USED DURING PERIOD *	LITERS	0.185E+12	0.185E+12	0.100E+02

*Dilution water volumes have been adjusted to reflect the reservoir volume as defined in the ODCM. Volume used in previous reports, used a conservative volume which was controlled in the Radiation Monitoring System Computer.

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 1

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
H3	CI	0.169E-01	0.849E-02	0.000E+00	0.000E+00
C14	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NA24	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
P32	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CR51	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MN54	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MN56	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FE55	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FE59	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CO58	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CO60	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NI63	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NI65	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU64	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN65	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN69	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR83	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR84	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR85	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 1

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
LIQUID EFFLUENTS (CONTD)					
.LIQ	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TOTAL FOR PERIOD (ABOVE)	CI	0.169E-01	0.849E-02	0.000E+00	0.000E+00
XE-133	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
XE-135	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
H3	CI	0.000E+00	0.000E+00	0.671E+02	0.190E+03
C14	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NA24	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
P32	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CR51	CI	0.000E+00	0.000E+00	0.191E-03	0.342E-03
MN54	CI	0.000E+00	0.000E+00	0.138E-03	0.732E-04
MN56	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FE55	CI	0.000E+00	0.000E+00	0.145E-01	0.000E+00
FE59	CI	0.000E+00	0.000E+00	0.882E-04	0.121E-03
CO58	CI	0.000E+00	0.000E+00	0.617E-02	0.417E-02
CO60	CI	0.000E+00	0.000E+00	0.308E-03	0.782E-04
NI63	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NI65	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU64	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN65	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN69	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR83	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR84	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR85	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

			CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
LIQUID EFFLUENTS (CONTD)					
RB86	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB88	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RB89	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR89	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR90	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR91	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
SR92	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y90	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y91M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y91	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y92	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Y93	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZR95	CI	0.000E+00	0.000E+00	0.208E-04	0.176E-04
ZR97	CI	0.000E+00	0.000E+00	0.763E-06	0.000E+00
NB95	CI	0.000E+00	0.000E+00	0.386E-04	0.309E-04
MO99	CI	0.000E+00	0.000E+00	0.121E-05	0.000E+00
TC99M	CI	0.000E+00	0.000E+00	0.115E-05	0.000E+00
TC101	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
LIQUID EFFLUENTS (CONTD)					
RU103	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU105	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RU106	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
AG110M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE125M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE127M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE127	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE129M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE129	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE131M	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE131	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
TE132	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I130	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I131	CI	0.000E+00	0.000E+00	0.115E-04	0.126E-05
I132	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I133	CI	0.000E+00	0.000E+00	0.442E-06	0.000E+00
I134	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
I135	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
LIQUID EFFLUENTS (CONTD)					
CS134	CI	0.000E+00	0.000E+00	0.000E+00	0.641E-07
CS136	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS137	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CS138	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA139	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA140	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA141	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BA142	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
LA140	CI	0.000E+00	0.000E+00	0.000E+00	0.129E-04
LA142	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE141	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE143	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CE144	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR143	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
PR144	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ND147	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
W187	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NP239	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 2 YEAR: 1990

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS FOR RELEASE POINT: 2

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 1	QUARTER 2	QUARTER 1	QUARTER 2
LIQUID EFFLUENTS (CONTD)					
.LIQ	CI	0.000E+00	0.000E+00	0.740E-03	0.344E-01
TOTAL FOR PERIOD (ABOVE)	CI	0.000E+00	0.000E+00	0.671E+02	0.190E+03
XE-133	CI	0.000E+00	0.000E+00	0.507E-02	0.149E+01
XE-135	CI	0.000E+00	0.000E+00	0.361E-04	0.131E-01

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

1st and 2nd Quarter, 1990

EFFLUENT AND WASTE DISPOSAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHPMENTS
FROM 1/1/90 0:00 TO 6/30/90 23:00

A. Solid Waste Shipped off site for burial or disposal (not irradiated fuel)

1. Type of Waste	Unit	6 Month Period	Est. Total Error %
A. Spent Resins, Filter Sludges, Evaporator Bottoms, Etc.	M^3 CI	5.830 E + 00 7.960 E + 00	N/A
B. Dry Compressible Waste Contaminated Equip., Etc.	M^3 CI	3.180 E + 01 3.800 E - 01	N/A
C. Irradiated Components, Control Rods, Etc.	M^3 CI	0.000 E + 00 0.000 E + 00	N/A
D. Other	M^3 CI	0.000 E + 00 0.000 E + 00	N/A

2. Estimate of Major Nuclide Composition (By Type of Waste)

A. 1 Co-58	8.280 E + 01 %
2 Co-60	6.200 E + 00 %
3 Mn-54	3.500 E + 00 %
4 Ni-63	2.600 E + 00 %
5 Fe-55	1.800 E + 00 %
6 H-3	1.600 E + 00 %
B. 1 H-3	4.620 E + 01 %
2 Cr-51	3.940 E + 01 %
3 Co-58	2.640 E + 01 %
4 Fe-55	6.800 E + 00 %
5 Nb-95	3.800 E + 00 %
6 Zr-95	3.400 E + 00 %
C. N/A	N/A
D. N/A	N/A

EFFLUENT AND WASTE DISPOSAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
FROM 1/1/90 0:00 to 6/30/90 23:00

3. Solid Waste Disposition (Not Irradiated Fuel)

Number of Shipments	Mode of Transportation	Destination
7	Truck	Scientific Ecology Group Oak Ridge, TN
		Chem-Nuclear Systems Barnwell, SC

4. Class of Solid Waste

Class A - Unstable

5. Type of Containers Used for Shipment

Strong Tight, High Integrity Containers

6. Solidification Agent

N/A

B. Irradiated Fuel Shipment (Disposition)

Number of Shipments	Mode of Transportation	Destination
--No Shipments made during this period--		

APPENDIX A: RADIOACTIVE WASTE TREATMENT SYSTEM

DESIGN MODIFICATION DESCRIPTION

RADWASTE TREATMENT SYSTEM DESIGN MODIFICATION

An HL&P-initiated modification to the Liquid Radioactive Waste Treatment System for Unit 2 was completed on June 21, 1990. This description is submitted to comply with Section 6.15 of the Technical Specifications for the South Texas Project Electric Generating Station Unit 2.

1. A summary of the evaluation that led to the determination that the change could be made in accordance with 10CFR50.59.

2. Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information.

3. A detailed description of the equipment, components, and processes involved and the interfaces with other plant systems.

4. An evaluation of the change, which shows the predicted release of radioactive materials in liquid and gaseous effluents and/or quantity of solid waste that differ for those previously predicated in the License Application and Amendments.

5. An evaluation of the change, which shows the expected maximum exposures to individuals in the UNRESTRICTED AREA and to the general population that differ from those previously estimated in the License Application and Amendments.

6. A comparison of the predicted release of radioactive materials, in liquid and gaseous effluents and solid waste, to the actual releases for the period prior to when the changes are to be made.

7. An estimate of the exposure to plant personnel as a result of the change.

8. Documentation of the facts that the change was reviewed and approved by the Plant Operations Review Committee (PORC).

RADWASTE TREATMENT SYSTEM DESIGN MODIFICATION

1. A summary of the evaluation that led to the determination that the change could be made in accordance with 10CFR50.59.

   A 10CFR50.59 Determination Review Form was completed by Support Engineering. The basis for the determination that there was not an Unreviewed Safety Question is described below.

   The Laundry Drains are described in FSAR Section 9.3.3 and shown on FSAR Figure 9.3.3.5. Since the drains were initially designed to run to the Laundry and Hot Shower Tank (LHST) and the subject of this review does not change the design bases as described in FSAR Section 9.3.3, there is no impact to the system function/operability that result from the rerouting of the drains.

   There is an impact to FSAR Figure 9.3.3-5 as a result of revising P&ID 7Q069F90012 #2. The MAB Flooding Analysis and MAB Facility Response Analysis for Flooding and Spray Effects for rooms 067C, 107, and 110 were reviewed and not found to be impacted by this modification.

   There is no impact to the SER and STP ER as a result of this modification since the change is consistent with the description in the SER (Ref. 11.21, pg. 11-2).

   The Engineering Index for Penetration Seals was revised as a result of moving a 4" line. A review of the Fire Hazards Analysis Report (FHAR) Figures 3-14 and 3-30 show that the two penetrations effected were in a non-fire rated wall, not sealed for fire, and therefore, not impacting the FHAR.

   Radiation sealing was provided in a penetration between a Radiation Zone 5 and a Radiation Zone 2, per FSAR Figure 12.3.2-8. No other radiation shielding was required and FSAR Section 12.3.2 was not impacted.

2. Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information:

   The Laundry and Hot Shower Tank (LHST), Condensate Polishing Regenerative Waste Collection Tank (CPRWCT) and associated piping in the Liquid Waste Processing System have undergone several design changes during construction resulting in the LHST being seldom used and laundry and dry cleaning drains being routed to CPRWCT. The intent of the original plant design was to have laundry and dry cleaning drains routed to the LHST. This modification rerouted the laundry and dry cleaning drains in Unit 2 to the LHST for the following reasons:

   a. LHST has a usable volume of 9300 gallons. This modification added much needed volume to the LWPS. LHST may be discharged directly to the reservoir and eliminates need for use of waste monitor tank space. This aids Chemical Operations in processing of radioactive liquid waste.

b. Chemical Operations processes CPRWCT several times weekly. Lint from the laundry along with other impurities caused strainer clogging resulting in several change outs in order to achieve required recirculation time prior to sampling.

c. The CPRWCT receives floor drains during the Floor Drain Tank processing, and primary lab drains. Processing by evaporation may be required to adequately dispose of this waste. The detergent from the laundry drains complicates processing by evaporation due to foaming.

3. A detailed description of the equipment, components, and processes involved and the interfaces with other plant systems:

This modification affects a portion of the laundry and dry cleaning drain piping (4" dia.) which is connected to the chemical water header. The laundry and dry cleaning drain connected to the chemical waste header was disconnected and the chemical waste header branch was capped. The laundry and dry cleaning drain was then routed to existing laundry and hot shower drain header. This allows draining into the Laundry and Hot Shower Tank.

4. An evaluation of the change, which shows the predicted release of radioactive materials in liquid and gaseous effluents and/or quantity of solid waste that difter for those previously predicted in the License Application and Amendments:

This modification affects a portion of the laundry and dry cleaning drain connected to the Condensate Polishing Regenerative Waste Collection Tank. This drain was rerouted and connected to the Laundry and Hot Shower Tank. This modification does not change the amount of liquid and gaseous effluents, nor quantity of solid waste predicted in the License Application and Amendments.

5. An evaluation of the change, which shows the expected maximum exposure to individuals in the UNRESTRICTED AREA and to the general population that differ from those previously estimated in the License Application and Amendments:

This modification affects the laundry and dry cleaning drain connected to the Condensate Polishing Regenerative Waste Collection Tank. This drain was rerouted and connected to the Laundry and Hot Shower Tank. This modification will not result in a change to expected maximum exposures to individuals in the unrestricted area and to the general population as previously estimated in the License Application and Amendments.

6. A comparison of the predicted releases of radioactive materials, in liquid and gaseous effluents and solid waste, to the actual releases for the period prior to when the changes are to be made:

This modification affects a portion of the laundry and dry cleaning drain connected to the Condensate Polishing Regenerative Waste Collection Tank. The drain was rerouted and connected to the Laundry and Hot Shower Tank. This modification does not change the amount of liquid and gaseous effluents, and solid waste. The predicted releases of radioactive materials, in liquid and gaseous effluents and solid waste should be the same as the actual releases for the period prior to when the change was made.

7. An estimate of the exposure to plant personnel as a result of the change:

This modification affects the laundry and dry cleaning drain, which was connected to the Condensate Polishing Regenerative Waste Collection Tank. This drain was rerouted and connected to the Laundry and Hot Shower Tank. This change will potentially result in decreased exposure to plant personnel. Use of Laundry and Hot Shower Tank for processing the laundry and dry cleaning drains will reduce the handling of contaminated strainers at the CPRWCT due to lint, tape, and impurities from the laundry thereby reducing exposure.

8. Documentation of the fact that the change was reviewed and approved by the Plant Operations Review Committee (PORC)

A 10CFR50.59 Evaluation Form was completed by Support Engineering. It was determined that there were no Unreviewed Safety Questions and a PORC Review was not required for this design change.

APPENDIX B: REVISED LIQUID EFFLUENT

AND DOSE ACCUMULATION SUMMARY

FOR 1989

3rd and 4th QUARTER

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR:1989

EFFLUENT AND WASTE DISPOSAL REPORT
LIQUID EFFLUENTS -- SUMMATION OF ALL RELEASES

	UNITS	QUARTER 3	QUARTER 4	EST. TOTAL ERROR, %
A. FISSION AND ACTIVATION PRODUCTS				
1. TOTAL RELEASE (EXCL. TRIT., GASES, ALPHA)	CI	0.811E+00	0.212E+01	0.500E+01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	0.451E-07	0.118E-06	
3. PERCENT OF APPLICABLE LIMIT	%	0.225E+01	0.590E+01	
B. TRITIUM				
1. TOTAL RELEASE	CI	0.829E+02	0.590E+02	0.500E+01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	0.461E-05	0.328E-05	
3. PERCENT OF APPLICABLE LIMIT	%	0.153E+00	0.109E+00	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CI	0.317E+00	0.928E-01	0.500E+01
2. AVERAGE DILUTED CONC. DURING PERIOD	UCI/ML	0.176E-07	0.516E-08	
3. PERCENT OF APPLICABLE LIMIT	%	0.883E-02	0.258E-02	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CI	0.573E-02	0.262E-02	0.500E+01
E. VOLUME WASTE RELEASED (PRIOR TO DILUTION)	LITERS	0.827E+07	0.472E+07	0.800E-01
F. VOLUME DILUTION WATER USED DURING PERIOD	LITERS	0.180E+11	0.180E+11	0.100E+02

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR:1989

EFFLUENT AND WASTE DISPOSAL REPORT

LIQUID EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNITS	QUARTER 3	QUARTER 4	QUARTER 3	QUARTER 4
H3	CI	0.000E+00	0.000E+00	0.829E+02	0.590E+02
C14	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NA24	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
P32	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CR51	CI	0.000E+00	0.000E+00	0.225E+00	0.461E+00
MN54	CI	0.000E+00	0.000E+00	0.949E-02	0.689E-01
MN56	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
FE55	CI	0.000E+00	0.000E+00	0.794E-01	0.434E+00
FE59	CI	0.000E+00	0.000E+00	0.149E-01	0.399E-01
CO58	CI	0.000E+00	0.000E+00	0.427E+00	0.732E+00
CO60	CI	0.000E+00	0.000E+00	0.199E-01	0.180E+00
NI63	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
NI65	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
CU64	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
ZN65	CI	0.000E+00	0.000E+00	0.371E-03	0.626E-02
ZN69	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR83	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR84	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BR85	CI	0.000E+00	0.000E+00	0.000E+00	0.000E+00

SITE: South Texas Project Electric Generating Station
UNIT: 1 YEAR: 1989

SUMMARY OF MAXIMUM INDIVIDUAL DOSES
LAST ACCUMULATION FOR PERIODS:
LIQUID: FROM 07/01/89 00:00 TO 12/31/89 23:00

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (MREM)	AGE GROUP	LOCATION DIST (M)	LOCATION DIR (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (MR)
LIQUID	TOTAL BODY	4.05E-02	TEEN	RECEPTOR 3		1.4E+00	3.0
LIQUID	GI-TRACT	1.72E-01	ADULT	RECEPTOR 3		1.8E+00	10.0

SUMMARY OF POPULATION DOSES
LAST ACCUMULATION FOR PERIODS:
LIQUID: FROM 07/01/89 00:00 TO 12/31/89 23:00

EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (PERSON-REM)
LIQUID	TOTAL BODY	3.5E-01
LIQUID	BONE	8.7E-01