

NUREG/CR-2907
BNL-NUREG-51581
Vol. 12

Radioactive Materials Released from Nuclear Power Plants

Annual Report 1991

Prepared by
J. Tichler, K. Doty, J. Congemi

Brookhaven National Laboratory

Prepared for
U.S. Nuclear Regulatory Commission

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Manuscript Completed: April 1994
Date Published: May 1994

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Prepared for
Office of Information Resources Management
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
NRC FIN B2234

PREVIOUS REPORTS IN THIS SERIES

1. "Report on Releases of Radioactivity in Effluents and Solid Wastes from Nuclear Power Plants for 1972," Directorate of Regulatory Operations, August 1973.
2. "Summary of Radioactivity Releases in Effluents from Nuclear Power Plants During 1973," NUREG-75/001, January 1975.
3. "Radioactive Materials Released from Nuclear Power Plants, 1974," NUREG-0077, June 1976.
4. "Radioactive Materials Released from Nuclear Power Plants, 1975," NUREG-0218, March 1977.
5. "Radioactive Materials Released from Nuclear Power Plants, 1976," NUREG-0367, March 1978.
6. "Radioactive Materials Released from Nuclear Power Plants, 1977," NUREG-0521, January 1979.
7. "Radioactive Materials Released from Nuclear Power Plants, 1978," NUREG/CR-1497, BNL-NUREG-51192, March 1981.
8. "Radioactive Materials Released from Nuclear Power Plants, 1979," NUREG/CR-2227, BNL-NUREG-51416, November 1981.
9. "Radioactive Materials Released from Nuclear Power Plants, 1980," NUREG/CR-2907, BNL-NUREG-51581, Vol. 1, January 1983.
10. "Radioactive Materials Released from Nuclear Power Plants, 1981," NUREG/CR-2907, BNL-NUREG-51581, Vol. 2, June 1984.
11. "Radioactive Materials Released from Nuclear Power Plants, 1982," NUREG/CR-2907, BNL-NUREG-51581, Vol. 3, February 1986.
12. "Radioactive Materials Released from Nuclear Power Plants, 1983," NUREG/CR-2907, BNL-NUREG-51581, Vol. 4, August 1986.
13. "Radioactive Materials Released from Nuclear Power Plants, 1984," NUREG/CR-2907, BNL-NUREG-51581, Vol. 5, August 1987.
14. "Radioactive Materials Released from Nuclear Power Plants, 1985," NUREG/CR-2907, BNL-NUREG-51581, Vol. 6, January 1988.
15. "Radioactive Materials Released from Nuclear Power Plants, 1986," NUREG/CR-2907, BNL-NUREG-51581, Vol. 7, November 1988.
16. "Radioactive Materials Released from Nuclear Power Plants, 1987," NUREG/CR-2907, BNL-NUREG-51581, Vol. 8, October 1989.
17. "Radioactive Materials Released from Nuclear Power Plants, 1988," NUREG/CR-2907, BNL-NUREG-51581, Vol. 9, July 1991.
18. "Radioactive Materials Released from Nuclear Power Plants, 1989," NUREG/CR-2907, BNL-NUREG-51581, Vol. 10, September 1992.
19. "Radioactive Materials Released from Nuclear Power Plants, 1990," NUREG/CR-2907, BNL-NUREG-51581, Vol. 11, October 1993.

ABSTRACT

Releases of radioactive materials in airborne and liquid effluents from commercial light water reactors during 1991 have been compiled and reported. The summary data for the years 1972 through 1990 are included for comparison. Data on solid waste shipments as well as selected operating information have been included. This report supplements earlier annual reports issued by the former Atomic Energy Commission and the Nuclear Regulatory Commission. The 1991 release data are summarized in tabular form. Data covering specific radionuclides are summarized.

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ACKNOWLEDGMENT

Carmen Benkovitz was responsible for the original design of the computer data base in which the effluent data, beginning with the 1978 data, is stored. She was involved in the redesign of the data base when, in 1982, the decision was made to transfer the data base from one computer to another and to change the data base management system being used.

1.0 Introduction

1.1 Purpose

This report, prepared annually for the staff of the U.S. Nuclear Regulatory Commission, presents measured data on radioactive materials in effluents released from licensed commercial reactor power plants. These data were reported by licensees for plant operations during 1991. This information supplements earlier annual reports issued by the former Atomic Energy Commission and Nuclear Regulatory Commission.¹

1.2 Scope

Releases of radioactive materials are governed by 10 CFR Part 20 and 50 and by limits established in the Technical Specifications for each facility. The requirement for reporting effluent releases by nuclear power plant operators is described in 10 CFR 50.36a. Through its Office of Nuclear Reactor Regulation, the Nuclear Regulatory Commission maintains a knowledge of radioactive releases from licensed nuclear reactors to ensure that they are within regulatory requirements. This report summarizes data from the licensed nuclear power plants that were declared by the utilities to be in commercial operation as of December 31, 1991. Data are included for several licensed facilities which are permanently or indefinitely shut down (Browns Ferry 1,2,3, Dresden 1, Fort St. Vrain, Humboldt Bay, Indian Point 1, LaCrosse, Three Mile Island 2) and Shoreham which was never in commercial operation.

1.3 Source of Data

The information included in this report was obtained from data reported by the licensees. Individual licensee reports are available in the NRC Public Document Room, Gelman Building, 2120 L Street, Washington, D.C. 20555 and in local Public Document Rooms located near each licensed facility. Licensee reports varied in the format and extent of information provided.

Data from prior years used in the comparison tables were obtained from the previous annual summaries.

2.0 Tabulated Data

2.1 Airborne and Liquid Effluents

Tables 1 through 4 list for each reactor, the measured quantities of total noble gases and of I-131 and particulates (with half lives greater than 8 days) released in effluents to the atmosphere during each of the years 1972 through 1991. Tables 5 and 6 list the total measured quantities of tritium released in liquid effluents in each of the years. Tables 7 and 8 list the mixed fission and activation products not including noble gases, tritium and alpha released in liquid effluents in each of the years.

¹ Previous reports in this series are listed on pages ii-iii.

2.2 Solid Waste

The total volumes, activity and the number of shipments of solid waste for each plant during 1991 are summarized in Tables 9 and 10. A comparison for the years 1977 through 1991 is made in Tables 11 and 12.

2.3 Energy Generation

Tables 13 and 14 present a summary of net electrical energy generated by each plant during 1978-1991. Tables 15 and 16 present a summary of the thermal energy generated by each plant during 1991 and previous years from 1972. The reader is cautioned against making simplistic comparisons of radioactive releases with the energy generated because of the many factors which affect the amount of radioactive materials released; factors include the condition of the fuel, primary system integrity, effluent and radioactive waste treatment systems, maintenance activities and the extent to which these systems are used.

2.4 Individual Plant Summaries

Individual plant summaries are presented in alphabetical order. The summaries include general plant information, power production, effluent and solid waste data, and a summary of specific radionuclides measured in effluents. When the only type of solid waste reported is type "A", this may be because the plant did not break solid waste into different types but reported all types together. The activity released for each nuclide for the year for both airborne and liquid effluents is calculated by summing releases for each quarter. More detailed summaries in the format of Regulatory Guide 1.21 such as were used in the 1978 report² can be made available since all the data for 1978-1991 are stored in digital form.

A wide variation exists in the lists of specific radionuclides reported by utilities (licensees). Individual licensee Technical Specifications require the measurement and reporting of specific sets of radionuclides and "any others identified." The disparities result because of differing analytical methods used by various licensees for their measurements, and their differing operating histories and effluent and emission control methods.

Copies of the summaries included in this report as well as the more detailed summaries maintained in the computer data base were submitted to the licensees for verification before publication. In most cases, the licensees responded either verifying the included data for their plants or providing corrections. Individuals interested in obtaining the more detailed summaries should contact the Office of Nuclear Reactor Regulation of the Nuclear Regulatory Commission.

²"Radioactive Materials Released from Nuclear Power Plants, 1978," NUREG/CR-1497, BNL-NUREG-51192, March, 1981.

2.5 Notation

The following notation is used:

$$1.86E+06 = 1.86 \times 10^6$$

$$1.86E-03 = 1.86 \times 10^{-3}$$

N/R = Not Reported

N/D = Not Detected

N/A = Not Applicable

< may actually mean \leq

3.0 Summary

Nearly all of the radioactive material reported as being released in effluents are from planned releases. Planned releases result from normal operation or from anticipated operational occurrences. The latter include unplanned releases of radioactive materials from miscellaneous actions such as equipment failure, operator error or procedure error; these releases are not of such consequence as to be considered an accident.

At present, it is difficult to compare effluent releases with those of previous years due to, among other contributors, variability in reporting structure and release requirements. Comparisons with respect to power generation are similarly difficult due to factors which strongly affect the releases such as level of fuel cladding defects, design features of plant radioactive waste treatment systems, operational occurrences and equipment performance.

Though perhaps not identifiable as an important factor at any specific plant from the data in this report, the generic improvement in fuel performance over the last several years has either reduced or has had the potential to reduce the amount of radioactive material released in effluents from most plants. In addition, at Boiling Water Reactors (BWRs), the reduction in the amount of airborne radioactive materials being released at some plants since the early and mid-1970s is due in large part to the installation of augmented offgas (AOG) systems, many of which were required to be installed to meet the provisions of Appendix I to 10CFR Part 50, which was promulgated by the NRC in May 1975.

TABLES

Table 1

Airborne Effluents Comparison By Year
Fission and Activation Gases (Total Curies)

Boiling Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Big Rock Point 1	2.58E+05	2.30E+05	1.88E+05	5.06E+04	1.52E+04	1.34E+04	1.89E+04	6.67E+03	2.15E+04	1.97E+04
Brown's Ferry 1, 2, & 3			6.40E+04	9.24E+04	< 8.05E+04	< 1.66E+05	1.57E+05	< 2.71E+05	< 1.66E+05	4.52E+04
Brunswick 1&2				1.90E+02	1.90E+04	2.46E+05	9.14E+04	1.16E+05	6.93E+04	5.22E+05
Clinton 1			2.00E+03	1.98E+04	3.80E+04	1.27E+03	4.09E+03	3.04E+04	5.03E+03	2.48E+03
Cooper										N/D
Dresden 1	8.77E+05	8.40E+05	9.80E+04	5.20E+05	4.52E+05	5.20E+05	8.50E+05	1.83E+02	7.03E+01	
Dresden 2-3	4.29E+05	8.80E+05	6.27E+05	3.69E+05	3.23E+04	3.13E+05	4.06E+04	6.91E+04	4.30E+04	3.74E+04
Duane Arnold				1.58E+03	5.26E+03	3.87E+03	1.56E+03	8.71E+03	2.70E+03	< 4.87E+02
Fermi 2				4.08E+03	4.41E+04	2.33E+04	5.88E+03	3.38E+03	7.68E+04	2.00E+05
James A. Fitzpatrick										
Grand Gulf 1				2.70E+02	2.80E+03	1.90E+03	1.62E+03	1.71E+03	3.82E+04	2.77E+04
Edwin I. Hatch 1									2.95E+02	2.06E+02
Edwin I. Hatch 2										
Hope Creek 1										
Humboldt Bay 3	4.30E+05	3.50E+05	5.72E+05	2.97E+05	9.30E+04	4.40E+05	4.40E+05	< 4.40E+05	< 4.40E+05	< 4.40E+05
LaCrosse	3.10E+04	9.10E+04	4.90E+04	5.71E+04	1.24E+05	4.25E+04	8.45E+03	1.04E+04	4.71E+03	5.03E+03
LaSalle 1&2										
Limerick 1&2										
Millstone 1	7.26E+05	7.90E+04	9.18E+05	2.97E+06	5.07E+05	6.20E+05	5.66E+05	2.06E+04	1.19E+04	1.43E+04
Monticello	7.51E+05	8.70E+05	1.57E+06	1.55E+05	1.14E+04	6.87E+03	6.42E+03	4.03E+03	3.83E+03	3.74E+03
Nine Mile Point 1	5.17E+05	8.72E+05	5.58E+05	1.30E+06	1.76E+05	3.53E+03	3.02E+03	1.04E+03	5.87E+02	6.10E+02
Nine Mile Point 2										
Oyster Creek 1	8.66E+05	8.10E+05	2.79E+05	2.06E+05	1.67E+05	1.77E+05	9.98E+05	1.01E+06	3.12E+04	5.28E+04
Peach Bottom 2&3		< 1.00E+03	< 1.00E+00	1.30E+04	2.09E+05	7.11E+04	3.85E+04	1.90E+05	1.53E+04	1.58E+04
Perry 1										
Pilgrim 1	1.80E+04	2.30E+05	5.46E+05	4.60E+04	1.83E+05	4.13E+05	3.27E+04	1.39E+04	2.62E+04	< 5.30E+03
Quad-Cities 1&2	1.32E+05	9.00E+05	9.50E+05	1.10E+05	3.36E+04	2.56E+04	3.24E+04	3.48E+04	2.15E+04	3.20E+04
River Bend 1										
Shoreham 1										
Susquehanna 1&2										
Vermont Yankee 1	5.50E+04	1.80E+05	6.40E+04	4.08E+03	3.03E+03	3.35E+03	4.94E+03	< 8.08E+03	1.63E+03	< 3.17E+03
WNP-2										
Total	5.09E+06	< 6.33E+06	< 6.48E+06	6.22E+06	< 2.20E+06	< 2.65E+06	2.86E+06	< 1.80E+06	< 5.40E+05	< 9.88E+05
								9.30E+01	9.13E+01	4.34E+01

* Fort St. Vrain

* High temperature gas cooled reactor
N/D = Not Detectable

Table 1

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Boiling Water Reactors										
Facility	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Big Rock Point 1	1.29E+04	1.10E+04	1.41E+05	6.26E+04	6.79E+04	8.35E+03	7.77E+03	7.08E+03	5.55E+03	4.50E+03
Browns Ferry 1,2,& 3	2.76E+05	4.79E+05	< 6.64E+05	< 2.64E+04	< 2.26E+03	3.22E-01	N/D	N/D	N/D	2.10E+03
Brunswick 1&2	4.65E+05	4.87E+05	1.67E+05	1.75E+04	4.51E+04	2.64E+04	1.53E+03	1.36E+03	1.12E+03	6.77E+02
Clinton 1						6.83E+00	4.34E+00	1.29E+01	1.09E+01	7.08E-01
Cooper	1.42E+04	1.54E+03	< 1.44E+03	< 1.39E+03	1.72E+03	1.20E-03	1.81E+03	3.44E+02	1.87E+02	2.58E+01
Dresden 1	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Dresden 2-3	1.04E+04	8.43E+03	1.81E+03	2.94E+03	4.38E+02	2.77E+02	1.68E+02	3.67E+01	2.04E+01	1.26E+01
Duane Arnold	9.99E+01	4.81E+02	4.16E+02	2.51E+02	3.10E+02	2.19E+02	7.06E+02	4.38E+01	4.57E+01	3.30E+01
Fermi 2					N/D	N/D	1.11E+00	1.64E+02	1.61E+02	6.22E+01
James A. Fitzpatrick	2.11E+05	8.57E+04	3.41E+04	1.46E+04	2.65E+03	4.72E+03	3.89E+03	5.60E+02	1.35E+03	2.05E+03
Grand Gulf 1		4.51E+01	1.14E+02	1.51E+02	1.34E+02	2.08E+02	9.44E+01	1.44E+02	1.36E+02	3.17E+01
Edwin I. Hatch 1	4.23E+03	1.96E+04	1.02E+04	9.86E+03	8.95E+03	7.40E+03	**	**	**	**
Edwin I. Hatch 2	1.04E+03	1.28E+04	2.36E+03	2.76E+03	1.09E+04	1.37E+04	3.46E+05	5.02E+02	1.10E+03	2.80E+02
Hope Creek 1					3.80E+01	1.19E+03	1.76E+02	3.34E+02	8.30E+02	1.92E+02
Humboldt Bay 3	N/D	N/D	N/D	N/D	N/D	N/D	< 6.48E+01	< 6.40E+01	N/D	N/D
LaCrosse	4.26E+03	7.08E+03	1.09E+04	8.58E+03	3.53E+03	2.33E+03	N/D	N/D	N/D	N/D
LaSalle 1&2	3.46E+00	1.17E+01	5.68E+02	1.95E+02	2.98E+03	6.51E+03	3.79E+03	1.08E+03	6.87E+02	1.06E+02
Limerick 1&2			N/D	N/D	3.70E-01	2.41E+01	1.69E+02	2.58E+02	3.44E+01	7.11E+01
Millstone 1	8.33E+03	6.34E+03	2.80E+03	1.11E+03	3.31E+03	5.84E+03	5.76E+02	1.81E+02	1.17E+02	2.35E+01
Monticello	7.22E+03	3.21E+03	5.15E+02	2.72E+03	2.53E+03	3.95E+03	5.88E+03	3.98E+03	2.96E+03	1.99E+03
Nine Mile Point 1	5.11E+01	2.68E+02	1.02E+03	9.84E+02	4.92E+02	1.97E+02	1.80E+01	1.52E-04	N/D	5.05E+01
Nine Mile Point 2						6.00E+00	4.03E+01	8.42E+01	1.63E+02	1.00E+02
Oyster Creek 1	2.29E+04	2.14E+03	3.93E+03	4.15E+04	7.67E+04	3.39E+03	5.05E+03	3.24E+02	7.35E+02	4.60E+02
Peach Bottom 2&3	1.31E+04	3.48E+04	8.09E+04	1.29E+05	2.78E+04	1.15E+04	1.19E+03	2.64E+03	1.12E+04	2.40E+04
Perry 1					1.23E+00	1.06E+01	1.25E+03	1.92E+02	8.37E+01	1.11E+02
Pilgrim 1	< 1.94E+04	2.01E+04	< 1.84E+01	3.26E+03	1.26E+02	N/D	N/D	6.78E+02	9.07E+02	2.22E+03
Quad-Cities 1&2	1.17E+04	1.20E+04	6.02E+03	2.95E+03	1.48E+03	3.73E+02	3.77E+00	2.87E+02	7.96E+01	4.21E+01
River Bend 1					1.70E+03	1.39E+00	2.05E+00	8.31E-01	1.03E+03	1.12E+03
Shoreham 1					N/D	N/D	N/D	N/D	N/D	N/D
Susquehanna 1&2	< 5.61E+02	1.03E+02	1.18E+02	5.15E+02	2.35E+02	1.23E+02	7.25E+01	1.19E+02	7.21E+01	5.76E+01
Vermont Yankee 1	< 3.07E+03	< 3.13E+03	< 3.18E+03	< 3.44E+03	< 1.56E+03	N/D	N/D	1.03E+03	5.07E+03	3.02E+03
WNP-2			2.28E+02	2.12E+02	1.66E+02	5.35E+02	9.03E+02	5.46E+03	8.90E+02	7.23E+02
Total	< 1.09E+06	< 1.19E+06	< 1.13E+06	< 3.33E+05	< 2.63E+05	9.85E+04	< 3.90E+04	< 2.70E+04	3.45E+04	4.41E+04
* Fort St. Vrain	2.96E+02	1.51E+02	1.17E+02	2.03E+00	5.57E+01	2.03E+02	2.60E+02	1.96E+02	N/D	N/D

* High temperature gas cooled reactor

** Included with Edwin I. Hatch 2 total

N/D = Not Detectable

Table 2

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Pressurized Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Arkansas One 1			1.96E+02	1.03E+03	5.69E+03	1.39E+04	7.50E+03	8.51E+03	3.80E+04	3.73E+03
Arkansas One 2								4.53E+03	9.37E+03	4.35E+03
Beaver Valley 1&2					1.07E+00	4.73E+01	3.90E+02	1.75E+03	8.64E+01	8.06E+02
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1										
Calvert Cliffs 1&2			7.72E+03	9.40E+03	2.23E+04	2.76E+04	1.02E+04	2.96E+03	2.18E+03	
Catawba 1										
Catawba 2										
Comanche Peak 1										
Donald C. Cook 1&2				2.64E+00	9.75E+02	3.80E+03	4.85E+04	1.09E+04	3.76E+03	5.42E+03
Crystal River 3						3.35E+03	6.86E+03	7.26E+04	3.65E+04	3.96E+04
Davis-Besse 1						1.27E+03	2.10E+03	< 1.68E+03	< 3.35E+03	1.01E+03
Diablo Canyon 1&2										
Joseph M. Farley 1							3.53E+03	3.18E+03	1.92E+04	2.21E+02
Joseph M. Farley 2										2.60E+00
Fort Calhoun 1		6.70E+01	3.03E+02	4.29E+02	1.94E+03	3.81E+03	1.36E+03	7.06E+02	2.97E+02	1.22E+03
R. E. Ginna	1.20E+01	5.76E+02	7.57E+02	1.04E+04	5.52E+03	3.20E+03	9.72E+02	7.82E+02	8.61E+02	5.46E+02
Haddam Neck	1.00E+00	3.20E+01	7.00E+00	4.80E+02	4.52E+02	3.12E+03	2.14E+03	5.55E+03	2.68E+03	1.83E+03
Harris 1										
Indian Point 1&2		1.50E+01	5.58E+03	8.20E+03	1.16E+04	1.60E+04	1.41E+04	9.03E+03	9.38E+03	9.13E+03
Indian Point 3					Shown with	Other Unit	8.09E+02	2.47E+02	1.11E+03	6.57E+03
Kewaunee			3.35E+03	2.45E+03	1.40E+03	2.43E+03	4.44E+02	1.52E+02	1.22E+02	1.18E+02
** Maine Yankee	< 1.00E+00	1.61E+02	6.36E+03	4.09E+03	1.30E+03	3.57E+03	1.55E+03	2.09E+03	4.07E+03	3.28E+02
McGuire 1										1.58E-01
McGuire 2										
Millstone 2					1.57E+03	2.28E+03	7.64E+02	3.59E+02	1.33E+03	2.24E+03
Millstone 3										
North Anna 1&2							1.51E+04	6.28E+03	3.50E+03	5.30E+03
Oconee 1,2,& 3		9.30E+03	1.94E+04	1.51E+04	4.39E+04	3.56E+04	4.33E+04	4.79E+04	1.92E+04	1.63E+04
Palisades	1.00E+00	4.54E+02	< 1.00E+00	2.61E+03	2.99E+01	5.99E+01	3.23E+02	6.84E+01	1.40E+02	3.00E+03
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2	3.00E+00	5.75E+03	9.74E+03	4.45E+04	1.91E+03	1.13E+03	5.16E+02	9.68E+02	6.41E+02	6.11E+02
Prairie Island 1&2		8.72E+00	3.62E+02	2.17E+03	1.74E+03	6.73E+02	1.26E+03	6.97E+02	2.60E+02	4.65E+01
Rancho Seco 1				1.18E+02	1.27E+02	2.00E+03	7.10E+03	8.81E+03	1.58E+03	1.37E+03
H. B. Robinson 2	< 1.00E+00	3.10E+03	2.31E+03	1.17E+03	6.40E+02	4.76E+02	8.84E+02	1.52E+03	5.82E+02	5.13E+02
Salem 1					< 1.00E-02	1.96E+01	1.02E+01	2.49E+02	7.82E+01	1.06E+03
Salem 2									7.74E+00	6.09E+02
San Onofre 1	1.90E+01	1.10E+04	1.78E+03	1.11E+03	4.16E+02	1.54E+02	1.81E+03	6.37E+02	1.05E+03	4.17E+02
San Onofre 2-3										
Seabrook 1										
Sequoyah 1&2									3.01E+03	9.03E+03
South Texas 1										
South Texas 2										
St. Lucie 1					1.72E+03	2.54E+04	2.93E+04	1.54E+04	8.97E+03	2.30E+04
St. Lucie 2										
Summer 1										
Surry 1&2	< 1.00E+00	8.66E+02	6.86E+03	8.04E+03	1.91E+04	1.90E+04	4.36E+03	1.78E+03	6.17E+03	1.41E+04
Three Mile Island 1			9.16E+02	3.63E+03	2.76E+03	1.66E+04	1.57E+04	2.24E+03	4.64E+03	5.81E+02
Three Mile Island 2							8.73E+00	9.97E+06	4.72E+04	2.88E+02
TMI 2/Epicor									2.16E+00	1.84E+02
* Trojan					7.66E+02	4.45E+03	3.26E+02	9.47E+02	4.10E+02	1.24E+03

* Changes to the entries for Trojan for 1976 - 1987 represent corrections which were reported and explained in the Trojan July-December 1990 Effluent and Waste Disposal Report.

** Changes to the entries for Maine Yankee for 1977 - 1988 represent corrections which were reported and explained in the Maine Yankee report "Revised Semiannual Effluent Release Report for 770131 - 901231" Docket Date 92/01/08.

Table 2

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Pressurized Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Turkey Point 3&4		5.30E+02	4.66E+03	1.34E+04	1.56E+04	2.33E+04	2.35E+04	1.06E+04	4.24E+03	4.33E+03
Turkey Point 3										
Turkey Point 4										
Vogtle 1&2										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	< 1.00E+00	3.50E+01	4.00E+01	2.24E+01	2.57E+01	1.25E+02	6.56E+02	1.82E+02	7.07E+01	1.72E+02
Zion 1&2		4.00E+00	2.99E+03	4.88E+04	1.14E+05	3.22E+04	6.77E+04	3.41E+04	5.78E+03	6.91E+03
Total	< 4.00E+01	3.19E+04	< 6.56E+04	1.75E+05	< 2.43E+05	2.40E+05	3.30E+05	< 1.02E+07	< 2.36E+05	1.68E+05

Table 2

Airborne Effluents Comparison By Year

Pressurized Water Reactors Facility	Fission and Activation Gases (Total Curies)									
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Arkansas One 1	2.10E+03	9.83E+02	2.90E+03	8.10E+03	1.71E+03	3.26E+02	1.24E+03	2.33E+03	7.00E+02	4.95E+02
Arkansas One 2	9.78E+03	1.34E+03	3.26E+03	8.91E+03	3.46E+03	2.06E+02	2.16E+03	2.76E+03	1.89E+02	1.59E+03
Beaver Valley 1&2	1.31E+02	1.98E+02	1.16E+03	3.92E+01	7.57E+01	2.25E+02	9.41E+01	1.57E+02	8.17E+01	1.49E+02
Braidwood 1						2.81E-01	4.19E+01	1.17E+03	1.42E+03	5.24E+03
Braidwood 2							3.82E+01	5.07E+02	1.02E+03	5.28E+03
Byron 1&2				2.79E+02	6.36E+02	1.30E+03	1.78E+03	8.16E+02	1.24E+03	1.04E+02
Callaway 1			2.00E+02	1.67E+03	5.19E+03	2.90E+03	6.89E+02	7.22E+02	9.02E+02	1.36E+02
Calvert Cliffs 1&2	8.00E+03	9.75E+03	3.83E+03	3.98E+03	7.65E+03	4.55E+03	5.70E+03	3.28E+03	6.72E+02	2.57E+03
Catawba 1				2.77E+02	1.36E+03	2.41E+03	1.56E+03	3.15E+02	5.33E+02	4.01E+02
Catawba 2					1.36E+03	2.41E+03	1.56E+03	3.15E+02	5.33E+02	4.01E+02
Comanche Peak 1									9.06E+02	5.89E+03
Donald C. Cook 1&2	3.88E+03	3.28E+02	3.50E+03	4.94E+03	3.29E+02	8.75E+02	2.58E+02	1.15E+02	1.88E+02	8.10E+01
Crystal River 3	6.85E+03	3.38E+03	1.96E+03	1.05E+03	2.76E+03	1.10E+03	3.41E+03	4.54E+03	7.31E+03	1.41E+03
Davis-Besse 1	5.35E+02	9.15E+02	5.02E+02	1.18E+02	5.09E+04	3.80E+02	1.09E+02	3.78E+02	1.09E+03	1.16E+03
Diablo Canyon 1&2			5.86E+02	5.72E+02	2.32E+03	7.14E+02	3.27E+02	3.35E+02	5.63E+01	4.62E+01
Joseph M. Farley 1	3.91E+04	2.20E+04	3.73E+03	1.70E+03	1.28E+03	1.30E+03	9.60E+02	9.92E+01	8.72E+01	1.09E+02
Joseph M. Farley 2	3.54E+03	8.47E+02	3.99E+03	6.63E+02	1.84E+03	7.22E+02	5.92E+02	1.60E+02	3.38E+01	3.56E+02
Fort Calhoun 1	3.46E+02	8.79E+02	1.52E+03	1.48E+03	5.68E+02	4.23E+02	7.85E+02	1.64E+02	4.59E+02	3.58E+02
R. E. Ginna	1.95E+03	7.12E+02	2.96E+02	4.06E+02	2.09E+02	1.77E+02	5.17E+01	5.11E+02	5.95E+02	5.14E+02
Haddam Neck	7.54E+02	2.76E+03	7.52E+03	2.76E+03	2.33E+03	3.58E+03	2.55E+03	1.71E+04	1.46E+03	6.11E+03
Harris 1						1.71E+03	2.25E+03	1.15E+03	5.96E+02	8.62E+02
Indian Point 1&2	7.27E+03	9.58E+03	3.78E+03	1.88E+03	2.05E+03	4.68E+03	2.27E+02	8.77E+01	2.23E+03	1.41E+03
Indian Point 3	2.58E+03	5.60E+02	1.88E+03	1.54E+03	1.93E+03	1.82E+03	3.10E+02	3.14E+02	6.26E+02	6.05E+01
Kewaunee	1.66E+02	2.25E+02	4.04E+01	4.97E+01	6.55E+01	3.19E+01	2.91E+01	6.52E+01	2.31E+00	1.81E+00
** Maine Yankee	1.53E+03	5.07E+01	1.54E+02	4.41E+02	1.07E+03	8.34E+02	9.19E+01	2.02E+01	9.46E+02	1.13E+03
McGuire 1	1.65E-03	1.60E+03	2.28E+03	1.93E+03	1.05E+03	2.04E+03	1.95E+03	7.19E+02	5.18E+02	4.49E+02
McGuire 2		1.60E+03	2.28E+03	1.93E+03	1.05E+03	2.04E+03	1.95E+03	7.19E+02	5.18E+02	4.49E+02
Millstone 2	9.09E+03	9.06E+03	4.19E+03	4.00E+02	1.02E+02	3.97E+02	6.34E+02	2.46E+02	2.89E+03	3.89E+02
Millstone 3					2.39E+01	1.05E+02	8.44E+01	2.96E+02	2.11E+02	1.25E+02
North Anna 1&2	4.34E+03	2.22E+04	1.76E+04	8.05E+03	5.71E+03	1.05E+03	4.83E+02	1.44E+03	9.52E+02	2.24E+03
Oconee 1,2,& 3	2.41E+04	2.40E+04	2.28E+04	2.35E+04	2.43E+04	1.05E+04	2.59E+04	8.97E+03	8.84E+03	3.45E+03
Palisades	7.38E+03	3.00E+03	2.84E+01	3.68E+03	1.73E+02	1.75E+03	2.43E+03	1.52E+02	1.21E+02	6.26E+01
Palo Verde 1				2.53E+02	2.67E+03	1.27E+03	1.84E+03	6.41E+02	7.08E+02	2.91E+03
Palo Verde 2					1.97E+03	5.47E+03	2.97E+03	4.29E+02	6.76E+02	5.29E+02
Palo Verde 3						2.52E-02	1.36E+02	8.34E+02	1.20E+03	4.38E+02
Point Beach 1&2	9.93E+02	7.68E+02	9.30E+01	1.16E+02	2.78E+01	4.82E+01	8.08E+01	1.50E+01	8.03E+00	2.00E+01
Prairie Island 1&2	5.47E+02	2.76E+02	7.58E+01	4.59E+01	3.03E+01	8.77E-01	1.42E-01	1.73E+02	8.28E+01	5.60E+01
Rancho Seco 1	1.48E+03	6.89E+02	3.83E+03	4.67E+03	9.30E+01	2.16E-02	1.52E+03	2.00E+03	2.20E-01	N/D
H. B. Robinson 2	1.75E+02	2.93E+02	4.90E+01	2.14E+03	6.59E+02	7.70E+02	1.04E+03	2.79E+01	7.20E+00	2.26E+00
Salem 1	2.34E+02	1.25E+02	1.95E+02	1.68E+03	1.39E+03	3.64E+03	5.29E+02	1.39E+03	3.13E+02	3.66E+02
Salem 2	1.11E+03	7.44E+02	1.81E+03	1.15E+03	8.56E+02	1.06E+03	1.18E+03	7.30E+01	1.49E+02	1.92E+02
San Onofre 1	8.61E+01	1.06E+01	8.62E+01	3.83E+03	4.11E+02	9.81E+02	2.99E+03	9.05E+02	1.80E+03	2.49E+03
San Onofre 2-3	6.40E+00	7.43E+03	4.00E+04	2.53E+04	8.25E+03	2.18E+04	5.12E+03	2.46E+03	1.16E+03	1.30E+03
Seabrook 1								N/D	1.07E+02	2.92E+01
Sequoyah 1&2	5.74E+03	3.92E+03	6.68E+03	4.57E+03	1.21E+00	N/D	2.25E+02	3.85E+03	6.07E+03	1.42E+03
South Texas 1							8.64E+02	4.45E+02	1.72E+02	8.55E+01
South Texas 2								1.16E+02	1.09E+02	4.67E+01
St. Lucie 1	2.33E+04	2.16E+04	3.53E+04	5.08E+04	3.33E+04	6.21E+03	1.42E+03	4.53E+03	6.19E+02	2.05E+03
St. Lucie 2		1.25E+03	7.68E+03	9.55E+03	9.98E+03	8.60E+03	9.16E+03	2.22E+03	5.34E+02	4.90E+02
Summer 1	1.40E+02	3.88E+02	1.64E+01	1.40E+02	1.39E+01	6.34E+02	3.32E+02	1.82E+03	7.51E+02	4.34E+02
Surry 1&2	2.11E+04	5.49E+03	6.95E+03	2.07E+03	1.99E+03	3.08E+02	3.66E+02	1.37E+02	4.51E+02	3.54E+01
Three Mile Island 1	7.56E-03	2.01E+01	3.62E-01	1.08E+02	3.80E+03	7.89E+02	1.87E+03	2.10E+03	6.66E+02	1.22E+02
Three Mile Island 2	4.89E+02	1.73E+02	2.07E+02	N/D	2.80E-01	N/D	4.40E-01	N/D	N/D	N/D
TMI 2/Epicor	4.26E+02	3.61E+01	3.99E+01	*+	*+	*+	*+	*+	*+	*+
* Trojan	9.02E+02	2.29E+02	8.98E+02	1.10E+03	9.42E+02	2.55E+02	4.25E+02	5.94E+02	2.06E+02	1.66E+02

* Changes to the entries for Trojan for 1976-1987 are corrections which were reported and explained in the Trojan July-December 1990 Effluent and Waste Disposal Report.

** Changes to the entries for Maine Yankee for 1977 - 1988 are corrections which were reported and explained in the Main Yankee report "Revised Semiannual Effluent and Release Reports for 770131 - 901231" Docket Date 92/01/08.

*+ Included with Three Mile Island 2 total
N/D = Not Detectable

Table 2

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Pressurized Water Reactors

Facility	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Turkey Point 3&4	2.00E+04	1.61E+04	1.16E+04							
Turkey Point 3				1.32E+03	3.64E+03	9.38E+02	1.25E+03	1.70E+03	6.88E+02	8.95E+00
Turkey Point 4				1.80E+03	1.01E+03	7.86E+02	1.31E+03	1.71E+03	5.92E+02	9.49E+00
Vogtle 1&2						1.07E+02	1.15E+02	5.46E+02	1.88E+02	3.58E+02
Waterford 3				8.21E+03	1.12E+04	5.63E+03	5.30E+03	5.59E+02	5.72E+03	2.15E+03
Wolf Creek 1				1.72E+02	3.15E+01	1.73E+02	7.92E+02	6.40E+02	9.99E+02	3.00E+03
Yankee Rowe 1	1.55E+02	7.51E+02	1.74E+03	1.47E+03	5.11E+02	3.84E+02	2.06E+02	1.21E+02	1.13E+02	2.1E+02
Zion 1&2	1.61E+04	6.34E+03	3.61E+03	3.88E+03	3.18E+03	1.18E+02	1.39E+03	1.12E+03	1.10E+02	2.76E+02
Total	2.25E+05	1.83E+05	2.10E+05	2.05E+05	1.57E+05	1.11E+05	1.03E+05	8.11E+04	6.21E+04	6.22E+04

Table 3

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)

(Half-Life Equal To or Greater Than 8 Days)

Boiling Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Big Rock Point 1	1.50E-01	4.60E+00	1.60E-01	1.20E-01	5.00E-02	1.00E-02	8.91E-03	1.90E-03	2.94E-02	6.10E-03
Brown's Ferry 1,2,& 3			1.20E-01	2.70E-01	< 7.0E-02	1.04E-01	2.27E-01	5.03E-02	1.05E-01	N/D
Brunswick 1&2				< 1.00E-02	4.60E-01	9.32E-01	4.07E-01	9.52E-01	2.12E+00	8.89E-01
Clinton 1			2.40E-01	5.00E-02	< 4.00E-02	< 1.91E-02	5.41E-03	< 1.79E-01	< 1.52E-01	< 1.09E-02
Cooper			6.80E-01	9.60E-01	8.40E-01	4.93E+00	2.28E+00	2.38E-02	1.46E-02	9.94E-03
Dresden 1	2.75E+00	4.00E-02	6.80E-01	9.60E-01	8.40E-01	4.93E+00	2.28E+00	2.38E-02	1.46E-02	9.94E-03
Dresden 2-3	5.89E+00	6.70E+00	6.50E+00	4.31E+00	5.49E+00	6.86E+00	3.13E+00	6.97E+00	1.10E+01	9.87E+00
Duane Arnold				1.10E-03	8.18E-02	2.29E-02	3.65E-02	3.35E-02	8.50E-02	3.25E-02
Ferni 2				< 4.00E-02	6.80E-01	1.73E-01	2.79E-01	1.42E-02	1.25E-01	2.80E-01
James A. Fitzpatrick										
Grand Gulf 1				< 1.00E-02	< 1.00E-02	5.67E-03	4.13E-03	2.59E-02	4.29E-01	2.12E-01
Edwin I. Hatch 1									1.33E-02	9.42E-03
Edwin I. Hatch 2										
Hope Creek 1			8.40E-01	1.06E+00	8.36E-02	4.04E-03	7.26E-04	1.07E-04	5.11E-04	< 3.82E-04
Humboldt Bay 3	4.80E-01	2.90E-01	8.40E-01	1.06E+00	8.36E-02	4.04E-03	7.26E-04	1.07E-04	5.11E-04	< 3.82E-04
LaCrosse	7.10E-01	2.00E-01	4.00E-02	1.00E-01	< 7.06E-02	1.67E-01	2.79E-02	2.53E-02	1.32E-02	1.69E-02
LaSalle 1&2										
Limerick 1&2										
Millstone 1	1.32E+00	2.00E-01	3.26E+00	9.98E+00	2.33E+00	4.86E+00	4.55E+00	5.90E-01	3.32E-01	1.48E-01
Monticello	5.78E-01	1.20E+00	5.70E+00	3.71E+00	1.71E-01	8.51E-02	5.49E-02	3.39E-02	2.83E-02	3.45E-02
Nine Mile Point 1	9.70E-01	1.98E+00	8.90E-01	2.78E+00	2.20E+00	1.99E-01	1.35E-01	4.71E-02	2.55E-02	1.49E-02
Nine Mile Point 2										
Oyster Creek 1	6.48E+00	7.02E+00	3.51E+00	5.64E+00	6.39E+00	9.05E+00	1.81E+01	9.32E+00	1.25E+00	2.24E+00
Peach Bottom 2&3		< 1.00E-02	1.00E-02	4.00E-02	9.75E-01	2.73E-01	9.62E-02	2.56E-01	2.94E-02	< 4.19E-02
Perry 1										
Pilgrim 1	3.00E-02	4.70E-01	1.45E+00	2.58E+00	6.74E-01	6.90E-01	1.81E-01	1.45E-01	1.04E-01	< 6.87E-02
Quad-Cities 1&2	7.50E-01	5.50E+00	8.88E+00	1.31E+00	1.33E+00	1.69E+00	2.15E+00	1.57E+00	5.90E-01	1.27E+00
River Bend 1										
Shoreham 1										
Susquehanna 1&2										
Vermont Yankee 1	1.70E-01	7.00E-02	3.60E-01	1.00E-02	< 1.00E-02	1.44E-02	2.18E-01	4.43E-01	1.70E-02	4.53E-03
WNP-2										
Total	2.03E+01	< 2.83E+01	3.26E+01	< 3.30E+01	< 2.20E+01	< 3.01E+01	3.19E+01	< 2.07E+01	< 1.65E+01	< 1.52E+01
								6.89E-07	1.25E-06	1.40E-06

* Fort St. Vrain

* High temperature gas cooled reactor
N/D = Not Detectable

Table 3

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)

(Half-Life Equal To or Greater Than 8 Days)

Boiling Water Reactors

Facility	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Big Rock Point 1	4.71E-03	3.35E-03	1.32E-01	8.25E-02	7.56E-02	2.94E-02	5.07E-02	4.87E-03	5.71E-03	3.07E-03
Browns Ferry 1,2 & 3	1.89E-01	2.83E-01	< 1.72E-01	< 2.49E-02	< 2.73E-03	1.78E-03	1.76E-03	1.86E-04	1.88E-04	2.84E-02
Brunswick 1&2	1.99E+00	6.25E+00	3.49E-01	6.32E-02	4.69E-02	1.82E-01	1.77E-01	4.84E-02	4.83E-02	1.91E-02
Clinton 1						2.58E-04	5.94E-02	9.52E-03	8.71E-03	9.10E-03
Cooper	< 1.55E-01	< 2.30E-02	< 1.15E-02	< 2.29E-02	< 1.16E-02	2.67E-02	2.04E-02	5.26E-03	3.53E-04	5.64E-04
Dresden 1	3.36E-04	7.56E-04	1.69E-03	9.23E-05	+	+	+	1.07E-04	2.59E-04	4.19E-03
Dresden 2-3	9.50E-01	6.32E-01	1.30E-01	1.56E-01	7.11E-02	1.45E-01	2.35E-01	1.15E+00	1.51E-01	3.69E-02
Duane Arnold	1.03E-02	1.50E-02	1.53E-02	8.89E-03	7.32E-02	1.37E-01	1.55E-02	3.16E-03	4.45E-03	2.64E-03
Fermi 2					2.68E-07	8.56E-03	2.78E-03	1.67E-02	1.54E-02	5.66E-03
James A. Fitzpatrick	7.71E-01	3.80E-01	2.10E-01	1.67E-01	8.66E-02	1.36E-01	7.00E-02	7.12E-02	1.91E-02	2.50E-02
Grand Gulf 1		4.50E-05	1.86E-04	7.53E-04	4.85E-04	4.28E-03	4.90E-04	1.08E-03	9.98E-04	4.29E-03
Edwin I. Hatch 1	1.84E-01	6.96E-02	6.57E-02	3.98E-02	1.50E-02	2.54E-01	**	**	**	**
Edwin I. Hatch 2	6.83E-02	.95E-02	1.15E-02	3.47E-02	1.79E-02	1.16E-01	4.29E-02	5.73E-03	7.64E-03	5.57E-03
Hope Creek 1					N/D	N/D	N/D	N/D	5.47E-03	4.44E-04
Humboldt Bay 3	1.09E-04	2.68E-04	2.68E-04	7.62E-05	1.64E-04	6.78E-05	1.49E-04	3.67E-05	3.85E-05	6.68E-05
LaCrosse	8.35E-03	1.08E-02	6.90E-03	9.62E-03	5.91E-03	2.31E-03	1.11E-05	1.29E-05	1.80E-04	3.64E-06
LaSalle 1&2	4.16E-03	1.80E-02	1.06E-02	2.32E-02	7.09E-02	4.97E-02	1.34E-02	8.23E-03	3.44E-03	6.84E-03
Limerick 1&2			N/D	N/D	7.45E-03	1.17E-03	6.67E-03	7.60E-03	7.64E-04	1.13E-04
Millstone 1	2.00E-01	6.25E-02	6.24E-02	5.20E-02	4.71E-02	2.50E-02	7.60E-03	9.35E-03	2.60E-03	2.64E-03
Monticello	8.85E-02	4.10E-02	2.93E-02	9.95E-02	6.86E-02	1.73E-01	7.90E-02	1.14E-01	4.34E-02	3.62E-02
Nine Mile Point 1	2.71E-02	1.07E-02	1.75E-02	3.46E-02	1.75E-02	1.61E-02	1.89E-03	3.02E-03	2.72E-03	7.19E-03
Nine Mile Point 2						5.17E+00	6.90E-04	5.04E-03	4.95E-03	1.38E-02
Oyster Creek 1	1.04E+00	1.90E-02	4.37E-01	3.04E+00	7.00E-01	1.04E-01	6.35E-02	5.08E-02	3.14E-02	3.25E-02
Peach Bottom 2&3	3.90E-02	4.60E-02	1.02E-01	6.88E-02	5.20E-02	2.00E-02	1.50E-03	3.45E-03	1.82E-02	4.26E-02
Perry 1					1.13E-06	4.87E-05	4.62E-02	8.54E-03	1.11E-02	1.42E-02
Pilgrim 1	< 4.44E-02	< 4.69E-02	< 5.17E-03	< 5.68E-02	< 1.24E-02	< 8.43E-04	3.82E-04	5.62E-03	1.02E-02	4.71E-02
Quad-Cities 1&2	4.12E-01	4.36E-01	8.86E-02	6.06E-01	1.11E-01	9.40E-02	2.46E-02	4.06E-02	3.34E-02	1.19E-02
River Bend 1					4.62E-05	4.03E-04	9.66E-04	4.13E-04	5.17E-02	4.44E-02
Shoreham 1					N/D	N/D	N/D	N/D	N/D	N/D
Susquehanna 1&2	< 8.70E-04	9.43E-04	1.48E-02	2.66E-02	3.39E-03	6.08E-03	1.82E-03	1.11E-03	8.63E-04	2.43E-04
Vermont Yankee 1	1.45E-03	4.14E-03	6.87E-03	< 5.87E-03	< 1.29E-02	1.27E-02	6.58E-03	8.92E-03	7.24E-02	8.26E-02
WNP-2			3.77E-01	2.43E-01	7.00E-02	7.71E-02	4.96E-01	1.17E-01	1.50E-01	6.27E-02
Total	< 6.20E+00	< 8.37E+00	< 2.26E+00	< 4.87E+00	< 1.58E+00	< 6.79E+00	1.43E+00	1.70E+00	7.05E-01	5.50E-01
* Fort St. Vrain	2.61E-01	7.40E-07	2.78E-06	6.31E-07	N/D	N/D	< 1.79E-05	N/D	N/D	N/D

+ Included with Dresden 2-3 total

* High temperature gas cooled reactor

** Included with Edwin I. Hatch 2 total

N/D = Not Detectable

Table 4

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)
(Half-Life Equal To or Greater Than 8 Days)

Pressurized Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Arkansas One 1			5.00E-02	7.40E-01	5.73E-02	9.04E-03	3.19E-03	4.47E-03	1.66E-01	5.58E-03
Arkansas One 2								4.65E-03	6.90E-03	1.41E-02
Beaver Valley 1&2					* < 1.00E-02	1.52E-04	7.21E-02	4.07E-04	1.91E-03	6.85E-03
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1										
Calvert Cliffs 1&2				7.00E-02	1.38E-01	3.07E-01	1.35E-01	2.05E+00	7.44E-02	4.69E-02
Catawba 1										
Catawba 2										
Comanche Peak 1										
Donald C. Cook 1&2				< 1.00E-02	< 1.00E-02	7.45E-02	1.10E-01	7.36E-02	6.88E-02	3.55E-01
Crystal River 3						2.53E-03	1.05E-03	1.88E-02	6.77E-03	1.78E-02
Davis-Besse 1						2.57E-04	4.30E-04	5.65E-03	2.01E-03	5.79E-02
Diablo Canyon 1&2										
Joseph M. Farley 1							4.11E-02	2.20E-02	2.37E-03	6.24E-01
Joseph M. Farley 2										3.22E-03
Fort Calhoun 1		< 1.00E-02	< 1.00E-02	< 1.00E-02	< 2.04E-02	1.34E-02	8.30E-03	1.58E-03	2.42E-03	3.63E-03
R. E. Ginna	4.00E-02	< 1.00E-02	< 1.00E-02	2.00E-02	3.17E-02	2.55E-02	1.04E-02	1.88E-02	9.00E-03	5.88E-03
Haddam Neck	2.00E-02	5.00E-02	< 1.00E-02	< 1.00E-02	< 1.00E-02	1.74E-03	5.21E-03	4.77E-02	8.01E-03	< 1.28E-02
Harris 1										
Indian Point 1&2		< 1.00E-02	4.30E-01	1.62E+00	2.42E-01	5.59E-02	2.05E-01	4.50E-01	6.42E-02	4.42E-02
Indian Point 3					Shown With	Other Unit	1.29E-02	3.89E-03	2.53E-02	3.63E-03
Kewaunee			2.00E-02	6.60E-01	< 1.00E-02	2.40E-02	5.48E-03	6.18E-04	2.61E-04	1.21E-04
** Maine Yankee	< 1.00E-02	9.40E-01	5.00E-02	< 1.00E-02	< 1.00E-02	1.07E-02	4.39E-03	1.16E-01	3.67E-03	1.21E-03
McGuire 1										1.21E-11
McGuire 2										
Millstone 2				1.00E-02	1.25E-02	4.47E-03	2.97E-03	9.79E-03	1.94E-02	1.06E-01
Millstone 3										
North Anna 1&2							3.19E-02	5.71E-02	1.26E-02	4.81E-01
Oconee 1,2,&3		1.00E-02	3.00E-02	1.00E-02	2.72E-01	5.35E-01	2.22E-01	2.28E-01	1.33E-01	3.24E-01
Palisades	< 1.00E-02	3.10E-01	1.00E-02	3.80E-01	4.16E-02	1.63E-02	2.07E-02	2.46E-02	2.76E-02	4.15E-02
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2	3.00E-02	5.50E-01	1.60E-01	7.00E-02	1.85E-02	5.02E-03	2.88E-02	1.35E-02	1.28E-03	2.03E-01
Prairie Island 1&2		< 1.00E-02	< 1.00E-02	2.12E-02	1.14E-02	7.56E-03	8.96E-04	3.86E-03	1.83E-03	4.48E-04
Rancho Seco 1				< 1.00E-02	< 1.00E-02	5.02E-03	3.21E-02	5.75E-03	9.96E-03	4.65E-03
H. B. Robinson 2	3.00E-02	3.00E-01	5.00E-02	2.00E-02	9.96E-02	3.88E-03	9.26E-04	4.10E-04	1.13E-03	3.32E-04
Salem 1					N/D	2.34E-07	4.01E-02	7.68E-03	2.17E-01	4.84E-01
Salem 2									5.44E-05	6.31E-03
San Onofre 1	< 1.00E-02	1.61E+00	< 1.00E-02	4.00E-02	< 1.00E-02	1.86E-04	2.71E-03	1.43E-04	8.41E-01	1.18E-02
San Onofre 2-3										
Seabrook 1										
Sequoyah 1&2									2.57E-03	1.30E-02
South Texas 1										
South Texas 2										
St. Lucie 1					< 1.00E-02	1.48E-01	5.17E-01	2.02E-01	6.20E-02	7.69E-02
St. Lucie 2										
Summer 1										
Surry 1&2	< 1.00E-02	4.00E-02	1.40E-01	5.00E-02	3.46E-01	1.20E-01	6.49E-02	7.61E-03	1.85E-02	6.53E-02
Three Mile Island 1			< 1.00E-02	< 1.00E-02	1.07E-02	3.39E-02	1.35E-01	1.24E-02	2.93E-04	5.05E-04
Three Mile Island 2							2.30E-03	1.42E+01	5.67E-04	3.69E-05
TMI 2/Epicor									6.83E-06	2.63E-06
* Trojan					2.84E-02	3.56E-02	8.28E-03	2.48E-02	1.84E-02	4.97E-02

* Changes to the entries for Trojan for 1976-1987 are corrections which were reported and explained in the Trojan July-December 1990 Effluent and Waste Disposal Report.

* I-131 not included

** Changes to the entries for Maine Yankee for 1977 - 1988 are corrections which were reported and explained in the Maine Yankee report "Revised Semiannual Effluent Release Reports for 770131 - 901231" Docket Date 92/01/08.

N/D = Not Detectable

Table 4

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)
 (Half-Life Equal To or Greater Than 8 Days)

Pressurized Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Turkey Point 3&4		6.00E-02	3.63E+00	4.30E-01	4.22E-01	1.04E+00	4.59E-01	7.91E-02	7.05E-02	2.94E-02
Turkey Point 3										
Turkey Point 4										
Vogtle 1&2										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	< 1.00E-02	1.90E-01	5.30E-01	1.00E-02	< 1.00E-02	8.70E-05	2.25E-04	2.49E-04	9.56E-05	2.13E-04
Zion 1&2		< 1.00E-02	1.00E-02	1.40E-01	9.00E-02	5.38E-02	8.91E-02	6.74E-02	3.00E-03	1.25E-02
Total	< 1.70E-01	< 4.11E+00	< 5.17E+00	< 4.35E+00	< 1.93E+00	2.53E+00	2.27E+00	1.78E+01	1.88E+00	< 3.11E+00

Table 4

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)
(Half-Life Equal To or Greater Than 8 Days)

Pressurized Water Reactors

Facility	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Arkansas One 1	9.07E-04	1.15E-03	1.14E-03	3.50E-03	4.01E-03	3.05E-04	1.03E-03	8.17E-04	8.94E-04	2.51E-03
Arkansas One 2	4.92E-03	5.78E-03	2.54E-04	3.27E-03	2.36E-04	5.12E-05	4.21E-04	5.87E-04	2.03E-04	4.27E-02
Beaver Valley 1&2	4.56E-03	5.25E-02	6.21E-03	1.58E-03	7.83E-03	1.36E-02	3.54E-03	1.11E-02	3.20E-04	1.02E-02
Bradwood 1						1.34E-05	2.44E-02	2.54E-04	1.56E-03	6.01E-03
Bradwood 2							9.52E-05	2.86E-04	5.61E-04	5.07E-03
Byron 1&2				2.18E-03	5.45E-02	9.45E-03	1.28E-02	7.93E-04	4.08E-03	1.81E-04
Callaway 1			9.41E-07	3.23E-04	1.18E-03	4.46E-04	3.36E-04	1.66E-04	1.46E-04	9.16E-06
Calvert Cliffs 1&2	1.84E-01	1.02E-01	6.02E-02	5.36E-02	8.73E-02	9.18E-02	1.36E-01	4.81E-02	1.69E-03	1.32E-02
Catawba 1				5.71E-04	6.69E-03	7.42E-03	4.05E-03	7.46E-04	8.60E-04	1.39E-03
Catawba 2					6.69E-03	7.42E-03	4.05E-03	7.46E-04		1.39E-03
Comanche Peak 1									N/D	1.85E-05
Donald C. Cook 1&2			2.09E-02	1.78E-01	2.29E-02	6.44E-02	8.92E-03	3.44E-02	7.35E-02	2.41E-03
Crystal River 3	1.28E-01	5.75E-02	2.07E-04	7.31E-04	1.02E-03	3.49E-03	1.25E-03	2.02E-03	7.68E-04	4.57E-04
Davits-Besse 1	3.22E-03	1.58E-03	1.66E-03	5.13E-04	N/D	1.24E-03	4.76E-04	3.06E-03	2.38E-03	8.70E-03
Diablo Canyon 1&2	5.28E-03	7.37E-03	1.20E-05	2.40E-04	1.44E-03	2.36E-03	1.29E-03	9.75E-04	5.94E-05	5.90E-04
Joseph M. Farley 1									N/D	1.60E-03
Joseph M. Farley 2	9.09E-02	4.60E-02	5.87E-03	5.60E-03	7.96E-04	3.81E-04	1.60E-03	3.64E-05		
Fort Calhoun 1	6.51E-05	5.06E-05	1.54E-03	2.97E-04	1.35E-03	1.49E-04	2.51E-06	7.89E-07	3.15E-06	1.43E-05
R. F. Ginna	1.59E-03	9.32E-04	1.25E-02	7.29E-03	1.48E-03	5.11E-03	3.10E-04	1.27E-04	1.81E-03	3.22E-04
Haddam Neck	1.36E-02	1.53E-02	1.62E-03	9.74E-04	4.04E-04	8.71E-03	5.69E-05	8.38E-04	5.14E-03	1.65E-03
Harris 1	< 5.41E-04	< 1.02E-02	5.72E-02	1.13E-03	9.36E-03	1.35E-03	3.69E-02	1.50E-02	4.71E-03	2.60E-02
Indian Point 1&2						4.43E-06	4.59E-05	1.79E-06	7.72E-05	4.71E-05
Indian Point 3	4.17E-02	2.06E-02	< 1.51E-01	1.44E+00	4.59E-01	1.57E-02	9.18E-03	3.08E-03	5.36E-03	2.10E-03
Kewaunee	< 4.28E-03	< 1.53E-04	2.04E-02	1.90E-03	4.01E-03	2.07E-03	3.42E-03	1.36E-03	1.81E-04	2.44E-05
** Maine Yankee	5.97E-05	< 2.16E-04	< 4.05E-03	2.77E-04	< 5.58E-03	< 1.23E-02	< 1.05E-02	1.75E-02	3.24E-03	1.93E-03
McGuire 1	2.55E-04	1.48E-04	7.14E-03	8.17E-04	4.60E-03	5.05E-03	5.10E-04	2.39E-04	1.81E-02	7.22E-03
McGuire 2	9.51E-04	1.89E-03	1.25E-02	1.29E-02	3.03E-02	6.08E-02	6.14E-03	3.76E-03	1.02E-03	9.78E-04
Millstone 2										
Millstone 3	3.19E-01	5.73E-02	3.71E-02	6.48E-03	5.37E-03	6.51E-03	5.13E-02	3.78E-02	2.08E-02	1.27E-02
North Anna 1&2										
Oconee 1,2,&3										
Paltzades										
Palo Verde 1	3.49E-02	3.28E-01	8.65E-02	8.57E-02	2.27E-02	1.73E-02	2.30E-03	4.33E-03	7.05E-03	2.70E-03
Palo Verde 2	2.55E-01	1.13E-01	1.07E-01	4.92E-03	4.34E-02	1.46E-01	1.63E-01	3.56E-02	9.02E-03	2.90E-02
Palo Verde 3	2.30E-02	3.44E-02	9.92E-04	4.92E-02	3.03E-03	2.77E-02	2.65E-02	1.73E-02	2.13E-03	3.02E-04
Point Beach 1&2										
Prairie Island 1&2										
Rancho Seco 1										
H. B. Robinson 2										
Salem 1										
Salem 2										
San Onofre 1										
San Onofre 2-3										
Seabrook 1										
Sequoyah 1&2										
South Texas 1										
South Texas 2										
St. Lucie 1										
St. Lucie 2										
Summer 1										
Surry 1&2										
Three Mile Island 1										
Three Mile Island 2										
TMI 2/Epteor										
* Trojan										

* Changes to the entries for Trojan for 1976-1987 are corrections which were reported and explained in the Trojan July-December 1990 Effluent and Waste Disposal Report.

** Changes to the entries for Maine Yankee for 1977 - 1988 are corrections which are reported and explained in the Maine Yankee report "Revised Semiannual Effluent Release Reports for 770131 - 901231" Docket Date 92/01/08.

*+ Included with Three Mile Island 2 total
N/D = Not Detectable

Table 4

Airborne Effluents Comparison By Year

I-131 and Particulates (Curies)
 (Half-Life Equal To or Greater Than 8 Days)

Pressurized Water Reactors

Facility	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Turkey Point 3&4	2.20E-01	1.44E-01	2.77E-02							
Turkey Point 3				7.98E-03	1.93E-02	1.24E-02	4.83E-03	3.10E-03	4.60E-03	6.53E-04
Turkey Point 4				7.88E-03	2.45E-03	1.38E-02	4.78E-03	2.99E-04	1.87E-03	6.52E-04
Vogtle 1&2						1.99E-05	1.75E-05	1.25E-03	8.49E-05	2.08E-03
Waterford 3				3.48E-03	5.30E-03	1.02E-03	1.24E-03	7.62E-04	5.99E-04	2.36E-03
Wolf Creek 1				1.67E-06	2.11E-04	2.14E-04	8.36E-05	2.31E-05	1.71E-04	2.40E-03
Yankee Rowe 1	< 5.75E-04	3.11E-03	< 6.49E-03	< 7.61E-04	2.02E-04	4.10E-05	5.89E-05	< 1.82E-04	1.61E-04	2.97E-05
Zion 1&2	8.57E-02	2.28E-02	4.27E-02	2.55E-02	4.48E-02	4.07E-03	1.40E-02	2.39E-03	1.38E-03	7.65E-03
Total	< 2.08E+00	< 1.65E+00	< 1.76E+00	< 3.56E+00	< 1.42E+00	< 1.25E+00	< 7.59E-01	< 7.96E-01	2.25E-01	2.73E-01

Table 5

Liquid Effluents Comparison By Year

Tritium (Curies)

Boiling Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Big Rock Point 1	1.04E+01	1.97E+01	5.10E+00	5.73E+00	2.41E+00	8.83E+00	4.05E+00	5.45E+00	6.18E+00	3.13E+00
Browns Ferry 1,2,& 3			2.80E+00	1.04E+01	< 4.02E+00	2.40E+01	3.08E+01	1.32E+01	2.18E+01	2.42E+01
Brunswick 1&2				3.20E+00	5.90E+00	8.93E+00	1.41E+01	3.09E+01	1.28E+01	2.26E+01
Clinton 1										
Cooper			1.70E+00	8.25E+00	8.43E+00	9.04E+00	7.51E+00	6.63E+00	8.77E+00	< 8.37E+00
Dresden 1	4.33E+01	1.85E+01	1.88E+01	2.70E-01	2.00E-02	8.90E-02	1.31E+01	1.50E+00	N/D	N/D
Dresden 2-3	2.59E+01	2.58E+01	2.26E+01	5.40E+01	1.97E+01	5.00E+00	1.92E+01	1.93E+01	6.20E+01	6.05E+00
Duane Arnold				3.30E-01	3.40E-01	2.13E-01	1.19E+02	2.90E-01	N/D	N/D
Fermi 2										
James A. Fitzpatrick				5.03E+00	4.20E+00	3.35E+00	1.90E+00	1.52E+00	2.81E+00	4.11E+00
Grand Gulf 1										
Edwin I. Hatch 1				6.12E+00	8.98E+00	1.20E+01	9.00E+00	1.23E+01	1.42E+01	1.16E+01
Edwin I. Hatch 2									1.07E+01	9.28E+00
Hope Creek 1										
Humboldt Bay 3	1.30E+01	5.13E+01	3.17E+01	2.01E+01	1.30E+01	5.26E-01	3.63E-02	3.91E-02	9.70E-02	< 1.62E-01
LaCrosse	1.20E+02	1.03E+02	1.15E+02	1.27E+02	4.10E+01	4.86E+01	4.72E+01	3.54E+01	7.20E+01	7.74E+01
LaSalle 1&2										
Limerick 1&2										
Millstone 1	2.09E+01	3.70E+00	2.41E+01	8.03E+01	2.01E+01	4.41E+00	3.20E+00	7.92E+00	2.73E+01	2.62E+00
Monticello	< 1.00E-01	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	4.17E-03
Nine Mile Point 1	2.78E+01	4.65E+01	1.87E+01	2.81E+01	2.46E+00	2.49E+00	N/D	6.78E+00	N/D	5.05E+00
Nine Mile Point 2										
Oyster Creek 1	6.16E+01	3.59E+01	1.41E+01	1.79E+01	3.86E+01	1.88E+01	1.96E+01	1.40E+00	1.54E+02	2.67E+01
Peach Bottom 2&3		< 1.00E-01	1.00E+01	3.08E+01	7.37E+01	7.09E+01	3.24E+01	4.28E+01	3.73E+01	3.68E+01
Perry 1										
Pilgrim 1	4.20E+00	4.00E-01	1.05E+01	1.82E+01	4.67E+01	3.27E+01	2.98E+00	1.34E+01	4.00E+01	3.41E+01
Quad-Cities 1&2	4.70E+00	2.45E+01	3.40E+01	5.37E+01	4.98E+01	2.64E+01	1.72E+01	1.76E+01	1.03E+01	1.19E+01
River Bend 1										
Shoreham 1										
Susquehanna 1&2										
Vermont Yankee 1		1.00E-01	N/D	N/D	1.60E+00	8.44E-01	N/D	4.04E+00	N/D	3.70E-01
WNP-2										
Total	< 3.32E+02	< 3.30E+02	3.09E+02	4.69E+02	< 3.41E+02	2.77E+02	3.41E+02	2.20E+02	4.80E+02	< 2.84E+02
* Fort St. Vrain								1.23E+02	2.06E+02	2.19E+02

* High temperature gas cooled reactor
N/D = Not Detectable

Table 5

Liquid Effluents Comparison By Year

Tritium (Curies)

Boiling Water Reactors

Facility	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Big Rock Point 1	2.98E+00	2.22E+01	1.11E+00	1.27E+00	3.51E-01	5.85E-01	3.47E-01	6.39E-01	5.89E-01	2.51E-01
Browns Ferry 1,2,&3	2.39E+01	3.20E+01	3.18E+01	3.31E+01	7.93E+00	2.03E+00	1.46E+00	7.01E-01	2.07E-01	5.96E+00
Brunswick 1&2	4.88E+01	1.04E+02	3.37E+01	9.88E+00	5.78E+00	1.93E+01	3.10E+01	1.79E+01	4.95E+01	7.99E+01
Citron 1						1.87E+00	2.90E+00	1.49E+00	2.60E+00	4.45E+00
Cooper	< 9.08E+00	< 7.60E+00	< 7.20E+00	< 5.05E+00	< 5.56E+00	5.02E+00	4.17E+00	5.45E+00	5.07E+00	9.05E+00
Dresden 1	N/D	N/D	N/D	N/D	N/D	N/D	**	**	**	**
Dresden 2-3	1.36E+00	1.45E-03	3.93E+01	7.45E+00	1.27E+01	2.23E+01	1.72E+01	1.83E+01	2.04E+01	1.28E+01
Duane Arnold	2.25E-05	N/D	1.41E-06	3.57E-02	N/D	N/D	N/D	N/D	N/D	N/D
Fermi 2					3.00E-01	1.05E+00	9.33E-01	1.30E+00	7.47E-01	2.02E+00
James A. Fitzpatrick	6.55E-01	2.72E+00	4.77E+00	4.20E+00	4.99E+00	2.48E+00	8.87E+00	7.32E-01	3.08E+00	7.61E+00
Grand Gulf 1		3.89E-03	7.27E-01	5.17E+00	1.47E+01	1.83E+01	1.34E+01	1.32E+01	1.89E+01	2.16E+01
Edwin 1, Hatch 1	1.03E+02	9.47E+01	8.02E+01	3.93E+01	1.85E+01	2.01E+01	+	+	+	+
Edwin 1, Hatch 2	3.68E+01	3.40E+01	2.13E+01	1.81E+01	1.01E+01	8.10E+00	4.40E+01	4.57E+01	2.26E+01	2.91E+01
Hope Creek 1					6.91E-03	9.53E+00	9.36E+00	2.35E+01	1.18E+01	2.45E+01
Humboldt Bay 3	5.99E-02	5.38E-02	2.93E-02	1.08E+00	6.67E-02	6.98E-04	9.44E-04	1.14E-03	3.48E-03	2.29E-03
LaCrosse	5.92E+01	1.24E+02	1.25E+02	1.28E+02	5.75E+01	4.66E+01	4.60E+00	2.79E+00	7.74E-01	5.36E-01
LaSalle 1&2	9.26E-01	4.25E+00	1.10E+00	3.89E-01	1.37E-01	1.10E+00	1.76E+00	1.07E+00	3.74E-01	N/D
Limerick 1&2			N/D	1.15E+00	2.06E+00	6.02E+00	N/D	2.70E+01	3.02E+01	1.37E+01
Millstone 1	6.21E+00	8.38E+00	8.58E+00	1.79E+01	5.33E+00	1.78E+01	3.78E+01	4.58E+01	2.02E+01	8.40E+00
Monticello	2.70E-05	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Nine Mile Point 1	5.82E+00	7.89E+00	N/D	N/D	2.19E+00	N/D	N/D	N/D	1.41E+00	N/D
Nine Mile Point 2						4.83E-01	7.92E+00	8.10E+00	4.78E+00	7.78E+00
Oyster Creek 1	4.95E+00	8.76E+00	1.03E+01	N/D	1.07E+00	1.96E+00	1.62E+01	3.96E+00	N/D	6.03E-01
Peach Bottom 2&3	2.37E+01	2.02E+01	3.58E+01	5.04E+01	4.46E+01	4.64E+01	9.69E+00	2.00E+01	2.35E+01	1.46E+01
Perry 1					2.67E-03	3.49E+00	7.34E+00	6.96E+00	8.79E+00	1.06E+01
Pilgrim 1	5.91E+00	1.56E+01	1.47E+01	7.81E+00	1.00E+01	3.21E+00	5.73E-01	2.37E+00	3.68E+00	1.02E+01
Quad-Cities 1&2	7.80E+00	3.88E+00	5.42E+00	3.41E+00	6.43E+00	6.92E+00	7.28E+00	2.91E+01	2.61E+01	4.43E+00
River Bend 1					4.56E+00	6.92E+00	9.65E+00	1.60E+01	8.35E+01	3.06E+01
Shoreham 1					3.80E-03	6.04E-03	N/D	N/D	N/D	N/D
Susquehanna 1&2	< 8.55E-01	8.98E+00	1.12E+01	9.14E+00	1.54E+01	1.87E+01	1.45E+01	2.74E+01	5.80E+01	4.62E+01
Vermont Yankee 1	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
WNP-2			5.40E-01	1.50E+00	3.29E+00	1.21E+00	1.38E+00	2.03E+00	7.54E-01	1.81E+00
Total	< 3.42E+02	< 4.99E+02	< 4.33E+02	< 3.44E+02	< 2.34E+02	2.71E+02	2.52E+02	3.21E+02	3.98E+02	3.47E+02
* Fort St. Vrain	2.62E+02	3.69E+02	1.24E+02	1.53E+01	1.27E+02	5.81E+01	1.61E+02	1.12E+02	3.22E+00	1.11E+01

* High temperature gas cooled reactor

** Included with Dresden 2-3 total

+ Included with Edwin 1, Hatch 2 total

N/D = Not Detectable

Table 6

Liquid Effluents Comparison By Year

Facility	Tritium (Curies)									
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Pressurized Water Reactors										
Arkansas One 1			2.56E+01	4.60E+02	2.12E+02	2.45E+02	2.94E+02	1.68E+02	2.12E+02	4.42E+02
Arkansas One 2								5.27E+01	2.89E+02	2.44E+02
Beaver Valley 1&2					8.60E+00	1.08E+02	3.49E+02	9.59E+01	3.98E+01	1.40E+02
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1										
Calvert Cliffs 1&2				2.03E+02	2.74E+02	5.75E+02	4.56E+02	5.14E+02	4.91E+02	1.00E+03
Catawba 1										
Catawba 2										
Comanche Peak 1										
Donald C. Cook 1&2				5.64E+01	1.92E+02	2.86E+02	6.24E+02	1.22E+03	7.82E+02	9.15E+02
Crystal River 3						1.66E+02	1.54E+02	1.66E+02	1.95E+02	2.71E+02
Davis-Besse 1						9.01E+00	2.15E+02	2.45E+02	1.08E+02	1.57E+02
Diablo Canyon 1&2										
Joseph M. Farley 1							5.91E+01	9.40E+01	5.70E+02	1.65E+02
Joseph M. Farley 2										6.34E+02
Fort Calhoun 1		1.58E+01	1.24E+02	1.11E+02	1.22E+02	1.57E+02	1.50E+02	2.58E+02	5.44E+01	2.42E+02
R. E. Ginna	1.19E+02	2.86E+02	1.95E+02	2.60E+02	2.42E+02	1.19E+02	2.42E+02	2.40E+02	1.60E+02	2.40E+02
Haddam Neck	5.89E+03	3.90E+03	2.24E+03	5.67E+03	4.85E+03	6.67E+03	3.94E+03	3.55E+03	3.29E+03	5.29E+03
Harris 1										6.25E+00
Indian Point 1&2		2.75E+01	4.79E+01	7.94E+01	3.32E+02	3.71E+02	5.12E+02	3.75E+02	2.76E+02	2.41E+02
Indian Point 3					Shown With	Other Unit	2.56E+02	1.15E+02	4.27E+02	6.42E+02
Kewaunee			9.24E+01	2.77E+02	1.80E+02	2.95E+02	2.96E+02	2.49E+02	2.33E+02	2.51E+02
Maine Yankee	9.20E+00	1.54E+02	2.19E+02	1.77E+02	3.67E+02	1.53E+02	3.15E+02	2.02E+02	2.18E+02	2.16E+02
McGuire 1										6.25E+00
McGuire 2										
Millstone 2				7.60E+00	2.77E+02	2.11E+02	2.01E+02	2.54E+02	2.68E+02	3.71E+02
Millstone 3										
North Anna 1&2							2.82E+02	3.13E+02	4.03E+02	1.28E+03
Oconee 1,2,&3		7.07E+01	3.50E+02	3.55E+03	2.19E+03	1.92E+03	1.17E+03	8.94E+02	7.12E+02	5.07E+02
Palisades	2.08E+02	1.85E+02	8.10E+00	4.16E+01	9.63E+00	5.58E+01	1.01E+02	1.26E+02	7.47E+01	2.78E+02
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2	5.63E+02	5.56E+02	8.33E+02	8.85E+02	6.94E+02	9.99E+02	1.29E+03	8.92E+02	7.61E+02	6.52E+02
Prairie Island 1&2		< 1.00E-01	1.42E+02	4.54E-01	1.00E-01	1.35E+03	5.51E+02	6.25E+02	5.43E+02	5.62E+02
Rancho Seco 1				1.32E+02	N/D	8.55E-02	N/D	N/D	1.47E-02	8.35E+01
H. B. Robinson 2	4.05E+02	4.32E+02	4.49E+02	6.24E+02	9.80E+02	6.85E+02	4.73E+02	4.29E+02	1.89E+02	1.86E+02
Salem 1					4.00E-02	2.96E+02	4.46E+02	7.26E+02	N/D	4.93E+02
Salem 2									N/R	8.42E+02
San Onofre 1	3.48E+03	4.07E+03	3.81E+03	4.00E+03	3.39E+03	1.79E+03	2.50E+03	2.32E+03	1.03E+03	2.97E+02
San Onofre 2-3										
Seabrook 1										
Sequoyah 1&2									3.23E-01	7.65E+01
South Texas 1										
South Texas 2										
St. Lucie 1					1.33E+01	2.42E+02	1.28E+02	1.28E+02	2.72E+02	3.25E+02
St. Lucie 2										
Summer 1										
Surry 1&2	5.00E+00	4.88E+02	2.45E+02	4.42E+02	7.82E+02	4.08E+02	7.47E+02	3.57E+02	3.85E+02	5.31E+02
Three Mile Island 1			1.30E+02	4.63E+02	1.89E+02	1.92E+02	1.55E+02	5.59E+01	3.26E+01	7.11E+00
Three Mile Island 2							3.83E+01	7.81E+01	6.10E-04	5.06E-02
TMI 2/Epicor									N/D	N/D
Trojan					3.60E+01	3.11E+02	1.59E+02	6.80E+01	1.24E+02	1.03E+02

N/R = Not Reported

N/D = Not Detectable

Table 6

Liquid Effluents Comparison By Year

Pressurized Water Reactors	Tritium (Curies)									
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Turkey Point 3&4		3.29E+02	5.80E+02	7.97E+02	7.71E+02	9.24E+02	1.17E+03	9.40E+02	7.49E+02	1.95E+02
Turkey Point 3										
Turkey Point 4										
Vogtle 1&2										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	8.03E+02	6.94E+02	3.14E+02	2.47E+02	1.56E+02	1.39E+02	1.96E+02	1.75E+02	5.84E+01	1.03E+02
Zion 1		1.00E-01	2.74E+02	1.03E+03	7.47E+02	7.24E+02	7.25E+02	6.01E+02	7.45E+02	6.04E+02
Zion 2										2.66E+02
Total	1.15E+04	< 1.12E+04	1.01E+04	1.96E+04	1.70E+04	1.94E+04	1.82E+04	1.65E+04	1.37E+04	1.89E+04

Table 6

Liquid Effluents Comparison By Year

Facility	Tritium (Curies)									
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Pressurized Water Reactors										
Arkansas One 1	2.06E+02	1.09E+02	3.05E+02	3.27E+02	2.12E+02	1.50E+02	2.50E+02	3.81E+02	2.67E+02	5.18E+02
Arkansas One 2	1.39E+02	2.38E+02	3.09E+02	2.41E+02	2.30E+02	3.52E+02	2.44E+02	4.40E+02	5.33E+02	9.40E+02
Beaver Valley 1&2	1.84E+02	4.60E+02	4.12E+02	1.50E+02	2.06E+02	5.72E+02	4.09E+02	6.21E+02	4.91E+02	4.85E+02
Braidwood 1						4.12E+01	2.74E+02	5.58E+02	6.50E+02	3.43E+02
Braidwood 2							2.44E+02	5.58E+02	6.50E+02	3.43E+02
Byron 1&2				2.61E+02	6.70E+01	4.10E+02	1.01E+03	1.29E+03	9.98E+02	1.43E+03
Callaway 1			2.90E+01	5.88E+02	4.35E+02	4.48E+02	8.93E+02	6.09E+02	1.02E+03	1.23E+03
Calvert Cliffs 1&2	4.35E+02	7.56E+02	7.87E+02	4.83E+02	7.35E+02	7.38E+02	6.24E+02	2.36E+02	7.29E+01	1.02E+03
Catawba 1				1.75E+02	1.18E+02	3.64E+02	3.53E+02	4.45E+02	2.97E+02	3.23E+02
Catawba 2					1.18E+02	3.64E+02	3.53E+02	4.45E+02	2.97E+02	3.23E+02
Comanche Peak 1									1.87E+02	4.60E+02
Donald C. Cook 1&2	1.23E+03	8.85E+02	1.37E+03	1.14E+03	6.95E+02	1.97E+03	1.10E+03	8.74E+02	1.56E+03	1.55E+03
Crystal River 3	1.82E+02	1.99E+02	4.20E+02	1.76E+02	1.73E+02	3.56E+02	5.11E+02	3.44E+02	5.10E+02	4.49E+02
Davis-Besse 1	5.68E+01	1.14E+02	1.22E+02	6.74E+01	2.09E+01	2.46E+02	3.50E+01	2.39E+02	1.27E+02	3.26E+02
Diablo Canyon 1&2			1.07E+00	4.28E+02	6.98E+02	6.91E+02	4.29E+02	9.35E+02	9.68E+02	1.05E+03
Joseph M. Farley 1	3.37E+02	4.12E+02	4.23E+02	6.03E+02	7.14E+02	6.37E+02	5.16E+02	6.99E+02	7.35E+02	4.71E+02
Joseph M. Farley 2	3.59E+02	3.17E+02	3.56E+02	5.02E+02	6.22E+02	5.05E+02	7.53E+02	6.08E+02	6.72E+02	3.53E+02
Fort Calhoun 1	3.08E+02	1.53E+02	2.35E+02	1.67E+02	1.84E+02	2.28E+02	2.32E+02	2.28E+02	1.74E+02	1.77E+02
R. E. Ginna	3.08E+02	3.50E+02	4.59E+02	5.01E+02	3.57E+02	5.64E+02	3.47E+02	5.92E+02	3.21E+02	3.76E+02
Haddam Neck	4.05E+03	9.90E+03	3.66E+03	5.76E+03	2.58E+03	3.17E+03	1.18E+03	4.81E+03	9.89E+02	4.63E+03
Harris 1						2.48E+02	4.01E+02	4.58E+02	7.26E+02	2.92E+02
Indian Point 1&2	1.72E+02	4.43E+02	2.22E+02	3.51E+02	3.36E+02	5.63E+02	4.39E+02	5.60E+02	6.44E+02	5.45E+02
Indian Point 3	1.94E+02	3.19E+01	5.87E+02	3.40E+02	5.67E+02	3.40E+02	5.73E+02	3.51E+02	3.33E+02	5.38E+02
Kewaunee	3.18E+02	2.92E+02	4.40E+02	3.79E+02	2.94E+02	3.51E+02	3.32E+02	3.41E+02	3.79E+02	4.34E+02
Maine Yankee	1.85E+02	2.87E+02	1.72E+02	1.84E+02	3.50E+02	1.18E+02	2.91E+02	4.22E+02	2.43E+02	3.89E+02
McGuire 1	1.60E+02	1.49E+02	3.23E+02	4.02E+02	4.58E+02	4.92E+02	5.29E+02	4.23E+02	4.58E+02	4.39E+02
McGuire 2		1.49E+02	3.23E+02	4.02E+02	4.58E+02	4.92E+02	5.29E+02	4.23E+02	4.58E+02	4.39E+02
Millstone 2	2.91E+02	1.21E+02	3.97E+02	1.66E+02	2.80E+02	2.86E+02	2.59E+02	3.66E+02	5.28E+02	2.66E+02
Millstone 3					5.41E+02	5.90E+02	5.47E+02	6.97E+02	7.74E+02	8.56E+02
North Anna 1&2	5.71E+02	1.61E+03	6.20E+02	1.48E+03	1.56E+03	8.36E+02	1.94E+03	1.40E+03	1.67E+03	1.16E+03
Oconee 1,2,&3	3.54E+02	1.28E+03	1.28E+03	1.24E+03	1.34E+03	9.49E+02	7.10E+02	1.02E+03	9.92E+02	1.13E+03
Palisades	1.79E+02	2.35E+02	6.95E+01	4.29E+02	6.32E+01	1.19E+02	2.83E+02	8.06E+01	1.49E+02	5.52E+01
Palo Verde 1				N/D	N/D	N/D	N/D	N/D	N/D	N/D
Palo Verde 2					N/D	N/D	N/D	N/D	N/D	N/D
Palo Verde 3						N/D	N/D	N/D	N/D	N/D
Point Beach 1&2	5.03E+02	5.39E+02	2.10E+03	8.05E+02	8.11E+02	7.09E+02	3.57E+02	5.59E+02	8.72E+02	7.87E+02
Prairie Island 1&2	6.00E+02	5.20E+02	6.41E+02	6.96E+02	6.70E+02	4.49E+02	4.05E+02	4.64E+02	3.98E+02	5.58E+02
Rancho Seco 1	6.46E+01	7.43E+01	2.97E+02	9.00E+01	6.50E+01	1.83E+01	1.01E+02	7.29E+01	1.37E+01	9.84E-01
H. B. Robinson 2	9.51E+01	2.40E+02	1.34E+01	3.09E+02	3.42E+02	2.74E+02	5.36E+02	1.64E+02	3.53E+02	1.88E+02
Salem 1	7.22E+02	2.08E+02	3.30E+02	9.23E+02	4.10E+02	3.79E+02	6.35E+02	6.09E+02	3.53E+02	6.06E+02
Salem 2	5.25E+02	2.23E+02	3.08E+02	5.77E+02	4.38E+02	6.61E+02	3.68E+02	5.11E+02	3.03E+02	4.42E+02
San Onofre 1	5.45E+02	1.57E+01	3.39E+01	2.38E+03	4.53E+02	2.27E+03	1.53E+03	9.62E+02	1.42E+03	1.25E+03
San Onofre 2,3	8.92E+00	2.38E+02	4.55E+02	4.75E+02	7.41E+02	8.20E+02	6.43E+02	1.30E+03	9.27E+02	1.08E+03
Seabrook 1								1.33E-03	1.13E+02	3.86E+02
Sequoyah 1&2	9.34E+02	7.35E+02	1.82E+03	6.33E+02	2.46E+02	1.19E+02	2.01E+02	1.15E+03	8.53E+02	1.65E+03
South Texas 1							1.99E+02	3.17E+02	3.45E+02	6.21E+02
South Texas 2								2.72E+02	4.70E+02	4.69E+02
St. Lucie 1	3.21E+02	3.46E+02	2.21E+02	2.86E+02	2.78E+02	3.38E+02	2.75E+02	4.05E+02	2.84E+02	4.06E+02
St. Lucie 2		3.77E+01	2.21E+02	3.64E+02	2.78E+02	3.38E+02	2.75E+02	4.05E+02	2.84E+02	4.06E+02
Summer 1	3.19E-01	2.27E+02	2.25E+02	3.11E+02	3.75E+02	7.36E+02	7.55E+02	6.85E+02	4.22E+02	8.13E+02
Surry 1&2	9.10E+02	7.17E+02	8.12E+02	7.50E+02	8.73E+02	8.15E+02	4.94E+02	4.29E+02	1.11E+03	9.13E+02
Three Mile Island 1	3.91E+00	3.09E+00	1.72E+00	9.06E+00	1.69E+02	1.97E+02	3.02E+02	3.73E+02	2.10E+02	3.59E+02
Three Mile Island 2	7.20E-02	3.75E-04	1.56E-04	2.22E-03	1.60E-03	1.48E-03	5.49E-03	9.76E-04	8.80E-04	6.19E-03
TMI 2/Epicor	N/D	N/D	N/D	**	**	**	**	**	**	**
Trojan	2.00E+02	2.34E+02	1.87E+02	2.65E+02	2.43E+02	1.75E+02	3.75E+02	3.18E+02	2.19E+02	1.69E+02

** Included with Three Mile Island 2 total

N/D = Not Detectable

Table 6

Liquid Effluents Comparison By Year

Tritium (Curies)

Pressurized Water Reactors

Facility	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Turkey Point 3&4	6.27E+02	7.12E+02	8.91E+02							
Turkey Point 3				4.33E+02	3.64E+02	2.69E+02	2.99E+02	2.29E+02	3.22E+02	1.02E+02
Turkey Point 4				4.33E+02	3.64E+02	2.69E+02	2.99E+02	2.29E+02	3.22E+02	1.02E+02
Vogtle 1&2						3.21E+02	3.90E+02	9.18E+02	1.17E+03	1.09E+03
Waterford 3				2.54E+01	4.31E+02	5.25E+02	5.03E+02	3.58E+02	7.12E+02	3.44E+02
Wolf Creek 1				1.83E+02	3.77E+02	3.17E+02	4.06E+02	5.88E+02	5.90E+02	7.17E+02
Yankee Rowe 1	1.86E+02	1.68E+02	1.64E+02	2.28E+02	1.76E+02	2.19E+02	1.96E+02	1.68E+02	1.92E+02	2.03E+02
Zion 1	6.76E+02	1.74E+02	1.74E+02	1.35E+02	2.87E+02	2.16E+02	4.11E+02	1.81E+02	2.90E+02	**
Zion 2	3.77E+02	2.56E+02	5.11E+02	5.21E+02	4.46E+02	4.40E+02	5.58E+02	8.66E+02	3.91E+02	9.30E+02
Total	1.75E+04	1.81E+04	2.27E+04	2.78E+04	2.32E+04	2.81E+04	2.71E+04	3.40E+04	3.18E+04	3.79E+04

** Included with Zion 2 total

Table 7

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Boiling Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Big Rock Point 1	1.10E+00	2.70E+00	1.10E+00	2.02E+00	7.70E-01	3.92E-01	2.74E-01	9.03E-01	7.82E-01	3.91E-01
Browns Ferry 1,2,& 3			8.00E-01	2.70E+00	3.95E+00	1.19E+00	1.32E+01	1.02E+01	9.38E+00	2.24E+00
Brunswick 1&2				1.89E+00	3.29E+00	6.22E+00	3.48E+00	5.10E+00	1.26E+00	2.20E+00
Clinton 1										
Cooper			1.40E+00	1.74E+00	7.00E-02	7.50E-01	3.05E+00	< 2.48E+00	< 1.10E+01	< 3.61E+00
Dresden 1	6.80E+00	9.20E+00	6.90E+00	8.40E-01	3.60E-01	6.00E-01	3.26E-01	2.65E-02	N/D	N/D
Dresden 2-3	2.20E+01	2.59E+01	3.31E+01	8.10E-01	1.21E+00	4.40E-01	3.99E-01	2.65E-01	7.16E-01	6.12E-02
Duane Arnold				< 1.00E-02	< 1.00E-02	2.32E-03	2.73E-01	5.10E-04	N/D	N/D
Fermi 2										
James A. Fitzpatrick				5.32E+00	6.01E+00	8.85E-01	1.58E+00	6.46E-01	1.51E+00	2.51E+00
Grand Gulf 1										
Edwin I. Hatch 1				6.00E-02	4.00E-02	2.50E+01	4.03E-02	4.82E-02	6.83E-02	3.73E-01
Edwin I. Hatch 2									4.57E-02	1.63E-01
Hope Creek 1										
Humboldt Bay 3	1.40E+00	2.40E+00	4.40E+00	3.79E+00	9.90E-01	9.17E-01	1.95E-01	9.55E-02	1.39E-01	1.55E-01
LaCrosse	4.85E+01	3.59E+01	1.31E+01	1.42E+01	< 5.78E+00	2.13E+01	8.86E+00	1.67E+00	2.13E+00	2.26E-01
LaSalle 1&2										
Limerick 1&2										
Millstone 1	5.15E+01	3.34E+01	1.98E+02	1.99E+02	9.65E+00	5.27E-01	1.75E-01	2.10E-01	7.24E-01	3.94E-01
Monticello	< 1.00E-01	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	3.11E-06
Nine Mile Point 1	3.46E+01	4.08E+01	2.56E+01	2.10E+01	2.14E+00	3.03E-01	N/D	1.89E+00	N/D	5.35E+00
Nine Mile Point 2										
Oyster Creek 1	1.00E+01	4.20E+00	7.00E-01	4.10E-01	2.20E-01	9.81E-02	1.53E-02	6.59E-03	5.06E-01	2.48E-01
Peach Bottom 2&3		< 1.00E-01	9.00E-01	9.30E-01	3.38E+00	2.23E+00	5.11E+00	1.95E+01	1.90E+00	1.97E+00
Perry 1										
Pilgrim 1	1.50E+00	9.00E-01	4.20E+00	8.01E+00	2.33E+00	3.41E+00	1.77E+00	5.12E-01	2.73E+00	1.94E+00
Quad-Cities 1&2	2.40E+00	2.14E+01	3.88E+01	1.71E+01	6.99E+00	1.34E+00	2.24E+00	1.31E+00	1.31E+01	3.27E+00
River Bend 1										
Shoreham 1										
Susquehanna 1&2										
Vermont Yankee 1		< 1.00E-01	N/D	< 1.00E-02	< 1.00E-02	1.55E-01	N/D	2.40E-04	N/D	1.02E-02
WNP-2										
Total	< 1.80E+02	< 1.77E+02	3.29E+02	< 2.80E+02	< 4.72E+01	6.58E+01	4.10E+01	< 4.49E+01	< 4.60E+01	< 2.51E+01
* Fort St. Vrain								1.89E-04	6.37E-05	3.64E-04

* High temperature gas cooled reactor
N/D = Not Detectable

Table 7

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Boiling Water Reactors

Facility	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Big Rock Point 1	2.60E-01	7.82E-02	1.48E-01	1.53E-01	7.09E-02	2.73E-01	2.18E-01	2.32E-01	3.64E-02	1.22E-01
Browns Ferry 1,2,& 3	5.36E+01	1.28E+01	6.30E+00	1.34E+00	5.39E-01	3.25E-01	2.42E-01	1.71E-01	3.02E-01	8.39E-01
Brunswick 1&2	2.32E+00	1.08E+00	5.65E-01	1.15E-01	1.26E-01	7.15E-01	8.32E-01	1.56E+00	4.57E-01	4.36E-01
Clinton 1						1.54E-02	1.10E-01	1.74E-02	2.53E-02	3.29E-02
Cooper	< 5.44E+00	< 1.23E+01	< 6.30E+00	< 1.30E+01	< 7.40E+00	2.25E+00	2.33E+00	2.19E+00	2.04E+00	2.29E+00
Dresden 1	N/D	N/D	N/D	N/D	N/D	N/D	+	+	+	+
Dresden 2-3	1.91E-02	1.24E-02	1.15E-01	2.03E+00	2.14E-01	3.78E-01	1.16E-01	6.53E-01	7.12E-01	7.63E-01
Duane Arnold	4.16E-06	N/D	1.90E-09	8.24E-04	N/D	N/D	N/D	N/D	N/D	N/D
Fermi 2					3.67E-03	2.10E-02	7.41E-02	1.68E-01	2.18E-01	2.15E-01
James A. Fitzpatrick	6.50E-01	7.71E-01	9.79E-02	1.80E-01	1.92E-02	7.84E-02	4.86E-02	5.46E-02	2.74E-02	3.08E-02
Grand Gulf 1		4.42E-03	3.16E-02	2.13E-01	3.01E-01	3.64E-01	3.96E-01	3.20E-01	6.45E-01	8.76E-01
Edwin I. Hatch 1	7.00E-01	9.00E-01	1.05E+00	4.80E-01	4.88E-01	6.85E-01	**	**	**	**
Edwin I. Hatch 2	1.83E-01	3.29E-01	2.67E-01	2.63E-01	3.02E-01	1.30E-01	9.83E-01	2.48E-01	3.01E-01	7.23E-01
Hope Creek 1					7.56E-01	1.62E+00	7.24E-01	1.05E+00	1.49E+00	7.88E-01
Humboldt Bay 3	3.46E-01	9.89E-02	1.64E-01	1.25E-01	4.69E-02	1.19E-02	7.60E-03	8.42E-03	5.77E-03	6.88E-03
LaCrosse	5.83E+00	3.75E+00	3.26E+00	1.83E+00	5.00E+00	1.16E+00	4.47E-01	1.69E-01	6.86E-02	1.59E-01
LaSalle 1&2	9.82E-01	8.60E+00	8.48E-02	3.84E+00	1.78E-02	8.89E-01	1.10E+01	4.01E-01	2.46E-02	N/D
Limerick 1&2			6.45E-04	2.18E-02	5.74E-03	7.45E-02	N/D	1.12E-01	3.43E-01	3.34E-02
Millstone 1	1.15E+00	8.08E-01	3.78E-02	4.66E-01	7.73E-01	1.14E+00	1.08E+00	9.06E-01	1.39E-01	1.36E+00
Monticello	5.80E-07	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Nine Mile Point 1	2.51E-01	1.11E-02	N/D	N/D	< 6.70E-04	N/D	N/D	N/D	1.95E-03	N/D
Nine Mile Point 2						1.30E+00	3.08E+00	2.20E-01	6.34E-02	1.68E-01
Oyster Creek 1	8.10E-02	3.63E-03	6.84E-03	N/D	N/D	6.63E-03	2.68E-02	5.01E-02	6.70E-05	1.61E-04
Peach Bottom 2&3	9.33E+00	2.24E+00	6.15E+00	2.16E+00	4.59E-01	3.31E-01	2.02E-01	1.13E-01	1.36E-02	3.73E-02
Perry 1					3.67E-03	1.47E-02	2.50E-01	1.16E+00	6.10E-01	1.18E-01
Pilgrim 1	8.72E-01	9.35E-01	4.75E+00	1.06E+00	< 2.11E-01	< 1.47E+00	3.56E-02	2.49E-02	1.56E-02	3.40E-02
Quad-Cities 1&2	4.03E-01	1.37E-01	7.23E-02	1.46E+00	2.36E-01	7.10E-02	5.60E-02	4.84E-01	1.13E-01	7.33E-01
River Bend 1					1.06E-01	7.96E-02	5.58E-01	1.11E+00	7.37E-01	3.62E-01
Shoreham 1					7.17E-03	3.41E-03	1.98E-05	1.78E-05	N/D	1.74E-04
Susquehanna 1&2	< 1.99E-01	2.49E+00	1.45E-01	6.35E-01	7.92E-01	3.12E-01	9.48E-02	1.02E-01	1.34E-01	6.21E-02
Vermont Yankee 1	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
WNP-2			2.74E-02	1.09E-02	2.32E-02	1.21E-02	6.10E-03	5.04E-02	1.53E-02	3.45E-02
Total	< 8.24E+01	< 4.74E+01	< 2.96E+01	< 2.94E+01	< 1.79E+01	< 1.37E+01	2.29E+01	1.16E+01	8.54E+00	1.02E+01
* Fort St. Vrain	4.34E-04	1.73E-02	1.27E-03	1.84E-03	2.30E-05	1.18E-06	1.69E-04	1.22E-05	8.22E-05	1.21E-04

* High temperature gas cooled reactor

** Included with Edwin I. Hatch 2 total

+ Included with Dresden 2-3 total

N/D = Not Detectable

Table 8

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Pressurized Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Arkansas One 1			6.50E+00	3.11E+00	1.31E+01	4.50E+00	6.05E+00	3.09E+00	3.42E+00	7.50E+00
Arkansas One 2					1.70E-01	6.52E-01	2.63E-01	1.21E-01	1.04E-01	1.44E-01
Beaver Valley 1&2								1.30E+00	4.13E+00	2.95E+00
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1				1.44E+00	1.18E+00	3.48E+00	6.13E+00	7.80E+00	4.53E+00	2.68E+00
Calvert Cliffs 1&2										
Catawba 1										
Catawba 2										
Comanche Peak 1				2.60E-01	1.87E+00	1.52E+00	1.48E+00	2.58E+00	1.37E+00	1.86E+00
Donald C. Cook 1&2						1.54E-02	2.96E-02	4.16E-01	1.46E-01	1.29E-01
Crystal River 3						2.60E-02	9.01E-02	4.28E-02	2.07E-01	7.92E-01
Davis-Besse 1										
Diablo Canyon 1&2							1.03E-01	5.86E-02	6.18E-02	1.31E-01
Joseph M. Farley 1										2.69E-02
Joseph M. Farley 2										1.75E-01
Fort Calhoun 1	< 1.00E-01	2.30E+00	3.60E-01	5.50E-01	3.63E-01	5.95E-01	2.45E-01	5.33E-01	1.96E-02	3.85E-02
R. E. Ginna	3.00E-01	1.00E-01	1.00E-01	4.20E-01	6.90E-01	6.47E-02	6.07E-02	8.63E-02	1.96E-02	7.12E-01
Haddam Neck	4.80E+00	3.00E+00	2.20E+00	1.20E+00	1.30E-01	1.71E+00	9.50E-01	8.67E-01	2.76E-01	7.12E-01
Harris 1										
Indian Point 1&2		2.20E+00	4.20E+00	4.93E+00	< 4.98E+00	3.02E+00	1.99E+00	1.94E+00	1.26E+00	5.67E+00
Indian Point 3					Shown With	Other Unit	1.03E+00	4.02E-01	2.90E+00	2.62E+00
Kewaunee			4.00E-01	7.20E-01	2.83E+00	1.26E+00	6.99E-01	8.94E-01	6.17E-01	8.15E-01
Maine Yankee	< 1.00E-01	< 1.00E-01	4.00E+00	3.21E+00	< 2.84E+00	4.42E-01	1.04E-01	4.63E-01	2.97E-01	4.36E-01
McGuire 1										3.94E-01
McGuire 2										
Millstone 2				2.00E-02	2.60E-01	1.56E+00	2.79E+00	4.87E+00	2.81E+00	4.18E+00
Millstone 3							2.68E-01	5.89E-01	1.05E+00	6.76E-01
North Anna 1&2										
Oconee 1,2,& 3		2.80E+00	1.90E+00	5.05E+00	7.93E+00	3.62E+01	6.51E+00	9.24E-01	1.54E+00	1.75E+00
Palisades	6.80E+00	2.78E+01	5.90E+00	3.45E+00	4.40E-01	9.29E-02	9.65E-02	1.28E-01	8.73E-03	3.31E-02
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2	1.50E+00	8.00E-01	2.00E-01	2.34E+00	3.24E+00	1.50E+00	6.86E-01	7.25E-01	6.29E-01	1.01E+00
Prairie Island 1&2		< 1.00E-01	< 1.00E-01	4.50E-01	1.00E-01	1.33E-02	4.94E-03	9.00E-03	1.32E-02	9.12E-03
Rancho Seco 1				< 1.00E-02	N/D	N/D	N/D	N/D	3.78E-03	5.92E-01
H. B. Robinson 2	8.00E-01	6.00E-01	2.50E+00	4.50E-01	3.80E-01	3.29E-01	1.78E-01	2.99E-01	3.58E-01	1.84E+00
Salem 1					< 1.00E-02	2.88E+00	4.02E+00	3.98E+00	2.65E+00	2.80E+00
Salem 2									3.89E-01	1.51E+00
San Onofre 1	3.03E+01	1.80E+01	5.00E+00	1.22E+00	7.43E+00	9.84E+00	1.18E+01	1.10E+01	1.12E+01	3.64E+00
San Onofre 2-3										
Seabrook 1									N/R	2.78E+00
Sequoyah 1&2										
South Texas 1										
South Texas 2					8.00E-02	5.80E+00	2.80E+00	2.67E+00	2.36E+00	2.46E+00
St. Lucie 1										
St. Lucie 2										
Summer 1										
Surry 1&2	2.00E-01	1.00E-01	3.80E+00	9.27E+00	3.37E+01	6.55E+01	2.41E+00	2.53E+00	3.85E+00	6.11E+00
Three Mile Island 1			1.30E+00	7.00E-02	1.00E-01	1.94E-01	6.14E-01	4.91E-01	1.83E-01	8.69E-02
Three Mile Island 2							3.92E-01	3.31E-01	1.45E-05	2.22E-05
TMI 2/Epicor									N/D	N/D
Trojan					2.77E+00	4.19E+00	7.67E-01	5.55E-01	7.87E-01	9.94E-01

N/R = Not Reported
 N/D = Not Detectable

Table 8

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Pressurized Water Reactors

Facility	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Turkey Point 3&4		< 1.00E-01	1.60E+00	3.07E+00	< 8.65E+00	8.90E+00	3.32E+00	4.10E-01	6.78E-01	3.03E-01
Turkey Point 3										
Turkey Point 4										
Vogtle 1&2										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	< 1.00E-01	< 1.00E-01	< 1.00E-01	2.00E-02	< 1.00E-02	1.80E-02	8.14E-02	1.17E-02	1.75E-02	1.43E-02
Zion 1		< 1.00E-01	< 1.00E-01	< 1.00E-02	1.60E-01	9.50E-01	9.51E-01	7.00E-01	4.74E-01	1.61E+00
Zion 2										1.05E+00
Total	< 4.49E+01	< 5.40E+01	< 4.22E+01	< 4.11E+01	< 9.36E+01	1.55E+02	5.72E+01	5.05E+01	4.89E+01	6.05E+01

Table 6

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Pressurized Water Reactors

Reactor	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Arkansas One 1	5.80E+00	4.30E+00	4.10E+00	3.53E+00	5.09E+00	2.45E+00	3.73E+00	2.04E+00	2.36E+00	1.12E+00
Arkansas One 2	5.90E+00	3.70E+00	2.48E+00	4.36E+00	3.43E+00	1.85E+00	4.46E+00	2.65E+00	2.52E-01	2.73E+00
Beaver Valley 1&2	1.47E-01	6.09E-02	2.03E-01	1.13E-01	1.19E-01	6.69E-01	1.02E-01	5.45E-01	2.55E+00	3.14E-01
Brakewood 1						5.00E-02	8.57E+00	2.50E+00	2.13E+00	1.01E+01
Brakewood 2							3.04E+00	2.52E+00	2.13E+00	1.01E+01
Byron 1&2				1.63E+01	4.05E+00	2.48E+00	1.40E+00	6.35E-01	1.18E+00	6.70E-01
Callaway 1			1.07E-03	4.97E-03	3.83E-02	4.92E-01	7.74E-02	1.01E-02	3.86E-02	1.59E-02
Calvert Cliffs 1&2	5.26E+00	2.24E+00	1.64E+00	2.38E+00	1.79E+00	5.19E+00	2.64E+00	2.07E+00	1.42E+00	1.59E+00
Catawba 1				1.26E+00	3.82E-01	6.53E-01	5.42E-01	3.42E-01	9.78E-01	3.81E-01
Catawba 2					3.82E-01	6.53E-01	5.42E-01	3.42E-01	9.78E-01	3.81E-01
Comanche Peak 1									1.19E-02	1.57E-01
Donald C. Cook 1&2	1.90E+00	6.83E-01	1.19E+00	2.26E+00	3.34E-01	2.00E+00	4.44E-01	8.06E-01	1.61E+00	1.03E+00
Crystal River 3	1.07E-01	1.50E-01	2.34E-01	1.51E+00	8.12E-01	9.55E-01	2.31E-01	2.36E-01	6.19E-01	1.80E-01
Davis-Besse 1	2.19E-01	5.39E-01	1.89E-01	1.85E-01	6.15E-02	6.51E-02	1.68E-01	1.84E-01	1.41E-01	1.84E-01
Diablo Canyon 1&2			1.16E-02	3.20E+00	1.11E+01	2.86E+00	2.00E+00	1.61E+00	2.80E+00	8.47E-01
Joseph M. Farley 1	5.94E-02	5.75E-02	6.34E-02	6.72E-02	1.02E-01	5.09E-02	7.97E-02	7.31E-02	7.47E-02	2.14E-01
Joseph M. Farley 2	2.90E-02	2.04E-02	8.63E-02	3.77E-02	8.28E-02	4.63E-02	8.53E-02	7.34E-02	8.29E-02	1.90E-01
Fort Calhoun 1	2.03E-01	1.44E-01	2.91E+00	2.88E-01	8.37E-02	2.03E-01	3.08E-01	5.62E-01	8.05E-01	2.08E+00
R. E. Ginna	6.17E-01	1.93E-01	1.69E-01	5.22E-01	6.47E-02	5.88E-02	3.43E-02	8.12E-02	1.50E-01	1.52E-01
Haddam Neck	6.93E-02	4.80E-01	2.63E-01	8.44E-02	3.10E-01	4.26E-01	6.87E-01	3.90E-01	2.69E+00	7.43E-01
Harris 1						9.08E-01	8.04E-02	2.42E-01	7.31E-01	6.62E-01
Indian Point 1&2	2.41E+00	4.02E+00	2.67E+00	1.85E+00	3.61E+00	6.02E+00	2.84E+00	6.38E-01	1.06E+00	1.30E+00
Indian Point 3	5.46E-01	5.44E-01	1.26E+00	4.18E-01	1.95E-01	3.47E-01	3.22E-01	5.92E-01	3.09E-01	2.86E-01
Kewaunee	1.52E+00	5.43E-01	1.01E+00	1.35E+00	5.33E-01	1.29E+00	5.01E-01	1.22E+00	2.06E-01	2.35E-01
Maine Yankee	7.03E-01	1.99E-01	8.62E-02	3.11E-02	2.99E-01	8.81E-01	3.49E-01	1.83E-01	1.87E-01	4.13E-01
McGuire 1	1.75E+00	1.87E+00	1.51E+00	6.21E-01	7.73E-01	1.57E+00	2.57E+00	1.54E+00	2.00E+00	1.04E+00
McGuire 2		1.87E+00	1.51E+00	6.21E-01	7.73E-01	1.57E+00	2.57E+00	1.54E+00	2.00E+00	1.04E+00
Millstone 2	1.39E+01	7.81E+00	3.55E+00	4.60E+00	4.49E+00	4.07E+00	8.89E+00	1.06E+01	8.76E+00	2.06E+00
Millstone 3					3.01E+00	5.40E+00	3.15E+00	5.94E+00	2.47E+00	2.99E+00
North Anna 1&2	1.32E+00	5.88E+00	4.51E+00	5.07E+00	9.41E-01	1.33E+00	4.32E-01	1.16E+00	6.75E-01	3.20E-01
Oconee 1,2,&3	1.04E+00	1.43E+00	1.58E+00	4.16E+00	3.02E+00	2.90E+00	3.10E+00	3.82E+00	3.11E+00	1.40E+00
Palisades	1.27E-01	7.48E-02	3.68E-02	5.83E-02	1.40E-01	9.23E-02	3.43E-02	3.75E-03	7.75E-03	1.14E-02
Palo Verde 1				N/D	N/D	N/D	N/D	N/D	N/D	N/D
Palo Verde 2					N/D	N/D	N/D	N/D	N/D	N/D
Palo Verde 3						N/D	N/D	N/D	N/D	N/D
Point Beach 1&2	2.95E+00	1.27E+00	1.22E+01	1.90E+00	1.60E+01	7.55E-01	9.58E-02	5.58E-02	1.16E-02	5.89E-02
Prairie Island 1&2	2.23E-03	3.16E-02	1.91E-02	2.75E-02	6.01E-01	6.04E-02	2.55E-01	1.73E-01	1.30E-01	1.85E-01
Rancho Seco 1	2.16E-01	2.81E-01	6.33E-01	7.39E-03	1.45E-03	5.78E-04	5.79E-03	2.15E-03	2.08E-04	2.04E-04
H. B. Robinson 2	1.20E+00	8.23E-01	3.90E-01	9.41E-02	2.61E-01	7.36E-01	9.64E-01	2.82E-01	3.60E-01	2.30E-01
Salem 1	3.22E+00	2.97E+00	3.31E+00	2.88E+00	4.35E+00	3.33E+00	3.21E+00	3.11E+00	3.00E+00	3.35E+00
Salem 2	3.21E+00	2.85E+00	2.75E+00	2.80E+00	6.11E+00	4.07E+00	3.23E+00	3.56E+00	3.14E+00	2.31E+00
San Onofre 1	2.15E+00	1.22E+00	2.74E+00	7.79E+00	8.51E-01	8.42E-01	7.11E-01	6.87E-01	4.03E-01	4.22E-01
San Onofre 2-3	6.32E-01	2.79E+00	1.30E+01	1.12E+01	8.20E-01	5.37E-01	1.16E+00	9.19E-01	2.02E-01	9.94E-02
Seabrook 1								1.09E-04	2.21E-03	1.22E-01
Sequoyah 1&2	9.62E+00	4.61E+00	3.23E+00	1.45E+00	1.65E-01	4.66E-01	4.48E-01	3.54E-01	1.22E+00	1.48E+00
South Texas 1							2.24E-01	3.02E+00	7.09E+00	5.08E+00
South Texas 2								1.17E-02	5.72E+00	3.61E+00
St. Lucie 1	3.07E+00	2.99E+00	1.93E+00	2.72E+00	2.53E+00	5.95E-01	2.64E-01	2.56E-01	8.27E-01	3.98E-01
St. Lucie 2		4.37E-01	1.93E+00	2.75E+00	2.43E+00	5.42E-01	2.59E-01	2.53E-01	7.68E-01	3.09E-01
Summer 1	1.24E-04	1.47E+00	4.54E+00	7.09E-01	3.26E-01	4.88E-01	7.55E-01	1.37E+00	3.56E-01	6.08E-01
Surry 1&2	6.68E+00	1.45E+01	9.73E+00	8.55E+00	8.77E+00	5.17E+00	2.41E+00	3.87E+00	4.60E+00	2.84E+00
Three Mile Island 1	5.29E-02	8.12E-02	3.41E-02	6.30E-03	1.41E-02	4.41E-02	4.68E-02	1.61E-02	2.36E-02	3.50E-02
Three Mile Island 2	4.25E-05	9.03E-05	6.46E-04	1.77E-04	1.87E-04	1.16E-04	1.12E-03	3.15E-04	1.77E-04	8.82E-05
TMI 2/Epicor	N/D	N/D	N/D	**	**	**	**	**	**	**
Trojan	8.56E-01	3.10E-01	3.49E-01	4.65E-01	2.64E-01	2.09E-01	2.01E-01	1.61E-01	1.44E-01	5.80E-02

* This number is a correction to that reported in the 1990 report

** Included with Three Mile Island 2 total

N/D = Not Detectable

Table 8

Liquid Effluents Comparison By Year

Pressurized Water Reactors										
Mixed Fission and Activation Products (Curies)										
Facility	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Turkey Point 3&4	1.68E+00	1.13E+00	2.27E-01							
Turkey Point 3				4.48E-01	2.53E-01	3.74E-01	3.27E-01	1.58E-01	1.41E-01	4.06E-01
Turkey Point 4				4.48E-01	2.53E-01	3.74E-01	3.26E-01	1.58E-01	1.40E-01	3.29E-01
Vogtle 1&2						5.77E-01	1.66E+00	4.03E-01	1.01E+00	2.76E-01
Waterford 3				2.88E-01	4.02E+00	1.28E+00	1.41E+00	1.28E+00	7.30E-01	9.10E-01
Wolf Creek 1				6.35E-01	2.26E+00	2.90E-01	3.79E-01	7.23E-01	3.15E-01	2.12E+00
Yankee Rowe 1	9.53E-03	1.30E-02	3.06E-02	1.69E-02	1.36E-02	1.56E-02	7.10E-02	4.88E-03	4.17E-03	1.33E-02
Zion 1	7.22E-01	1.50E+00	6.82E+00	3.24E-01	5.57E-01	7.53E-01	1.61E+00	9.07E-01	2.65E+00	**
Zion 2	1.65E+00	1.15E+00	7.06E+00	2.05E+00	1.04E+00	8.20E-01	1.97E+00	2.57E+00	9.26E-01	1.68E+00
Total	8.17E+01	7.72E+01	1.02E+02	1.02E+02	9.79E+01	6.99E+01	7.60E+01	6.95E+01	7.84E+01	7.19E+01

** Included with Zion 2 total

Table 9

Solid Waste Summary 1991

Boiling Water Reactors			
Facility	Volume (Cubic Meters)	Activity (Curies)	No. Of Shipments
Big Rock Point 1	0.00E+00	0.00E+00	0 ***
Browns Ferry 1,2,&3	2.60E+02	3.36E+04	56
Brunswick 1&2	3.33E+02	1.23E+03	74
Clinton 1	2.48E+02	8.03E+02	54
Cooper	2.49E+02	6.17E+02	26
Dresden 1,2,&3	2.61E+03	9.87E+02	107
Duane Arnold	1.06E+02	4.57E+02	14
Fermi 2	2.16E+01	2.02E+00	1 ***
James A. Fitzpatrick	1.07E+03	2.85E+02	95
Grand Gulf 1	2.15E+02	2.68E+03	37
Edwin I. Hatch 1&2	7.90E+02	2.00E+03	56
Hope Creek 1	2.46E+02	4.31E+04	72
Humboldt Bay 3	6.48E+01	1.42E+01	5
LaCrosse	2.40E+01	3.23E-01	4
LaSalle 1&2	8.99E+02	5.53E+03	83
Limerick 1&2	6.61E+02	5.95E+02	195
Millstone 1	3.51E+02	2.25E+03	39
Montkello	2.16E+02	1.45E+03	48
Nine Mile Point 1	1.77E+02	1.00E+05	78
Nine Mile Point 2	2.67E+02	1.38E+03	64
Oyster Creek 1	4.93E+02	1.39E+03	111
Peach Bottom 2&3	8.68E+02	8.56E+04	298
Perry 1	9.20E+02	2.68E+03	78
Pilgrim 1	3.50E+02	7.06E+02	48
Quad-Cities 1&2	7.56E+02	1.04E+03	64
River Bend 1	3.30E+01	2.67E+00	41
Shoreham 1	6.99E+01	2.92E+00	6
Susquehanna 1&2	4.73E+02	2.61E+05	86
Vermont Yankee 1	4.70E+02	1.82E+05	64
WNP-2	3.01E+02	1.42E+03	36
Total	1.35E+04	7.33E+05	1940
* Fort St. Vrain	6.75E+01	8.10E+03	20

* High temperature gas cooled reactor

*** These plants store waste on-site

Note: If the volume before compaction and the volume after compaction were both given, the volume used for this table is the volume after compaction. If more than one volume was given, both are shown in the individual plant report. If a description of what the volume represents was given, that is also shown in the individual plant report.

Table 10

Solid Waste Summary 1991

Pressurized Water Reactors			
Facility	Volume (Cubic Meters)	Activity (Curies)	No. Of Shipments
Arkansas One 1&2	4.18E+02	6.03E+02	44
Beaver Valley 1&2	1.74E+02	1.08E+03	46
Braidwood 1&2	4.57E+02	6.52E+01	31
Byron 1&2	2.81E+02	3.77E+02	34
Callaway 1	1.36E+02	2.48E+03	28
Calvert Cliffs 1&2	1.60E+02	4.50E+03	12
Catawba 1&2	1.16E+02	3.35E+02	10
Comanche Peak 1	6.99E+01	7.76E-01	13
Donald C. Cook 1&2	0.00E+00	0.00E+00	0 ***
Crystal River 3	3.45E+02	2.39E+02	36
Davis-Besse 1	2.38E+02	5.47E+02	18
Diablo Canyon 1&2	1.89E+02	1.70E+03	107
Joseph M. Farley 1&2	1.50E+02	1.03E+03	78
Fort Calhoun 1	3.78E+01	1.97E+01	68
R.E.Ginna	5.00E+01	3.19E+00	7
Haddam Neck	1.34E+02	3.37E+02	12
Harris 1	7.84E+01	3.03E+02	41
Indian Point 1&2	4.88E+02	9.62E+01	31
Indian Point 3	1.29E+02	2.00E+01	9
Kewaunee	6.90E+01	5.28E+02	9
Maine Yankee	1.47E+02	3.46E+02	14
McGuire 1&2	4.52E+01	9.29E+02	18
Millstone 2	1.37E+02	8.79E+02	8
Millstone 3	1.16E+02	1.04E+02	9
North Anna 1&2	2.35E+02	3.01E+02	37
Oconee 1,2,&3	1.02E+02	4.04E+02	107
Palisades	0.00E+00	0.00E+00	0 ***
Palo Verde 1,2,&3	4.83E+02	8.91E+02	53
Point Beach 1&2	9.64E+01	2.20E+02	27
Prairie Island 1&2	1.11E+02	1.90E+02	14
Rancho Seco 1	3.97E+01	2.46E+02	6
H.B.Robinson 2	6.46E+01	9.54E+01	79
Salem 1&2	1.03E+02	6.79E+02	21
San Onofre	0.00E+00	0.00E+00	19
San Onofre 1	9.29E+01	5.75E+00	0
San Onofre 2-3	1.64E+02	6.87E+02	0
Seabrook 1	0.00E+00	0.00E+00	0 ***
Sequoyah 1&2	1.42E+02	1.82E+03	145
South Texas 1&2	9.99E+01	9.81E+01	24
St. Luke 1&2	1.82E+02	8.26E+02	23
Summer 1	6.82E+01	1.64E+02	59
Surry 1&2	1.73E+02	8.18E+02	40
Three Mile Island 1	6.19E+02	3.85E+02	30
Three Mile Island 2	3.88E+02	2.21E+02	28
TMI 2/Epicor	**	**	**
Trojan	1.09E+02	2.40E+02	20
Turkey Point 3&4	1.89E+02	1.16E+01	38
Vogtle 1&2	6.87E+01	5.96E+02	20
Waterford 3	1.46E+02	7.01E+02	24
Wolf Creek 1	8.39E+01	4.14E+02	19
Yankee Rowe 1	1.61E+02	8.49E+01	13
Zion 1&2	9.59E+01	1.95E+03	19
Total	8.18E+03	2.86E+04	1548

* Represents solid waste shipped by plant but not broken down into units 1, 2, & 3

** Included with Three Mile Island 2 totals

*** These plants store waste on-site

Note: If the volume before compaction and the volume after compaction were both given, the volume used for this table is the volume after compaction. If more than one volume was given, both are shown in the individual plant report. If a description of what the volume represents was given, that is also shown in the individual plant report.

Table 11

Solid Waste Comparison By Year

Facility	Volume (Cubic Meters) - Activity (Curies)							
	1977		1978		1979		1980	
Big Rock Point 1	7.22E+01	9.68E+02	3.10E+01	2.56E+01	8.99E+01	2.77E+02	4.20E+01	3.09E+01
Browns Ferry 1,2,&3	1.82E+03	1.10E+04	2.90E+03	1.33E+03	2.29E+03	4.17E+03	2.49E+03	6.46E+03
Brunswick 1&2	2.47E+03	3.24E+03	2.02E+03	2.14E+03	3.09E+03	4.29E+03	6.73E+03	7.55E+03
Clinton 1								
Cooper	2.83E+02	2.85E+02	3.29E+02	3.84E+02	5.65E+02	9.69E+01	4.35E+02	7.05E+02
Dresden 1,2,&3	2.25E+03	1.13E+04	1.77E+03	1.88E+03	1.04E+03	8.45E+02	1.18E+03	4.46E+03
Duane Arnold	5.45E+02	4.98E+02	1.10E+03	1.86E+03	7.99E+02	8.01E+02	7.35E+02	7.00E+02
Fermi 2								
James A. Fitzpatrick	1.23E+03	6.17E+03	8.70E+02	3.19E+02	8.04E+02	1.06E+03	7.50E+02	8.86E+02
Grand Gulf 1								
Edwin I. Hatch 1	5.39E+02	3.81E+02	7.50E+02	1.09E+04	9.78E+02	2.70E+02	4.64E+02	9.62E+02
Edwin I. Hatch 2							2.59E+02	8.27E+01
Hope Creek 1								
Humboldt Bay 3	3.77E+02	2.00E+01	1.78E+02	7.91E-01	9.06E+01	3.35E+03	8.20E+01	6.95E+01
LaCrosse	4.65E+00	5.88E+02	3.80E+01	6.18E+01	5.09E+00	1.25E+02	4.32E+01	2.02E+01
LaSalle 1&2								
Limerick 1&2								
Millstone 1	1.77E+03	3.03E+03	2.00E+03	8.15E+04	2.11E+03	1.16E+03	2.30E+03	2.36E+03
Monticello	5.73E+02	2.91E+04	4.99E+02	6.35E+04	4.74E+02	1.31E+04	7.42E+02	7.57E+02
Nine Mile Point 1	6.65E+02	2.51E+04	3.85E+02	2.24E+04	4.97E+02	1.52E+03	8.14E+02	2.32E+04
Nine Mile Point 2								
Oyster Creek 1	1.74E+03	2.73E+02	1.54E+03	1.15E+03	1.13E+03	1.34E+03	2.03E+03	1.32E+03
Peach Bottom 2&3	2.52E+03	1.82E+03	1.96E+03	4.97E+03	2.40E+03	8.03E+03	2.64E+03	6.69E+03
Perry 1								
Pilgrim 1	5.84E+02	5.70E+03	1.97E+03	4.92E+04	3.03E+03	2.22E+04	2.94E+03	1.60E+03
Quad-Cities 1&2	1.20E+03	7.53E+03	1.34E+03	3.27E+03	7.82E+02	4.26E+03	1.67E+03	4.07E+03
River Bend 1								
Shoreham 1								
Susquehanna 1&2								
Vermont Yankee 1	1.08E+02	1.76E+02	3.99E+02	5.39E+04	2.71E+02	9.99E+02	4.84E+02	9.20E+02
WNP-2								
Total	1.88E+04	1.07E+05	2.01E+04	2.99E+05	2.04E+04	6.79E+04	2.68E+04	6.28E+04
* Fort St. Vrain					0.00E+00	0.00E+00	0.00E+00	0.00E+00

* High temperature gas cooled reactor

Table 11

Solid Waste Comparison By Year

Boiling Water Reactors

Volume (Cubic Meters) - Activity (Curies)

Facility	1981		1982		1983		1984	
Big Rock Point 1	1.44E+02	3.17E+02	1.09E+02	4.33E+00	1.01E+02	2.74E+02	3.67E+01	2.13E+00
Browns Ferry 1,2,& 3	2.23E+03	4.78E+03	5.91E+03	5.51E+03	3.72E+03	6.90E+03	1.92E+03	2.15E+03
Brunswick 1&2	4.30E+03	7.47E+03	3.53E+03	5.90E+03	3.51E+03	8.36E+03	1.37E+03	3.45E+03
Clinton 1								
Cooper	4.99E+02	4.43E+02	4.45E+02	4.27E+02	5.03E+02	8.53E+02	4.37E+02	4.91E+02
Dresden 1,2,& 3	1.14E+03	4.59E+03	8.99E+02	1.66E+05+	1.42E+03	2.91E+03	1.26E+03	4.37E+03
Duane Arnold	6.97E+02	1.07E+03	4.57E+02	1.27E+03	6.81E+02	1.44E+03	2.68E+02	9.13E+02
Fermi 2								
James A. Fitzpatrick	8.61E+02	1.63E+03	1.64E+03	7.89E+02	7.11E+02	7.03E+02	4.31E+02	1.26E+03
Grand Gulf 1					3.12E+02	7.21E+00	4.31E+02	9.09E+00
Edwin I. Hatch 1	1.29E+03	4.46E+03	9.13E+02	3.10E+03	1.87E+03	2.27E+03	2.50E+03	2.58E+03
Edwin I. Hatch 2	1.40E+03	3.05E+02	7.79E+02	9.40E+02	**	**	**	**
Hope Creek 1								
Humboldt Bay 3	8.43E+01	5.46E-01	7.71E+01	1.34E+00	2.78E+01	1.75E+04	6.56E+01	7.29E+00
LaCrosse	4.82E+00	6.11E+01	3.53E+01	5.26E+01	1.20E+01	1.88E+02	4.22E+01	1.93E+02
LaSalle 1&2			0.00E+00	0.00E+00	6.83E+02	3.01E+01	8.40E+02	1.80E+02
Limerick 1&2							0.00E+00	0.00E+00
Millstone 1	1.96E+03	1.82E+03	9.77E+02	1.08E+03	6.93E+02	6.81E+02	9.40E+02	1.97E+03
Monticello	5.54E+02	4.42E+02	7.50E+02	3.89E+03	3.57E+02	4.43E+04	1.24E+03	5.73E+02
Nine Mile Point 1	5.31E+02	1.72E+03	5.76E+02	7.07E+03	7.21E+02	5.42E+04	6.29E+02	1.34E+04
Nine Mile Point 2								
Oyster Creek 1	1.78E+03	4.21E+02	9.96E+02	4.67E+03	1.00E+03	5.61E+02	1.39E+03	4.39E+04
Peach Bottom 2&3	2.34E+03	5.33E+03	3.23E+03	4.51E+03	2.68E+03	2.24E+04	2.26E+03	9.22E+04
Perry 1								
Pilgrim 1	1.06E+03	9.38E+02	2.28E+03	9.59E+02	6.65E+02	1.48E+03	3.12E+03	1.54E+03
Quad-Cities 1&2	1.72E+03	5.16E+03	1.46E+03	3.98E+03	1.58E+03	5.85E+03	1.35E+03	4.06E+04
River Bend 1								
Shoreham 1								
Susquehanna 1&2			4.51E+01	6.52E-02	1.26E+03	2.84E+02	1.30E+03	9.27E+02
Vermont Yankee 1	4.39E+02	1.11E+03	4.51E+02	2.09E+02	4.15E+02	5.75E+04	3.48E+02	2.85E+02
WNP-2							3.87E+02	3.58E+01
Total	2.30E+04	4.21E+04	2.56E+04	2.10E+05	2.29E+04	2.29E+05	2.26E+04	2.11E+05
* Fort St. Vrain	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.39E+01	1.84E+01	0.00E+00	0.00E+00

* High temperature gas cooled reactor

+ Includes 12 shipments of poison curtains (irradiated components) to Barnwell, SC

** Included with Edwin I. Hatch 1 totals

Table 11

Solid Waste Comparison By Year

Facility	Volume (Cubic Meters) - Activity (Curies)							
	1985		1986		1987		1988	
Big Rock Point 1	5.22E+01	1.14E+02	9.46E+00	2.52E+02	7.40E+01	2.30E+03	4.44E+01	7.28E+02
Browns Ferry 1,2,& 3	2.30E+03	3.08E+03	1.36E+03	1.49E+03	1.32E+03	6.44E+02	7.81E+02	5.72E+02
Brunswick 1&2	1.32E+03	2.50E+03	9.35E+02	9.83E+03	8.43E+02	4.48E+04	6.89E+02	3.07E+03
Clinton 1					5.10E+01	1.41E-01	2.87E+02	6.14E+01
Cooper	6.35E+02	2.98E+04	4.49E+02	5.83E+02	3.41E+02	3.60E+02	3.09E+02	1.47E+02
Dresden 1,2,& 3	1.05E+04	6.63E+04	2.14E+03	3.74E+04	1.80E+03	8.26E+02	2.35E+03	1.54E+03
Duane Arnold	7.93E+02	5.24E+02	2.17E+02	2.15E+04	4.94E+02	2.62E+02	2.12E+02	4.06E+02
Fermi 2			1.48E+02	2.12E+01	2.36E+02	9.37E+01	2.38E+02	2.81E+02
James A. Fitzpatrick	7.77E+02	7.79E+02	4.62E+02	7.21E+02	5.13E+02	6.44E+02	3.81E+02	1.32E+04
Grand Gulf 1	6.02E+02	2.60E+02	4.39E+02	1.36E+03	3.92E+02	1.65E+03	4.99E+02	7.15E+02
Edwin I. Hatch 1	2.04E+03	3.83E+04	1.36E+03	8.82E+02	7.78E+02	1.82E+03	8.36E+02	2.02E+03
Edwin I. Hatch 2	**	**	**	**	**	**	**	**
Hope Creek 1			8.45E+01	5.14E+00	4.21E+02	3.63E+02	2.92E+02	3.23E+03
Humboldt Bay 3	6.31E+02	2.60E+02	5.99E+02	3.50E+02	0.00E+00	0.00E+00	3.99E+01	9.91E-02
LaCrosse	6.30E+01	2.35E+02	4.81E+00	7.78E+01	2.93E+01	2.86E-03	6.52E+00	7.03E+01
LaSalle 1&2	1.21E+03	4.87E+02	8.02E+02	1.20E+03	7.66E+02	2.30E+03	9.25E+02	3.38E+03
Limerick 1&2	3.06E+02	2.06E+01	5.76E+02	7.53E+02	3.81E+02	2.15E+03	8.95E+02	9.70E+02
Millstone 1	1.17E+03	9.36E+04	7.00E+02	7.85E+02	6.66E+02	5.05E+02	2.79E+02	9.54E+04
Monticello	5.44E+02	4.87E+03	2.94E+02	2.81E+04	2.19E+02	5.66E+02	1.48E+02	2.93E+02
Nine Mile Point 1	5.75E+02	6.80E+03	1.08E+03	7.27E+02	5.07E+02	2.30E+02	2.72E+02	3.07E+02
Nine Mile Point 2					9.89E+01	1.14E+01	3.78E+02	3.88E+02
Oyster Creek 1	4.62E+02	6.30E+02	5.92E+02	7.96E+02	2.36E+02	3.48E+04	1.81E+02	6.29E+03
Peach Bottom 2&3	2.33E+03	1.21E+05	1.49E+03	1.88E+04	1.58E+03	3.89E+03	8.38E+02	1.19E+03
Perry 1			0.00E+00	0.00E+00	4.89E+02	4.52E+01	4.95E+02	5.59E+02
Pilgrim 1	1.41E+03	7.48E+04	6.01E+02	4.38E+02	5.27E+02	3.15E+02	2.72E+02	2.19E+02
Quad-Cities 1&2	1.33E+03	5.53E+04	1.32E+03	2.14E+03	9.19E+02	2.90E+04	9.25E+02	6.26E+02
River Bend 1			4.63E+02	7.99E+01	4.07E+02	3.45E+02	3.06E+02	3.50E+02
Shoreham 1			4.47E+01	1.47E-01	6.26E+01	9.57E-02	6.26E+01	1.86E-02
Susquehanna 1&2	1.13E+03	2.07E+03	8.68E+02	2.53E+03	7.18E+02	2.11E+03	1.33E+03	2.65E+03
Vermont Yankee 1	5.43E+02	1.73E+04	3.10E+02	3.33E+02	2.23E+02	1.19E+04	1.73E+02	4.25E+02
WNP-2	4.02E+02	2.96E+02	3.02E+02	5.07E+02	3.75E+02	1.09E+03	4.70E+02	1.01E+03
Total	3.13E+04	5.19E+05	1.77E+04	1.32E+05	1.55E+04	1.43E+05	1.49E+04	1.40E+05
* Fort St. Vrain	1.10E+02	4.19E+02	0.00E+00	0.00E+00	3.02E+01	1.03E+02	7.00E+00	3.10E-01

* High temperature gas cooled reactor

** Included with Edwin I. Hatch 1 totals

Table 11

Solid Waste Comparison By Year

Facility	Volume (Cubic Meters) - Activity (Cunes)					
	1989	+1990		+1991		
Big Rock Point 1	7.35E+01	3.71E+02	8.50E+01	1.26E+02	0.00E+00	0.00E+00 ***
Browns Ferry 1,2&3	5.84E+02	2.95E+02	2.12E+02	1.04E+02	2.60E+02	3.36E+04
Brunswick 1&2	6.20E+02	6.06E+03	4.89E+02	1.26E+03	3.33E+02	1.23E+03
Clinton 1	3.99E+02	1.89E+03	2.72E+02	5.44E+02	2.48E+02	8.03E+02
Cooper	2.92E+02	3.06E+02	3.08E+02	3.69E+02	2.49E+02	6.17E+02
Dresden 1,2&3	2.24E+03	2.54E+03	2.41E+03	5.09E+02	2.61E+03	9.87E+02
Duane Arnold	1.46E+02	1.69E+04	3.34E+02	3.79E+04	1.06E+02	4.57E+02
Fermi 2	3.66E+02	7.01E+02	1.23E+03	2.09E+04	2.16E+01	2.02E+00 ***
James A. Fitzpatrick	2.50E+02	9.39E+04	2.83E+02	2.05E+03	1.07E+03	2.85E+02
Grand Gulf 1	2.72E+02	2.06E+02	1.62E+02	1.35E+03	2.15E+02	2.68E+03
Edwin I. Hatch 1	8.53E+02	1.91E+03	1.38E+03	2.85E+04	7.90E+02	2.00E+03
Edwin I. Hatch 2	**	**	**	**	**	**
Hope Creek 1	1.67E+02	5.27E+02	3.06E+02	2.30E+03	2.46E+02	4.31E+04
Humboldt Bay 3	0.00E+00	0.00E+00	2.93E+01	9.06E-02	6.48E+01	1.42E-01
LaCrosse	6.74E+00	3.21E+01	4.59E+00	7.44E-01	2.40E+01	3.23E-01
LaSalle 1&2	8.80E+02	4.36E+03	9.04E+02	2.95E+03	8.99E+02	5.53E+03
Limerick 1&2	5.76E+02	3.40E+04	6.86E+02	1.24E+03	6.61E+02	5.95E+02
Mt. Sterling 1	4.28E+02	1.99E+04	2.91E+02	3.41E+04	3.51E+02	2.25E+03
Monticello	2.48E+02	5.97E+04	9.40E+01	1.17E+03	2.16E+02	1.45E+03
Nine Mile Point 1	2.37E+02	2.48E+02	2.45E+02	4.34E+02	1.77E+02	1.00E+05
Nine Mile Point 2	4.22E+02	4.89E+02	3.40E+02	6.73E+02	2.67E+02	1.38E+03
Oyster Creek 1	4.20E+02	2.33E+05	3.23E+02	1.13E+03	4.93E+02	1.39E+03
Peach Bottom 2&3	8.92E+02	1.73E+03	8.08E+02	3.02E+04	8.68E+02	8.56E+04
Perry 1	9.68E+02	9.18E+02	1.36E+03	1.94E+03	9.20E+02	2.68E+03
Pilgrim 1	2.02E+02	2.76E+02	3.71E+02	6.62E+02	3.50E+02	7.06E+02
Quad-Cities 1&2	9.79E+02	1.33E+05	1.21E+03	1.24E+03	7.56E+02	1.04E+03
River Bend 1	5.16E+02	8.41E+02	2.44E+02	4.02E+02	3.30E+01	2.67E+00
Shoreham 1	1.79E+01	3.51E-02	5.04E+01	9.17E-01	6.99E+01	2.92E+00
Susquehanna 1&2	4.28E+02	1.34E+03	4.07E+02	2.95E+03	4.73E+02	2.61E+05
Vermont Yankee 1	4.84E+00	2.15E+00	0.00E+00	0.00E+00	4.70E+02	1.82E+05
WNP-2	3.64E+02	1.10E+03	3.34E+02	1.29E+03	3.01E+02	1.42E+03
Total	1.39E+04	6.17E+05	1.52E+04	1.76E+05	1.35E+04	7.33E+05
* Fort St. Vrain	4.57E+00	1.08E+03	1.01E+02	2.30E+00	6.75E+01	8.10E+03

* High temperature gas cooled reactor

** Included with Edwin I. Hatch 1 totals

*** These plants store waste on-site

+ Note: If the volume before compaction and the volume after compaction were both given, the volume used for this table is the volume after compaction. If more than one volume was given, both are shown in the individual plant report. If a description of what the volume represents was given, that is also shown in the individual plant report.

Table 12

Solid Waste Comparison By Year

Facility	Volume (Cubic Meters) - Activity (Curies)							
	1977		1978		1979		1980	
Arkansas One 1&2	3.17E+02	1.26E+02	N/R	N/R	N/R	N/R	N/R	N/R
Beaver Valley 1&2	2.67E+02	8.18E+00	4.39E+02	2.25E+02	2.44E+02	2.95E+02	3.84E+02	5.34E+02
Braidwood 1&2								
Byron 1&2								
Callaway 1								
Calvert Cliffs 1&2	3.09E+02	9.83E+02	6.03E+02	1.12E+03	4.32E+02	9.71E+02	2.51E+02	1.48E+04
Catawba 1&2								
Comanche Peak 1								
Donald C. Cook 1&2	6.84E+02	8.28E+01	1.28E+03	2.25E+02	1.09E+03	3.37E+02	2.10E+03	1.04E+03
Crystal River 3	4.48E+02	3.48E+00	6.87E+02	2.72E+04	1.24E+03	1.20E+03	9.27E+02	2.05E+03
Davis-Besse 1	0.00E+00	0.00E+00	3.40E+02	3.30E+00	2.60E+02	2.86E+00	3.30E+02	3.00E+01
Diablo Canyon 1&2								
Joseph M. Farley 1&2			2.69E+02	5.72E+00	1.11E+03	2.32E+02	4.41E+02	2.26E+02
Fort Calhoun 1	5.97E+02	6.46E+02	5.84E+02	1.06E+02	2.44E+02	2.99E+01	4.06E+02	1.32E+03
R. E. Ginna	3.49E+02	6.90E+02	5.96E+01	6.27E+02	3.08E+02	1.53E+02	4.00E+02	4.60E+02
Haddam Neck	1.68E+03	8.41E+02	2.29E+02	1.44E+02	1.29E+03	3.05E+02	1.26E+03	4.89E+02
Harris 1								
Indian Point 1&2	1.06E+03	1.45E+03	8.43E+03	2.37E+03	1.17E+03	2.16E+03	1.03E+03	3.32E+02
Indian Point 3	Shown With Other Unit		5.94E+02	6.49E+01	2.25E+02	1.63E+02	3.47E+02	2.02E+02
Kewaunee	3.37E+01	3.66E+02	7.98E+01	1.50E+03	1.70E+02	3.54E+02	1.03E+02	1.37E+03
Maine Yankee	1.84E+02	1.53E+04	5.81E+02	4.14E+03	3.63E+02	2.77E+03	4.57E+02	4.79E+03
McGuire 1&2								
Millstone 2	9.35E+01	5.80E+01	1.55E+02	1.70E+01	2.46E+02	1.78E+03	7.51E+00	2.28E+02
Millstone 3								
North Anna 1&2			2.14E+01	3.59E+00	2.95E+02	5.89E+01	2.64E+02	1.54E+02
Oconee 1,2,&3	1.07E+03	7.37E+03	1.58E+03	5.93E+03	1.63E+03	2.59E+03	1.32E+03	2.91E+03
Palisades	4.43E+02	8.71E+01	7.17E+02	3.40E+03	6.84E+02	3.92E+02	7.31E+02	1.18E+02
Palo Verde 1,2,&3								
Point Beach 1&2	6.84E+03	5.68E+02	1.61E+02	1.51E+03	2.69E+02	1.22E+03	4.49E+02	9.35E+02
Prairie Island 1&2	6.63E+02	2.46E+02	1.95E+02	1.53E+02	1.99E+01	8.83E+01	5.25E+02	1.98E+02
Rancho Seco 1	5.06E+01	1.21E+03	1.29E+02	1.27E+03	1.01E+02	4.03E+00	4.60E+02	1.12E+02
H. B. Robinson 2	2.59E+02	1.24E+03	8.22E+02	2.40E+02	8.34E+02	8.72E+01	3.99E+03	3.08E+02
Salem 1&2	4.25E+02	2.20E+00	2.27E+02	1.94E+02	6.86E+02	1.28E+02	1.01E+03	4.59E+02
San Onofre								
San Onofre 1	3.68E+02	6.02E+01	1.31E+02	7.17E+00	8.35E+01	9.24E+01	7.12E+02	4.35E+02
San Onofre 2-3								
Seabrook 1								
Sequoyah 1&2							N/R	N/R
South Texas 1&2								
St. Lucie 1&2	3.85E+02	3.27E+03	3.58E+02	1.26E+04	3.08E+02	1.79E+02	3.12E+02	7.46E+02
Summer 1								
Surry 1&2	7.93E+02	6.10E+02	6.03E+02	5.66E+02	2.74E+03	3.45E+02	2.01E+03	7.06E+02
Three Mile Island 1	2.18E+02	4.73E+01	3.89E+02	2.34E+02	7.51E+02	3.12E+01	4.62E+02	2.30E+02
Three Mile Island 2			Shown With Other Unit	Shown With Other Unit	Shown With Other Unit	Shown With Other Unit	7.67E+02	1.26E+02
TMI 2/Epicor							0.00E+00	0.00E+00
Trojan	1.01E+02	8.31E+01	2.26E+02	4.48E+02	6.37E+02	3.30E+02	5.14E+02	4.59E+01
Turkey Point 3&4	1.07E+03	4.26E+02	1.75E+03	1.72E+03	9.20E+02	2.48E+02	7.24E+02	1.61E+02
Vogtle 1&2								
Waterford 3								
Wolf Creek 1								
Yankee Rowe 1	2.81E+02	3.54E+00	2.60E+02	9.75E+00	2.38E+02	1.63E+02	2.07E+02	9.57E+01
Zion 1&2	1.97E+03	2.25E+02	1.63E+03	1.86E+03	5.97E+02	2.69E+03	1.64E+03	2.55E+03
Total	2.09E+04	3.60E+04	2.35E+04	6.79E+04	1.92E+04	1.94E+04	2.44E+04	3.82E+04

N/R = Not Reported

Table 12

Solid Waste Comparison By Year

Facility	Volume (Cubic Meters) - Activity (Curies)							
	1981	1982	1983	1984	1985	1986	1987	1988
Arkansas One 1&2	N/R	N/R	N/R	N/R	7.06E+02	2.09E+03	8.10E+02	1.46E+03
Beaver Valley 1&2	2.13E+02	9.30E+01	2.94E+02	3.83E+02	2.19E+02	4.75E+02	1.56E+02	7.11E+02
Braidwood 1&2								
Byron 1&2								
Callaway 1							0.00E+00	0.00E+00
Calvert Cliffs 1&2	5.00E+02	9.86E+01	1.57E+02	9.16E+02	5.06E+02	1.07E+02	5.28E+02	3.77E+04
Catawba 1&2								
Comanche Peak 1								
Donald C. Cook 1&2	9.63E+02	1.43E+03	7.14E+02	8.45E+02	6.68E+02	2.01E+03	4.94E+02	6.69E+02
Crystal River 3	1.27E+03	1.38E+03	6.62E+02	6.28E+02	5.40E+02	1.55E+03	4.11E+02	1.15E+03
Davis-Besse 1	3.25E+02	3.95E+01	0.00E+00	0.00E+00	1.13E+02	6.37E+02	1.51E+02	4.73E+02
Diablo Canyon 1&2							0.00E+00	0.00E+00
Joseph M. Farley 1&2	5.64E+02	7.20E+02	3.46E+02	1.03E+02	4.41E+02	1.05E+03	5.62E+02	2.98E+02
Fort Calhoun 1	2.53E+02	1.01E+02	3.42E+02	3.54E+01	4.65E+02	7.00E+02	3.93E+02	7.17E+01
R. E. Ginna	3.76E+02	6.35E+02	4.89E+02	2.02E+02	3.36E+02	5.21E+02	2.52E+02	3.23E+02
Haddam Neck	4.38E+02	6.61E+02	3.12E+02	2.57E+02	6.52E+02	1.52E+03	4.28E+02	3.75E+02
Harris 1								
Indian Point 1&2	1.58E+03	1.71E+03	1.17E+03	6.46E+03	1.29E+03	2.12E+03	9.81E+02	2.03E+03
Indian Point 3	3.17E+02	6.40E+01	3.79E+02	6.14E+01	3.16E+02	7.32E+02	1.53E+02	4.12E+02
Kewaunee	7.38E+01	1.98E+02	6.73E+01	2.74E+02	5.52E+01	6.85E+02	6.32E+01	1.60E+03
Maine Yankee	4.14E+02	1.67E+03	2.20E+02	3.09E+01	3.37E+02	1.03E+02	3.49E+02	3.59E+02
McGuire 1&2	1.98E+01	1.31E+01	9.91E+01	6.43E+00	2.44E+02	2.82E+01	4.14E+02	1.89E+03
Millstone 2	1.63E+01	3.21E+02	6.85E+00	4.84E+02	4.48E+01	2.58E+02	6.08E+01	1.10E+05
Millstone 3								
North Anna 1&2	3.02E+02	2.62E+03	4.21E+02	3.05E+02	5.39E+02	1.87E+03	9.00E+02	9.53E+02
Oconee 1,2, & 3	2.48E+03	1.12E+04	3.06E+03	1.09E+04	1.16E+03	2.84E+03	9.36E+02	6.17E+03
Palisades	8.54E+02	1.57E+04	7.08E+02	7.98E+01	5.75E+02	2.56E+04	4.48E+02	2.58E+02
Palo Verde 1,2,&3								
Point Beach 1&2	1.77E+02	4.87E+02	2.52E+02	9.46E+02	7.11E+02	1.12E+03	7.12E+02	1.64E+03
Prairie Island 1&2	2.97E+02	5.64E+01	9.91E+01	3.64E+02	2.39E+02	1.92E+02	4.19E+01	1.19E+01
Rancho Seco 1	2.31E+02	1.44E+02	2.40E+02	4.66E+02	2.72E+02	2.25E+02	4.25E+02	4.60E+01
H. B. Robinson 2	9.02E+02	1.88E+01	1.38E+03	6.38E+01	1.09E+03	4.62E+01	3.05E+03	1.95E+02
Salem 1&2	9.36E+02	1.14E+03	1.91E+03	3.19E+02	2.07E+03	2.99E+02	1.52E+03	6.23E+02
San Onofre								
San Onofre 1	1.62E+03	1.26E+03	9.27E+02	7.52E+01	3.33E+02	2.27E+02	2.91E+02	1.54E+01
San Onofre 2 & 3			0.00E+00	0.00E+00	1.89E+02	7.98E+00	2.02E+02	5.49E+02
Seabrook 1								
Sequoyah 1&2	1.61E+02	2.92E+01	3.58E+02	2.28E+02	6.93E+02	2.30E+03	9.67E+02	2.43E+03
South Texas 1&2								
St. Lucie 1&2	2.50E+02	2.96E+02	3.07E+02	7.95E+02	6.20E+02	9.39E+04	1.22E+03	6.36E+04
Summer 1			0.00E+00	0.00E+00	9.25E+01	1.37E+01	4.80E+02	1.55E+02
Surry 1&2	2.80E+03	1.36E+03	2.17E+03	9.89E+02	3.08E+03	3.56E+03	9.45E+02	1.16E+03
Three Mile Island 1	7.98E+02	2.34E+02	5.32E+02	8.91E+00	6.05E+02	6.84E+02	4.34E+02	4.18E+02
Three Mile Island 2	2.74E+02	5.11E+01	1.80E+02	1.22E+01	3.16E+02	5.17E+05	2.56E+02	9.89E+03
TMI 2/Epicor	1.51E+02	3.50E+02	0.00E+00	0.00E+00	2.23E+02	4.62E+04	4.53E+00	2.35E-01
Trojan	3.75E+02	1.04E+03	2.17E+01	2.87E+02	2.28E+02	1.67E+03	2.30E+02	5.85E+01
Turkey Point 3&4	1.25E+03	1.17E+02	1.01E+03	1.13E+03	1.21E+03	9.26E+02	8.50E+02	1.91E+03
Vogtle 1&2								
Waterford 3								
Wolf Creek 1								
Yankee Rowe 1	3.08E+02	6.79E+01	2.09E+02	2.81E+01	1.58E+02	5.12E+00	2.00E+02	1.63E+02
Zion 1&2	1.53E+03	3.44E+03	8.82E+02	2.17E+03	9.21E+02	2.97E+03	6.43E+02	2.62E+03
Total	2.30E+04	4.87E+04	1.99E+04	2.99E+04	2.23E+04	7.16E+05	2.10E+04	2.52E+05

N/R = Not Reported

Table 12

Solid Waste Comparison By Year

Facility	Volume (Cubic Meters) - Activity (Curies)							
	1985		1986		1987		1988	
Arkansas One 1&2	6.88E+02	1.75E+03	1.21E+02	2.18E+02	5.23E+02	1.63E+03	1.97E+02	8.22E+02
Beaver Valley 1&2	1.56E+02	9.71E+01	9.49E+01	4.45E+02	7.65E+01	3.22E+01	2.33E+02	4.29E+02
Braidwood 1&2					0.00E+00	0.00E+00	8.32E+01	3.51E+00
Byron 1&2	1.78E+02	1.39E+01	3.18E+02	9.90E+01	3.06E+02	8.65E+02	3.09E+02	5.09E+02
Callaway 1	1.39E+02	6.29E+00	1.68E+02	1.91E+01	1.98E+02	3.13E+02	9.58E+01	9.46E+02
Calvert Cliffs 1&2	3.89E+02	1.51E+04	2.12E+02	4.51E+02	2.44E+02	6.41E+02	5.25E+01	1.12E+03
Catawba 1&2	3.48E+01	6.90E-02	1.93E+02	1.33E+01	2.73E+02	2.79E+02	2.56E+02	7.05E+02
Comanche Peak 1								
Donald C. Cook 1&2	8.28E+02	2.00E+03	5.28E+02	1.59E+03	4.63E+02	2.30E+03	2.46E+02	5.58E+02
Crystal River 3	4.98E+02	4.60E+03	3.64E+02	1.35E+03	2.90E+02	6.75E+02	2.26E+02	1.07E+03
Davis-Besse 1	1.97E+02	9.58E+01	1.40E+02	2.19E+00	8.48E+01	3.20E+00	1.72E+02	1.76E+02
Diablo Canyon 1&2	3.11E+01	4.40E+01	9.06E+01	6.97E+00	1.65E+02	1.21E+02	2.10E+02	3.92E+02
Joseph M. Farley 1&2	4.95E+02	8.20E+02	2.45E+02	1.80E+03	5.32E+02	3.34E+02	4.96E+02	1.47E+03
Fort Calhoun 1	3.43E+02	2.24E+02	1.16E+02	2.82E+01	1.26E+02	5.47E+02	4.87E+01	1.75E+01
R. E. Ginna	2.23E+02	1.19E+02	1.12E+02	1.39E+02	1.65E+02	2.16E+02	1.67E+02	3.80E+02
Haddam Neck	1.73E+02	5.33E+01	4.14E+02	5.86E+02	3.20E+02	5.45E+02	1.31E+02	3.37E+02
Harris 1					1.05E+02	2.61E+00	1.50E+02	1.05E+01
Indian Point 1&2	6.89E+02	5.75E+02	5.30E+02	2.52E+02	2.30E+02	8.34E+02	2.41E+02	4.67E+02
Indian Point 3	2.39E+02	5.49E+02	8.29E+01	2.58E+01	3.17E+02	3.33E+02	1.82E+02	3.57E+02
Kewaunee	7.77E+01	9.56E+02	5.31E+01	1.33E+02	8.25E+01	4.58E+02	7.49E+01	4.83E+02
Maine Yankee	3.59E+02	1.11E+02	1.96E+02	1.64E+02	7.50E+01	1.90E+02	1.37E+02	4.36E+02
McGuire 1&2	6.60E+02	1.97E+02	7.83E+02	6.73E+02	6.92E+02	3.23E+02	5.16E+02	6.49E+02
Millstone 2	2.87E+01	6.16E+03	8.85E+01	6.17E+03	1.38E+02	2.13E+04	1.59E+02	5.06E+01
Millstone 3			5.47E+00	5.17E-01	9.95E+01	5.91E+01	1.63E+02	5.34E+02
North Anna 1&2	6.50E+02	2.90E+02	5.30E+02	7.97E+02	4.89E+02	1.64E+03	2.95E+02	7.71E+02
Oconee 1,2,&3	4.33E+02	1.41E+03	7.60E+02	8.51E+02	8.53E+02	2.01E+03	7.23E+02	1.42E+04
Palisades	4.76E+02	1.83E+02	2.39E+02	2.65E+02	2.23E+02	1.06E+02	1.87E+02	1.38E+03
Palo Verde 1,2,&3	8.42E+01	6.80E+01	1.16E+02	4.22E+01	4.63E+02	9.76E+02	7.78E+02	7.78E+02
Point Beach 1&2	2.81E+02	1.25E+03	1.08E+02	1.35E+03	1.55E+02	1.43E+03	1.95E+02	6.61E+02
Prairie Island 1&2	1.73E+02	4.02E+02	1.28E+02	1.55E+02	1.42E+02	4.30E+02	5.68E+01	1.38E+02
Rancho Seco 1	9.76E+02	1.57E+03	1.56E+02	1.00E+03	1.59E+02	3.51E+00	3.46E+02	6.25E+01
H. B. Robinson 2	6.42E+02	3.35E+03	4.53E+02	1.58E+02	1.01E+02	2.59E+02	8.42E+01	3.76E+02
Salem 1&2	4.55E+02	2.02E+03	4.71E+02	4.53E+02	3.29E+02	9.69E+02	3.59E+02	3.80E+02
* San Onofre	1.56E+01	8.96E-01	2.33E+00	4.65E-01	4.04E+00	4.32E-01	4.24E-01	1.63E-01
San Onofre 1	1.80E+02	6.04E+00	2.51E+02	3.82E+02	3.69E+01	4.98E+01	3.08E+01	4.06E+00
San Onofre 2-3	5.45E+02	1.72E+03	2.94E+02	1.93E+02	2.45E+02	2.71E+02	2.60E+02	2.55E+03
Seabrook 1								
Sequoyah 1&2	7.52E+02	2.45E+03	4.27E+02	1.33E+04	4.12E+02	9.78E+02	6.07E+02	2.92E+02
South Texas 1&2							0.00E+00	0.00E+00
St. Lucie 1&2	5.45E+02	1.59E+03	4.60E+02	2.13E+03	3.53E+02	1.05E+03	4.67E+02	1.29E+04
Summer 1	4.46E+02	1.30E+02	1.12E+02	1.50E+01	3.80E+02	6.76E+02	1.61E+02	1.22E+02
Surry 1&2	2.02E+03	1.21E+03	6.39E+02	1.16E+03	5.15E+02	2.94E+04	7.30E+02	1.94E+02
Three Mile Island 1	4.69E+02	1.94E+01	2.13E+02	7.70E+00	2.49E+02	2.38E+02	2.37E+02	6.92E+02
Three Mile Island 2	4.83E+02	6.35E+03	3.29E+02	5.81E+01	6.59E+02	3.18E+02	9.17E+02	7.18E+03
TMI 2/Epicor	**	**	**	**	**	**	**	**
Trojan	3.09E+02	3.52E+03	2.49E+02	6.25E+02	3.31E+02	4.09E+02	2.48E+02	4.33E+02
Turkey Point 3&4	6.08E+02	1.50E+03	3.23E+02	8.87E+01	3.07E+02	9.32E-02	1.07E+02	7.05E+02
Vogtle 1&2					0.00E+00	0.00E+00	4.72E+01	2.55E+01
Waterford 3	2.82E+02	3.39E+01	1.74E+02	3.75E+01	3.83E+02	1.78E+02	2.81E+02	4.43E+03
Wolf Creek 1	0.00E+00	0.00E+00	1.73E+02	1.48E+02	1.28E+02	1.15E+01	1.24E+02	1.27E+03
Yankee Rowe 1	2.00E+02	2.68E+02	1.12E+02	5.21E+00	1.86E+02	8.83E+00	1.22E+02	8.85E+03
Zion 1&2	6.73E+02	2.69E+03	3.31E+02	6.74E+02	4.11E+02	7.13E+02	3.59E+02	2.50E+03
Total	1.81E+04	6.55E+04	1.19E+04	3.81E+04	1.30E+04	7.51E+04	1.23E+04	7.28E+04

* Represents solid waste shipped by plant but not broken down into units 1, 2, & 3

** Included with Three Mile Island 2 totals

Table 12

Solid Waste Comparison By Year

Facility	Volume (Cubic Meters) - Activity (Curies)					
	1989	1990	1991	1992	1993	1994
Arkansas One 1&2	2.22E+02	2.96E+02	1.69E+02	1.43E+01	4.18E+02	6.03E+02
Beaver Valley 1&2	1.96E+03	1.35E+03	1.57E+02	5.44E+02	1.74E+02	1.08E+03
Braidwood 1&2	3.10E+02	3.89E+02	1.48E+02	8.55E+01	4.57E+02	6.52E+01
Byron 1&2	3.65E+02	1.28E+03	2.43E+02	4.99E+02	2.81E+02	3.77E+02
Callaway 1	2.09E+02	6.00E+02	8.70E+01	3.12E+02	1.36E+02	4.48E+03
Calvert Cliffs 1&2	2.07E+02	4.14E+02	1.35E+02	4.12E+03	1.60E+02	4.50E+03
Catawba 1&2	2.16E+02	3.17E+02	1.19E+02	2.09E+01	1.16E+02	3.35E+02
Comanche Peak 1			0.00E+00	0.00E+00	6.99E+01	7.76E-01
Donald C. Cook 1&2	3.88E+02	1.17E+03	1.95E+02	1.44E+02	0.00E+00	0.00E+00 ***
Crystal River 3	3.47E+02	2.40E+03	9.22E+02	2.20E+02	3.45E+02	2.39E+02
Davis-Besse 1	1.18E+02	2.08E+02	3.99E+02	2.26E+03	2.38E+02	5.47E+02
Diablo Canyon 1&2	1.87E+02	4.29E+02	8.32E+01	2.91E+02	1.89E+02	1.70E+03
Joseph M. Farley 1&2	4.85E+02	4.00E+02	1.51E+02	2.88E+02	1.50E+02	1.03E+03
Fort Calhoun 1	1.75E+02	8.76E+00	1.22E+02	7.48E+00	3.78E+01	1.97E+01
R. E. Ginna	2.33E+02	7.99E+01	1.98E+02	2.32E+02	5.00E+01	3.19E+00
Haddam Neck	1.53E+02	6.55E+02	1.66E+02	2.21E+05	1.34E+02	3.37E+02
Harris 1	1.60E+02	2.54E+01	7.73E+01	6.25E+01	7.84E+01	3.03E+02
Indian Point 1&2	4.78E+02	3.60E+02	2.60E+02	2.08E+03	4.88E+02	9.62E+01
Indian Point 3	5.77E+02	3.50E+02	6.66E+02	1.50E+02	1.29E+02	2.00E+01
Kewaunee	7.00E+01	7.74E+02	1.11E+02	3.54E+02	6.90E+01	5.28E+02
Maine Yankee	1.95E+02	2.36E+02	1.70E+02	1.85E+02	1.47E+02	3.46E+02
McGuire 1&2	4.36E+02	6.32E+02	2.63E+02	9.80E+02	4.52E+01	9.29E+02
Millstone 2	2.47E+02	5.55E+02	1.59E+02	9.34E+00	1.37E+02	8.79E+02
Millstone 3	1.47E+02	7.37E+02	7.60E+01	1.70E+02	1.16E+02	1.04E+02
North Anna 1&2	6.77E+02	1.72E+03	2.13E+02	7.24E+02	2.35E+02	3.01E+02
Oconee 1,2,& 3	4.25E+02	1.46E+03	4.39E+02	1.79E+03	1.02E+02	4.04E+02
Paltades	2.19E+02	4.23E+03 #	2.85E+02	8.74E+01	0.00E+00	0.00E+00 ***
Palo Verde 1,2,&3	8.74E+02	6.74E+02	7.66E+02	2.40E+02	4.83E+02	8.91E+02
Point Beach 1&2	1.06E+02	2.54E+02	1.30E+02	2.07E+02	5.64E+01	2.20E+02
Prairie Island 1&2	1.25E+02	1.03E+02	5.54E+01	3.23E+02	1.11E+02	1.90E+02
Rancho Seco 1	2.44E+02	3.27E+02	2.16E+01	3.69E+02	3.97E+01	2.46E+02
H. B. Robinson 2	9.69E+01	1.86E+02	6.99E+01	1.44E+01	6.46E+01	9.54E+01
Salem 1&2	1.22E+02	5.65E+04	8.92E+01	1.45E+02	1.03E+02	6.79E+02
San Onofre	0.00E+00	0.00E+00	2.12E-01	1.04E+00	0.00E+00	0.00E+00
San Onofre 1	1.19E+02	1.72E+03	5.81E+01	1.27E+01	9.29E+01	5.75E+00
San Onofre 2-3	3.28E+02	2.72E+03	1.75E+02	3.34E+01	1.54E+02	6.87E+02
Seabrook 1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00 ***
Sequoyah 1&2	4.65E+02	2.64E+03	2.59E+02	9.06E+02	1.42E+02	1.82E+03
South Texas 1&2	5.03E+01	7.24E+00	5.76E+01	1.38E+01	9.99E+01	9.81E+01
St. Lucie 1&2	3.18E+02	1.63E+02	2.26E+02	5.89E+03	1.82E+02	8.26E+02
Summer 1	1.40E+02	3.76E+02	1.10E+02	2.22E+02	6.82E+01	1.64E+02
Surry 1&2	5.38E+02	1.31E+03	1.48E+02	1.13E+03	1.73E+02	8.18E+02
Three Mile Island 1	3.32E+02	5.05E+01	5.83E+02	6.53E+02	6.19E+02	3.85E+02
Three Mile Island 2	1.18E+03	1.39E+04	3.40E+02	7.74E+03	3.88E+02	2.21E+02
TMI 2/Epicor	**	**	**	**	**	**
Trojan	2.59E+02	4.47E+02	1.80E+02	5.84E+02	1.09E+02	2.40E+02
Turkey Point 3&4	3.46E+02	2.26E+00	2.15E+02	6.94E+02	1.89E+02	1.16E+01
Vogtle 1&2	1.00E+02	1.51E+01	9.29E+01	1.64E+02	6.87E+01	5.96E+02
Waterford 3	7.61E+02	4.07E+02	5.50E+01	5.91E+02	1.46E+02	7.01E+02
Wolf Creek 1	1.51E+02	1.26E+03	8.31E+01	3.17E+01	8.39E+01	4.14E+02
Yankee Rowe 1	2.92E+02	1.78E+01	1.82E+02	1.69E+02	1.61E+02	8.49E+01
Zion 1&2	2.14E+02	3.56E+03	1.44E+02	2.02E+03	9.59E+01	1.95E+03
Total	1.64E+04	1.08E+05	1.01E+04	2.59E+05	8.18E+03	2.86E+04

* Represents solid waste shipped by plant but not broken down into units 1, 2, & 3

** Included with Three Mile Island 2 totals

*** These plants store waste on-site

This number is a correction to that entered in earlier reports

+ Note: If the volume before compaction and the volume after compaction were both given, the volume used for this table is the volume after compaction. If more than one volume was given, both are shown in the individual plant report. If a description of what the volume represents was given, that is also shown in the individual plant report.

Table 13

Net Electrical Energy Generation Comparison By Year

Boiling Water Reactors	Megawatt Hours									
	Initial	Commercial								
	Facility	Criticality	Operation	1978	1979	1980	1981	1982	1983	1984
Big Rock Point 1	09/27/62	03/29/63	4.01E+05	1.14E+05	4.05E+05	4.70E+05	3.60E+05	3.49E+05	4.18E+05	
Browns Ferry 1	08/17/73	08/01/74	1.69E+07	2.04E+07	6.06E+06	4.41E+06	7.88E+06	2.18E+06	7.85E+06	
Browns Ferry 2	07/20/74	03/01/75			5.62E+06	7.47E+06	4.45E+06	6.39E+06	4.04E+06	
Browns Ferry 3	08/08/76	03/01/77			6.94E+06	6.26E+06	4.89E+06	5.39E+06	2.91E+05	
Brunswick 1	10/08/76	03/18/77	9.91E+06	6.82E+06	3.94E+06	2.56E+06	2.92E+06	1.39E+06	5.03E+06	
Brunswick 2	03/20/75	11/03/75			1.86E+05	3.28E+06	1.91E+06	3.94E+06	1.39E+06	
Clinton 1	02/27/87	11/24/87								
Cooper	02/21/74	07/01/74	4.89E+06	4.99E+06	3.79E+06	3.85E+06	5.28E+06	3.34E+06	3.47E+06	
Dresden 1	10/15/59	07/04/60	7.59E+05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.46E+06	
Dresden 2	01/07/70	06/09/70	9.53E+06	8.42E+06	4.58E+06	3.41E+06	5.12E+06	3.40E+06	2.11E+06	
Dresden 3	01/31/71	11/16/71			4.33E+06	5.18E+06	3.89E+06	4.15E+06	2.11E+06	
Duane Arnold	03/23/74	02/01/75	1.23E+06	2.90E+06	2.80E+06	2.22E+06	2.28E+06	2.32E+06	2.72E+06	
Fermi 2	06/21/85	01/23/86								
James A. Fitzpatrick	11/17/74	07/28/75	4.20E+06	2.96E+06	4.33E+06	4.78E+06	4.96E+06	4.63E+06	4.90E+06	
Grand Gulf 1	08/18/82	07/01/85						0.00E+00	1.65E+05	
Edwin I. Hatch 1	09/12/74	12/31/75	4.77E+06	5.10E+06	4.79E+06	2.76E+06	2.88E+06	3.96E+06	3.60E+06	
Edwin I. Hatch 2	07/04/78	09/05/79			3.64E+06	4.48E+06	3.73E+06	3.81E+06	1.88E+06	
Hope Creek 1	06/28/86	12/20/86								
Humboldt Bay 3	02/16/63	08/ /63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
LaCrosse	07/11/67	11/01/69	1.74E+05	2.01E+05	2.15E+06	2.41E+05	1.38E+05	2.01E+05	3.19E+05	
LaSalle 1	06/21/82	01/01/84					4.61E+05	1.64E+06	5.21E+06	
LaSalle 2	03/10/84	10/19/84							1.39E+06	
Limerick 1	12/22/84	02/01/86							0.00E+00	
Limerick 2	08/12/89	01/08/90								
Millstone 1	10/26/70	03/01/71	4.65E+06	4.22E+06	3.40E+06	2.52E+06	4.08E+06	5.35E+06	4.32E+06	
Monticello	12/10/70	06/30/71	3.86E+06	4.40E+06	3.45E+06	3.26E+06	2.42E+06	4.15E+06	2.63E+05	
Nine Mile Point 1	09/05/69	12/01/69	4.47E+06	3.00E+06	4.54E+06	3.27E+06	1.13E+06	2.80E+06	3.64E+06	
Nine Mile Point 2	05/23/87	04/05/88								
Oyster Creek 1	05/03/69	12/01/69	3.65E+06	4.56E+06	1.96E+06	2.63E+06	2.01E+06	2.05E+05	2.79E+05	
Peach Bottom 2	09/16/73	07/05/74	1.38E+07	1.47E+07	4.34E+06	6.63E+06	4.79E+06	4.45E+06	2.43E+06	
Peach Bottom 3	08/07/74	12/23/74			7.23E+06	3.13E+06	8.53E+06	2.42E+06	7.45E+06	
Perry 1	06/06/86	11/18/87								
Pilgrim 1	06/16/72	12/01/72	4.38E+06	4.84E+06	3.04E+05	3.44E+06	3.29E+06	4.71E+06	3.52E+03	
Quad-Cities 1	10/18/71	02/18/73	9.15E+06	8.76E+06	3.44E+06	5.73E+06	3.24E+06	5.78E+06	3.35E+06	
Quad-Cities 2	04/26/72	03/10/73			3.61E+06	3.77E+06	5.06E+06	3.15E+06	4.98E+06	
River Bend 1	10/31/85	06/16/86								
Shoreham 1	02/15/85									
Susquehanna 1	09/10/82	06/08/83					3.21E+05	3.54E+06	6.09E+06	
Susquehanna 2	05/08/84	02/12/85							9.32E+05	
Vermont Yankee 1	03/24/72	11/30/72	3.24E+06	3.45E+06	2.98E+06	3.57E+06	4.17E+06	2.87E+06	3.34E+06	
WNP-2	01/19/84	12/13/84							4.10E+05	
Total			1.00E+08	9.95E+07	9.16E+07	8.93E+07	9.02E+07	8.65E+07	8.88E+07	
* Fort St. Vrain 1	01/31/74	07/01/79	6.09E+05	1.24E+05	6.76E+05	7.55E+05	5.69E+05	7.48E+05	5.67E+04	

* High temperature gas cooled reactor

Table 13

Net Electrical Energy Generation Comparison By Year
Megawatt Hours

Boiling Water Reactors

Facility	Initial	Commercial	1985	1986	1987	1988	1989	1990	1991
	Criticality	Operation							
Big Rock Point 1	09/27/62	03/29/63	3.62E+05	5.06E+05	3.75E+05	3.64E+05	4.17E+05	4.26E+05	4.92E+05
Browns Ferry 1	08/17/73	08/01/74	1.54E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Browns Ferry 2	07/26/74	03/01/75	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.76E+06
Browns Ferry 3	08/08/76	03/01/77	1.47E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Brunswick 1	10/08/76	03/18/77	1.91E+06	5.97E+06	4.05E+06	4.45E+06	4.18E+06	4.32E+06	4.39E+06
Brunswick 2	03/20/75	11/03/75	5.02E+06	2.91E+06	5.69E+06	3.92E+06	4.19E+06	4.05E+06	3.64E+06
Clinton 1	02/27/87	11/24/87			6.84E+05	5.86E+05	2.86E+06	3.60E+06	6.05E+06
Cooper	02/21/74	07/01/74	1.07E+06	4.05E+06	5.52E+06	4.20E+06	4.79E+06	5.11E+06	4.60E+06
Dresden 1	10/15/59	07/04/60	0.00E+00	0.00E+00	0.00E+00				
Dresden 2	01/07/70	06/09/70	3.09E+06	4.85E+06	3.34E+06	4.32E+06	4.75E+06	4.08E+06	2.97E+06
Dresden 3	01/31/71	1/16/71	4.39E+06	1.46E+06	4.40E+06	4.16E+06	5.12E+06	5.14E+06	2.57E+06
Duane Arnold	03/23/74	02/01/75	1.94E+06	3.01E+06	2.54E+06	3.14E+06	3.14E+06	3.01E+06	4.15E+06
Fernal 2	06/21/85	01/23/86		0.00E+00	1.39E+06	4.06E+06	5.22E+06	7.10E+06	6.18E+06
James A. Fitzpatrick	11/17/74	07/28/75	4.17E+06	6.02E+06	4.20E+06	4.36E+06	6.16E+06	4.60E+06	3.38E+06
Grand Gulf 1	08/18/82	07/01/85	2.65E+06	4.10E+06	7.73E+06	9.59E+06	7.85E+06	7.40E+06	9.12E+06
Edwin I. Hatch 1	09/12/74	12/31/75	4.76E+06	3.65E+06	5.08E+06	4.11E+06	6.48E+06	4.07E+06	4.70E+06
Edwin I. Hatch 2	07/04/78	09/05/79	5.38E+06	3.62E+06	5.76E+06	4.25E+06	4.14E+06	6.53E+06	4.92E+06
Hope Creek 1	06/28/86	12/20/86		1.03E+06	7.28E+06	6.99E+06	6.61E+06	4.07E+06	7.39E+06
Humboldt Bay 3	02/16/63	08/1/63	0.00E+00	0.00E+00	0.00E+00				
LaCrosse	07/11/67	11/01/69	3.23E+05	1.57E+05					
LaSalle 1	06/21/82	01/01/84	4.81E+06	2.02E+06	4.08E+06	5.44E+06	6.16E+06	8.64E+06	6.83E+06
LaSalle 2	03/10/84	10/19/84	3.43E+06	5.72E+06	4.54E+06	5.66E+06	6.50E+06	6.18E+06	8.71E+06
Limerick 1	12/22/84	02/01/86	1.14E+06	6.85E+06	5.32E+06	6.67E+06	5.21E+06	5.62E+06	8.13E+06
Limerick 2	08/12/89	01/08/90					1.06E+06	7.23E+06	7.14E+06
Millstone 1	10/26/70	03/01/71	4.59E+06	5.25E+06	4.38E+06	5.54E+06	4.64E+06	5.09E+06	1.75E+06
Monticello	12/10/70	06/30/71	4.29E+06	3.38E+06	3.53E+06	4.57E+06	2.65E+06	4.51E+06	3.59E+06
Nine Mile Point 1	09/05/69	12/01/69	4.93E+06	3.15E+06	4.62E+06	0.00E+00	0.00E+00	1.28E+06	3.87E+06
Nine Mile Point 2	05/23/87	04/05/88			2.61E+05	2.51E+05	4.25E+06	4.14E+06	6.56E+06
Cyster Creek 1	05/03/69	12/01/69	3.75E+06	1.30E+06	3.11E+06	3.54E+06	2.40E+06	4.31E+06	2.95E+06
Peach Bottom 2	09/16/73	07/05/74	2.33E+06	6.90E+06	1.55E+06	0.00E+00	3.86E+06	6.70E+06	5.06E+06
Peach Bottom 3	08/07/74	12/23/74	3.28E+06	4.85E+06	1.46E+06	0.00E+00	1.89E+05	7.53E+06	5.11E+06
Perry 1	06/06/86	11/18/87			8.28E+05	7.23E+06	5.32E+06	6.59E+06	8.98E+06
Pilgrim 1	06/16/72	12/01/72	4.95E+06	1.03E+06	0.00E+00	0.00E+00	1.71E+06	4.24E+06	3.42E+06
Quad-Cities 1	10/18/71	02/18/73	6.07E+06	4.42E+06	4.46E+06	5.66E+06	4.28E+06	5.33E+06	3.54E+06
Quad-Cities 2	04/26/72	03/10/73	4.56E+06	4.72E+06	4.95E+06	4.18E+06	5.74E+06	4.35E+06	5.30E+06
River Bend 1	10/31/85	06/16/86		3.00E+06	4.96E+06	7.25E+06	4.79E+06	5.59E+06	6.69E+06
Shoreham 1	02/15/85								
Susquehanna 1	09/10/82	06/08/83	5.26E+06	5.83E+06	6.13E+06	8.41E+06	6.47E+06	6.44E+06	8.82E+06
Susquehanna 2	05/08/84	02/12/85	6.95E+06	5.45E+06	8.60E+06	5.90E+06	6.77E+06	8.29E+06	7.04E+06
Vermont Yankee 1	03/24/72	11/30/72	3.00E+06	2.06E+06	3.54E+06	4.11E+06	3.61E+06	3.62E+06	4.11E+06
WNP-2	01/19/84	12/13/84	5.18E+06	5.18E+06	5.40E+06	6.00E+06	6.12E+06	5.74E+06	4.23E+06
Total			1.07E+08	1.12E+08	1.30E+08	1.46E+08	1.48E+08	1.75E+08	1.80E+08
* Fort St. Vrain 1	01/31/74	07/01/79	0.00E+00	5.20E+04	1.81E+05	6.60E+05			

* High temperature gas cooled reactor

Table 14

Net Electrical Energy Generation Comparison By Year

Facility	Megawatt Hours									
	Initial	Commercial	1978	1979	1980	1981	1982	1983	1984	
	Criticality	Operation								
Pressurized Water Reactors										
Arkansas One 1	08/06/74	12/19/74	5.25E+06	3.32E+06	3.78E+06	4.90E+06	3.72E+06	3.22E+06	4.60E+06	
Arkansas One 2	12/05/78	03/26/80	3.98E+03	8.81E+05	3.65E+06	4.32E+06	3.81E+06	4.43E+06	6.20E+06	
Beaver Valley 1	05/10/76	10/01/76	2.48E+06	1.79E+06	3.01E+05	4.66E+06	2.69E+06	4.68E+06	4.75E+06	
Beaver Valley 2	08/04/87	11/17/87								
Braidwood 1	05/29/87	07/29/88								
Braidwood 2	03/08/88	10/17/88								
Byron 1	02/02/85	09/16/85								
Byron 2	01/09/87	08/21/87								
Callaway 1	10/02/84	12/19/84							3.23E+05	
Calvert Cliffs 1	10/07/74	05/08/75	9.91E+06	9.68E+06	4.53E+06	6.11E+06	5.36E+06	5.57E+06	6.22E+06	
Calvert Cliffs 2	11/30/76	04/01/77			6.41E+06	5.42E+06	5.00E+06	6.11E+06	5.34E+06	
Catawba 1	01/07/85	06/29/85								
Catawba 2	05/08/86	08/19/86								
Comanche Peak 1	04/03/90	08/13/90								
Donald C. Cook 1	01/18/75	08/27/75	1.01E+07	1.16E+07	6.46E+06	6.78E+06	5.35E+06	5.29E+06	7.75E+06	
Donald C. Cook 2	03/10/78	07/01/78			6.70E+06	6.38E+06	7.00E+06	7.01E+06	5.36E+06	
Crystal River 3	01/14/77	03/13/77	2.59E+06	3.76E+06	3.35E+06	4.01E+06	4.92E+06	3.77E+06	6.48E+06	
Davis-Besse 1	08/12/77	07/31/78	2.61E+06	3.13E+06	2.09E+06	4.36E+06	3.22E+06	4.88E+06	4.29E+06	
Diablo Canyon 1	04/29/84	05/07/85							2.04E+05	
Diablo Canyon 2	09/19/85	03/13/86								
Joseph M. Farley 1	08/09/77	12/01/77	5.92E+06	1.74E+06	4.60E+06	2.62E+06	5.22E+06	5.26E+06	5.43E+06	
Joseph M. Farley 2	05/05/81	07/30/81				2.92E+06	5.30E+06	5.98E+06	6.62E+06	
Fort Calhoun 1	08/06/73	06/20/74	2.85E+06	3.67E+06	2.01E+06	2.15E+06	3.48E+06	2.75E+06	2.33E+06	
R. E. Ginna	11/08/69	07/01/70	3.22E+06	2.96E+06	3.09E+06	3.32E+06	2.41E+06	3.04E+06	3.16E+06	
Haddam Neck	07/24/67	01/01/68	4.71E+06	4.12E+06	3.56E+06	4.06E+06	4.54E+06	3.78E+06	3.36E+06	
Harris 1	01/03/87	05/02/87								
Indian Point 1	08/02/62	10/ /62	4.37E+06	4.80E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Indian Point 2	05/22/73	08/01/74			4.26E+06	3.06E+06	4.45E+06	5.90E+06	2.89E+06	
Indian Point 3	04/06/76	08/30/76	5.46E+06	4.79E+06	3.07E+06	3.03E+06	1.44E+06	6.07E+04	6.04E+06	
Kewaunee	03/07/74	06/16/74	3.89E+06	3.44E+06	3.63E+06	3.77E+06	3.82E+06	3.71E+06	3.81E+06	
Maine Yankee	10/23/72	12/28/72	5.35E+06	4.54E+06	4.40E+06	5.21E+06	4.52E+06	0.00E+00	5.13E+06	
McGuire 1	08/08/81	12/01/81				1.91E+04	4.30E+06	4.63E+06	6.42E+06	
McGuire 2	05/08/83	03/01/84						0.00E+00	6.56E+06	
Millstone 2	10/17/75	12/26/75	4.50E+06	4.36E+06	4.88E+06	6.09E+06	5.01E+06	2.45E+06	6.61E+06	
Millstone 3	01/23/86	04/23/86								
North Anna 1	04/05/78	06/06/78	3.66E+06	4.19E+06	5.63E+06	4.64E+06	2.40E+06	5.31E+06	3.78E+06	
North Anna 2	06/12/80	12/14/80			3.50E+05	5.65E+06	4.05E+06	5.80E+06	4.72E+06	
Oconee 1	04/19/73	07/15/73	1.59E+07	1.32E+07	5.12E+06	3.00E+06	5.15E+06	5.67E+06	6.17E+06	
Oconee 2	11/11/73	09/09/74			3.88E+06	5.19E+06	3.44E+06	5.14E+06	7.30E+06	
Oconee 3	09/05/74	12/16/74			5.22E+06	5.64E+06	2.12E+06	7.10E+06	5.35E+06	
Palisades	05/24/71	12/31/71	2.62E+06	3.43E+06	2.38E+06	3.46E+06	3.35E+06	3.77E+06	8.12E+05	
Palo Verde 1	05/25/85	02/13/86								
Palo Verde 2	04/18/86	09/19/86								
Palo Verde 3	10/25/87	01/08/88								
Point Beach 1	11/02/70	12/21/70	7.65E+06	6.77E+06	2.48E+06	2.61E+06	2.70E+06	2.38E+06	3.11E+06	
Point Beach 2	05/30/72	10/01/71			3.59E+06	3.72E+06	3.61E+06	3.02E+06	3.51E+06	
Prairie Island 1	12/01/73	12/16/73	7.73E+06	7.10E+06	3.11E+06	3.84E+06	3.92E+06	3.89E+06	4.16E+06	
Prairie Island 2	12/17/74	12/21/74			3.47E+06	3.09E+06	3.86E+06	3.72E+06	3.91E+06	
Rancho Seco 1	09/16/74	04/17/75	4.99E+06	5.71E+06	4.42E+06	2.63E+06	3.37E+06	2.85E+06	3.77E+06	
H. B. Robinson 2	09/20/70	03/07/71	3.98E+06	4.00E+06	3.21E+06	3.50E+06	2.25E+06	3.35E+06	1.90E+05	
Salem 1	12/11/76	06/30/77	4.53E+06	2.04E+06	5.68E+06	6.19E+06	4.09E+06	5.38E+06	2.13E+06	
Salem 2	08/08/80	10/13/81			0.00E+00	1.63E+06	7.94E+06	7.44E+05	3.20E+06	
San Onofre 1	06/14/67	01/01/68	2.68E+06	3.36E+06	8.17E+05	7.79E+05	5.10E+05	0.00E+00	2.62E+05	
San Onofre 2	07/28/82	08/08/83					1.26E+05	3.76E+06	5.27E+06	
San Onofre 3	08/29/83	04/01/84						9.97E+05	4.10E+06	
Seabrook 1	06/13/89	08/19/90								
Sequoyah 1	07/05/80	07/01/81			5.18E+05	2.53E+06	4.91E+06	7.34E+06	6.10E+06	
Sequoyah 2	11/05/81	06/01/82						6.69E+06	6.40E+06	
South Texas 1	03/08/88	08/25/88								
South Texas 2	03/12/89	06/19/89								

Table 14

Net Electrical Energy Generation Comparison By Year

Facility	Pressurized Water Reactors		Megawatt Hours							
	Initial Criticality	Commercial Operation	1978	1979	1980	1981	1982	1983	1984	
St. Lucie 1	04/22/76	12/21/76	5.00E+06	4.88E+06	5.20E+06	4.95E+06	6.78E+06	1.07E+06	4.23E+06	
St. Lucie 2	06/02/83	08/08/83						2.40E+06	5.56E+06	
Summer 1	10/22/82	01/01/84					1.91E+05	1.33E+06	4.20E+06	
Surry 1	07/01/72	12/22/72	1.01E+07	2.87E+06	2.47E+06	2.38E+06	5.48E+06	3.52E+06	3.33E+06	
Surry 2	03/07/73	05/01/73			2.24E+06	5.15E+06	5.47E+06	4.09E+06	5.21E+06	
Three Mile Island 1	06/05/74	09/02/74	5.67E+06	8.48E+05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Three Mile Island 2	03/28/78	12/30/78	5.77E+05	N/R	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Trojan	12/15/75	05/20/76	1.67E+06	5.27E+06	6.07E+06	6.42E+06	4.80E+06	4.08E+06	4.74E+06	
Turkey Point 3	10/20/72	12/14/72	8.29E+06	6.71E+06	4.39E+06	9.13E+05	3.77E+06	4.33E+06	4.78E+06	
Turkey Point 4	06/11/73	09/07/73			3.85E+06	4.50E+06	3.84E+06	2.97E+06	3.08E+06	
Vogtle 1	03/09/87	05/31/87								
Vogtle 2	03/28/89	05/20/89								
Waterford 3	03/04/85	09/24/85								
Wolf Creek 1	05/22/85	09/03/85								
Yankee Rowe 1	08/19/60	07/01/61	1.19E+06	1.23E+06	2.92E+05	8.85E+05	8.82E+05	1.34E+06	1.03E+06	
Zion 1	06/15/73	12/31/73	1.35E+07	1.03E+07	6.51E+06	6.19E+06	4.70E+06	4.02E+06	5.69E+06	
Zion 2	12/24/73	09/17/74			5.28E+06	5.26E+06	5.16E+06	6.18E+06	5.99E+06	
Total			1.73E+08	1.50E+08	1.57E+08	1.78E+08	1.84E+08	1.98E+08	2.32E+08	

N/R = Not Reported

Table 14

Net Electrical Energy Generation Comparison By Year

Facility	Megawatt Hours								
	Initial	Commercial	1985	1986	1987	1988	1989	1990	1991
	Criticality	Operation							
Pressurized Water Reactors									
Arkansas One 1	08/06/74	12/19/74	5.19E+06	3.57E+06	4.76E+06	3.95E+06	3.37E+06	4.12E+06	6.54E+06
Arkansas One 2	12/05/78	03/26/80	4.70E+06	5.31E+06	6.61E+06	4.95E+06	5.47E+06	7.13E+06	6.12E+06
Beaver Valley 1	05/10/76	10/01/76	5.90E+06	4.78E+06	5.62E+06	4.98E+06	3.79E+06	6.17E+06	3.70E+06
Beaver Valley 2	08/04/87	11/17/87			7.38E+05	6.48E+06	4.54E+06	4.29E+06	6.76E+06
Braidwood 1	05/29/87	07/29/88			1.46E+06	3.42E+06	4.63E+06	8.26E+06	4.98E+06
Braidwood 2	03/08/88	10/17/88				1.35E+06	7.14E+06	6.33E+06	6.54E+06
Byron 1	02/02/85	09/16/85	1.01E+06	7.40E+06	5.33E+06	6.29E+06	8.95E+06	6.93E+06	6.31E+06
Byron 2	01/09/87	08/21/87			1.97E+06	6.36E+06	6.06E+06	6.01E+06	8.77E+06
Callaway 1	10/02/84	12/19/84	8.05E+06	7.20E+06	6.32E+06	8.94E+06	8.35E+06	8.01E+06	9.98E+06
Calvert Cliffs 1	10/07/74	05/08/75	4.36E+06	5.83E+06	5.27E+06	5.16E+06	1.35E+06	1.34E+06	5.47E+06
Calvert Cliffs 2	11/30/76	04/01/77	5.61E+06	7.01E+06	4.83E+06	6.60E+06	4.53E+06	0.00E+00	3.64E+06
Catawba 1	01/07/85	06/29/85	3.44E+06	5.18E+06	6.38E+06	7.63E+06	7.76E+06	6.87E+06	6.67E+06
Catawba 2	05/08/86	08/19/86		1.30E+06	7.17E+06	6.17E+06	6.51E+06	6.44E+06	7.27E+06
Comanche Peak 1	04/03/90	08/13/90						2.51E+06	5.38E+06
Donald C. Cook 1	01/18/75	08/27/75	2.12E+06	6.65E+06	5.03E+06	7.47E+06	5.43E+06	6.30E+06	7.34E+06
Donald C. Cook 2	03/10/78	07/01/78	5.68E+06	4.34E+06	5.03E+06	2.32E+06	6.66E+06	4.81E+06	8.19E+06
Crystal River 3	01/14/77	03/13/77	2.85E+06	2.65E+06	3.62E+06	5.77E+06	2.93E+06	4.14E+06	5.46E+06
Davis-Besse 1	08/12/77	07/31/78	1.94E+06	3.49E+03	5.06E+06	1.16E+06	7.32E+06	4.16E+06	5.84E+06
Diablo Canyon 1	04/29/84	05/07/85	5.23E+06	5.29E+06	8.28E+06	5.26E+06	7.20E+06	8.71E+06	7.36E+06
Diablo Canyon 2	09/19/85	03/13/86	5.41E+06	6.55E+06	5.72E+06	6.23E+06	8.62E+06	7.56E+06	7.71E+06
Joseph M. Farley 1	08/09/77	12/01/77	5.87E+06	5.73E+06	6.44E+06	5.91E+06	6.02E+06	6.91E+06	5.41E+06
Joseph M. Farley 2	05/05/81	07/30/81	5.47E+06	5.96E+06	4.90E+06	7.17E+06	5.62E+06	5.25E+06	6.74E+06
Fort Calhoun 1	08/06/73	06/20/74	3.07E+06	3.61E+06	3.06E+06	2.63E+06	3.30E+06	2.42E+06	3.25E+06
R. E. Ginna	11/08/69	07/01/70	3.62E+06	3.61E+06	3.80E+06	3.53E+06	3.07E+06	3.45E+06	3.48E+06
Haddam Neck	07/24/67	01/01/68	4.64E+06	2.13E+06	2.53E+06	3.31E+06	2.96E+06	1.15E+06	3.70E+06
Harris 1	01/03/87	05/02/87			3.38E+06	5.33E+06	5.63E+06	6.34E+06	5.92E+06
Indian Point 1	08/02/62	10/ /62	0.00E+00	0.00E+00	0.00E+00				
Indian Point 2	05/22/73	08/01/74	6.67E+06	3.81E+06	5.15E+06	6.06E+06	4.47E+06	5.21E+06	3.86E+06
Indian Point 3	04/06/76	08/30/76	4.73E+06	5.53E+06	4.85E+06	6.71E+06	4.97E+06	5.03E+06	7.30E+06
Kewaunee	03/07/74	06/16/74	3.70E+06	3.85E+06	4.01E+06	3.91E+06	3.74E+06	3.90E+06	3.67E+06
Maine Yankee	10/23/72	12/28/72	5.35E+06	6.24E+06	4.04E+06	5.02E+06	6.94E+06	4.86E+06	6.26E+06
McGuire 1	08/08/81	12/01/81	6.78E+06	5.16E+06	7.35E+06	7.39E+06	7.80E+06	4.73E+06	6.84E+06
McGuire 2	05/08/83	03/01/84	5.60E+06	6.21E+06	7.57E+06	8.05E+06	7.41E+06	6.46E+06	9.52E+06
Millstone 2	10/17/75	12/26/75	3.50E+06	5.16E+06	6.89E+06	5.73E+06	4.89E+06	5.30E+06	3.94E+06
Millstone 3	01/23/86	04/23/86		5.86E+06	6.74E+06	7.67E+06	7.08E+06	8.22E+06	2.84E+06
North Anna 1	04/05/78	06/06/78	5.80E+06	6.31E+06	3.57E+06	6.90E+06	4.30E+06	7.23E+06	5.63E+06
North Anna 2	06/12/80	12/14/80	6.81E+06	6.02E+06	5.65E+06	7.88E+06	5.90E+06	5.98E+06	7.68E+06
Oconee 1	04/19/73	07/15/73	7.07E+06	4.78E+06	5.03E+06	7.19E+06	5.94E+06	6.45E+06	6.01E+06
Oconee 2	11/11/73	09/09/74	5.06E+06	5.80E+06	6.23E+06	5.54E+06	6.01E+06	6.27E+06	7.43E+06
Oconee 3	09/05/74	12/16/74	4.86E+06	6.06E+06	5.08E+06	5.97E+06	6.34E+06	7.43E+06	5.59E+06
Palisades	05/24/71	12/31/71	5.30E+06	8.41E+05	2.63E+06	3.44E+06	3.64E+06	3.01E+06	4.87E+06
Palo Verde 1	05/25/85	02/13/86	1.13E+06	5.85E+06	5.27E+06	6.67E+06	1.80E+06	4.72E+06	9.31E+06
Palo Verde 2	04/18/86	09/19/86		2.65E+06	8.19E+06	6.75E+06	4.70E+06	6.24E+06	8.27E+06
Palo Verde 3	10/25/87	01/08/88			3.20E+05	3.55E+04	1.33E+06	9.64E+06	7.52E+06
Point Beach 1	11/02/70	12/21/70	3.35E+06	3.77E+06	3.57E+06	3.83E+06	3.61E+06	3.53E+06	3.63E+06
Point Beach 2	05/30/72	10/01/71	3.60E+06	3.42E+06	3.61E+06	3.72E+06	3.49E+06	3.79E+06	3.69E+06
Prairie Island 1	12/01/73	12/16/73	3.68E+06	3.82E+06	3.59E+06	3.82E+06	4.39E+06	3.83E+06	3.98E+06
Prairie Island 2	12/17/74	12/21/74	3.61E+06	3.86E+06	4.43E+06	3.89E+06	3.89E+06	3.80E+06	4.48E+06
Rancho Seco 1	09/16/74	04/17/75	1.94E+06	0.00E+00	0.00E+00	2.81E+06	1.41E+06	0.00E+00	0.00E+00
H. B. Robinson 2	09/20/70	03/07/71	5.24E+06	4.80E+06	4.23E+06	3.18E+06	2.78E+06	3.31E+06	4.79E+06
Salem 1	12/11/76	06/30/77	9.01E+06	7.08E+06	6.21E+06	7.41E+06	6.21E+06	5.96E+06	6.81E+06
Salem 2	08/08/80	10/13/81	5.02E+06	5.31E+06	6.17E+06	5.97E+06	7.82E+06	5.41E+06	7.66E+06
San Onofre 1	06/14/67	01/01/68	2.46E+06	8.74E+05	2.71E+06	1.37E+06	1.17E+06	1.54E+06	2.03E+06
San Onofre 2	07/26/82	08/08/83	5.15E+06	6.36E+06	6.23E+06	9.09E+06	5.22E+06	8.31E+06	5.76E+06
San Onofre 3	08/29/83	04/01/84	3.71E+06	6.76E+06	7.52E+06	6.13E+06	8.84E+06	6.58E+06	8.69E+06
Seabrook 1	06/13/89	08/19/90						4.09E+06	6.81E+06
Sequoyah 1	07/05/80	07/01/81	4.06E+06	0.00E+00	0.00E+00	6.71E+04	9.55E+06	6.82E+06	7.27E+06
Sequoyah 2	11/05/81	06/01/82	5.61E+06	0.00E+00	0.00E+00	3.88E+06	9.55E+06	7.18E+06	9.32E+06
South Texas 1	03/08/88	08/25/88				2.79E+06	6.28E+06	6.00E+06	7.20E+06
South Texas 2	03/12/89	06/19/89					3.02E+06	6.43E+06	7.26E+06

Table 14

Net Electrical Energy Generation Comparison By Year

Facility	Megawatt Hours								
	Initial Criticality	Commercial Operation	1985	1986	1987	1988	1989	1990	1991
St. Lucie 1	04/22/76	12/21/76	5.87E+06	7.05E+06	5.72E+06	6.25E+06	6.95E+06	4.49E+06	5.79E+06
St. Lucie 2	06/02/83	08/08/83	6.11E+06	6.15E+06	5.95E+06	7.41E+06	5.44E+06	5.32E+06	7.43E+06
Summer 1	10/22/82	01/01/84	5.23E+06	7.16E+06	5.15E+06	5.05E+06	5.41E+06	6.11E+06	5.34E+06
Surry 1	07/01/72	12/22/72	5.62E+06	4.49E+06	4.63E+06	2.69E+06	3.17E+06	4.77E+06	6.59E+06
Surry 2	03/07/73	05/01/73	4.07E+06	4.50E+06	4.79E+06	3.57E+06	8.94E+05	5.84E+06	3.99E+06
Three Mile Island 1	06/05/74	09/02/74	8.12E+05	4.82E+06	5.03E+06	5.47E+06	7.22E+06	5.30E+06	5.67E+06
Three Mile Island 2	03/28/78	12/30/78	0.00E+00	0.00E+00	0.00E+00				
Trojan	12/15/75	05/20/76	6.91E+06	7.09E+06	4.35E+06	6.34E+06	5.53E+06	6.07E+06	1.46E+06
Turkey Point 3	10/20/72	12/14/72	3.41E+06	4.51E+06	8.56E+05	3.45E+06	3.59E+06	3.36E+06	1.31E+06
Turkey Point 4	06/11/73	09/07/73	5.18E+06	1.72E+06	2.64E+06	3.26E+06	2.09E+06	4.38E+06	7.98E+05
Vogtle 1	03/09/87	05/31/87			3.92E+06	6.79E+06	8.71E+06	7.34E+06	7.50E+06
Vogtle 2	03/28/89	05/20/89					5.55E+06	6.85E+06	8.90E+06
Waterford 3	03/04/85	09/24/85	1.81E+06	7.30E+06	7.43E+06	6.54E+06	7.61E+06	8.60E+06	7.27E+06
Wolf Creek 1	05/22/83	09/03/85	2.94E+06	6.97E+06	6.50E+06	6.66E+06	9.71E+06	7.87E+06	5.86E+06
Yankee Rowe 1	08/19/80	07/01/81	1.18E+06	1.39E+06	1.14E+06	1.12E+06	1.31E+06	8.26E+05	9.92E+05
Zion 1	06/19/73	12/31/73	4.81E+06	4.90E+06	6.06E+06	6.34E+06	5.00E+06	4.45E+06	4.26E+06
Zion 2	12/24/73	09/17/74	5.11E+06	7.33E+06	5.11E+06	6.65E+06	7.69E+06	2.65E+06	5.13E+06
Total			2.72E+08	2.96E+08	3.19E+08	3.65E+08	3.88E+08	3.97E+08	4.33E+08

Table 15

Thermal Energy Generation Comparison By Year

Facility	Megawatt Hours								
	Initial Criticality	Commercial Operation	1972	1973	1974	1975	1976	1977	1978
Boiling Water Reactors									
Big Rock Point 1	09/27/62	03/29/63	1.20E+06	1.41E+06	1.13E+06	9.80E+05	8.30E+05	1.23E+06	1.37E+06
Browns Ferry 1	08/17/73	08/01/74		1.37E+06	1.64E+07	8.75E+06	1.34E+07	5.37E+07	5.32E+07
Browns Ferry 2	07/20/74	03/01/75							
Browns Ferry 3	08/08/76	03/01/77							
Brunswick 1	10/08/76	03/18/77				4.72E+06	7.81E+06	1.59E+07	3.07E+07
Brunswick 2	03/20/75	11/03/75							
Clinton 1	02/27/87	11/24/87							
Cooper	02/21/74	07/01/74			6.90E+06	1.24E+07	1.19E+07	1.45E+07	1.54E+07
Dresden 1	10/15/59	07/04/60	3.76E+06	2.43E+06	1.36E+06	2.56E+06	3.42E+06	2.21E+06	2.73E+06
Dresden 2	01/07/70	06/09/70	2.52E+07	2.83E+07	2.18E+07	1.70E+07	2.74E+07	2.89E+07	3.13E+07
Dresden 3	01/31/71	11/16/71							
Duane Arnold	03/23/74	02/01/75				7.42E+06	8.02E+06	9.32E+06	3.96E+06
Ferni 2	06/21/85	01/23/86							
James A. Fitzpatrick	11/17/74	07/28/75				6.81E+06	1.26E+07	1.18E+07	1.30E+07
Grand Gulf 1	08/18/82	07/01/85							
Edwin I. Hatch 1	09/12/74	12/31/75				9.75E+06	1.38E+07	1.22E+07	3.37E+07
Edwin I. Hatch 2	07/04/78	09/05/79							
Hope Creek 1	06/28/86	12/20/86							
Humboldt Bay 3	02/16/63	08/ /63	1.25E+06	1.47E+06	1.27E+06	1.32E+06	6.80E+05	0.00E+00	0.00E+00
LaCrosse	07/11/67	11/01/69	8.20E+05	6.90E+05	1.08E+06	9.20E+05	6.10E+05	1.43E+05	6.54E+05
LaSalle 1	06/21/82	01/01/84							
LaSalle 2	03/10/84	10/19/84							
Limerick 1	12/22/84	02/01/86							
Limerick 2	08/12/89	01/08/90							
Millstone 1	10/26/70	03/01/71	9.69E+06	5.96E+06	1.12E+07	1.21E+07	1.16E+07	1.48E+07	1.43E+07
Monticello	12/10/70	06/30/71	1.10E+07	9.90E+06	8.28E+06	8.88E+06	1.23E+07	1.10E+07	1.18E+07
Nine Mile Point 1	09/05/69	12/01/69	1.00E+07	1.10E+07	1.05E+07	9.68E+06	1.31E+07	9.15E+06	1.39E+07
Nine Mile Point 2	05/23/87	04/05/88							
Oyster Creek 1	05/03/69	12/01/69	1.30E+07	1.09E+07	1.13E+07	9.81E+06	1.18E+07	9.82E+06	1.10E+07
Peach Bottom 2	09/16/73	07/05/74			1.23E+07	3.34E+07	3.72E+07	2.86E+07	4.39E+07
Peach Bottom 3	08/07/74	12/23/74							
Perry 1	06/06/86	11/18/87							
Pilgrim 1	06/16/72	12/01/72	2.65E+06	1.25E+07	6.00E+06	8.10E+06	7.60E+06	8.26E+06	1.33E+07
Quad-Cities 1	10/18/71	02/18/73	1.25E+07	3.17E+07	2.61E+07	2.31E+07	2.59E+07	2.68E+07	3.14E+07
Quad-Cities 2	04/26/72	03/10/73							
River Bend 1	10/31/85	06/16/86							
Shoreham 1	02/15/85								
Susquehanna 1	09/10/82	06/08/83							
Susquehanna 2	05/08/84	02/12/85							
Vermont Yankee 1	03/24/72	11/30/72	1.48E+06	6.08E+06	8.20E+06	1.13E+07	1.02E+07	1.11E+07	1.00E+07
WNP-2	01/19/84	12/13/84							
Total			9.26E+07	1.24E+08	1.44E+08	1.89E+08	2.30E+08	2.70E+08	3.36E+08
* Fort St. Vrain 1	01/31/74	07/01/79							2.04E+06

* High temperature gas cooled reactor

Table 15

Thermal Energy Generation Comparison By Year

Facility	Megawatt Hours								
	Initial Criticality	Commercial Operation	1979	1980	1981	1982	1983	1984	1985
Boiling Water Reactors									
Big Rock Point 1	09/27/62	03/29/63	3.96E+05	1.40E+06	1.63E+06	1.20E+06	1.14E+06	1.37E+06	1.19E+06
Browns Ferry 1	08/17/73	08/01/74	6.31E+07	1.92E+07	1.36E+07	2.49E+07	6.78E+06	2.45E+07	4.95E+06
Browns Ferry 2	07/20/74	03/01/75		1.74E+07	2.31E+07	1.38E+07	1.97E+07	1.31E+07	0.00E+00
Browns Ferry 3	08/08/76	03/01/77		2.13E+07	1.95E+07	1.55E+07	1.70E+07	9.11E+05	4.65E+06
Brunswick 1	10/08/76	03/18/77	2.12E+07	1.23E+07	8.29E+06	9.48E+06	4.53E+06	1.56E+07	6.06E+06
Brunswick 2	03/20/75	11/03/75		5.38E+06	1.04E+07	6.30E+06	1.23E+07	4.53E+06	1.57E+07
Clinton 1	02/27/87	11/24/87							
Cooper	02/21/74	07/01/74	1.58E+07	1.36E+07	1.39E+07	1.64E+07	1.05E+07	1.09E+07	3.42E+06
Dresden 1	10/15/59	07/04/60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E+07	0.00E+00
Dresden 2	01/07/70	06/09/70	2.77E+07	1.57E+07	1.13E+07	1.69E+07	1.13E+07	7.10E+06	1.03E+07
Dresden 3	01/31/71	11/16/71		1.42E+07	1.71E+07	1.27E+07	1.37E+07	7.10E+06	1.47E+07
Duane Arnold	03/23/74	02/01/75	9.07E+06	8.87E+06	7.05E+06	7.32E+06	7.38E+06	8.71E+06	6.15E+06
Fermi 2	06/21/85	01/23/86							
James A. Fitzpatrick	11/17/74	07/28/75	8.97E+06	1.30E+07	1.42E+07	1.51E+07	1.42E+07	1.52E+07	1.28E+07
Grand Gulf 1	08/18/82	07/01/85					0.00E+00	8.80E+05	9.80E+06
Edwin I. Hatch 1	09/12/74	12/31/75	1.62E+07	1.54E+07	8.97E+06	9.42E+06	1.29E+07	1.20E+07	1.53E+07
Edwin I. Hatch 2	07/04/78	09/05/79		1.16E+07	1.47E+07	1.18E+07	1.19E+07	5.99E+06	1.70E+07
Hope Creek 1	06/28/86	12/20/86							
Humboldt Bay 3	02/16/63	08/ /63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LaCrosse	07/11/67	11/01/69	7.48E+05	8.00E+05	9.11E+05	5.27E+05	7.60E+05	1.07E+06	1.11E+06
LaSalle 1	06/21/82	01/01/84				2.09E+06	5.86E+06	2.30E+07	1.54E+07
LaSalle 2	03/10/84	10/19/84						4.51E+06	1.10E+07
Limerick 1	12/22/84	02/01/86						0.00E+00	4.42E+06
Limerick 2	08/12/89	01/08/90							
Millstone 1	10/26/70	03/01/71	1.30E+07	1.04E+07	8.60E+06	1.36E+07	1.64E+07	1.34E+07	1.42E+07
Monticello	12/10/70	06/30/71	1.35E+07	1.07E+07	1.01E+07	7.68E+06	1.30E+07	8.98E+05	1.31E+07
Nine Mile Point 1	09/05/69	12/01/69	9.67E+06	1.41E+07	1.01E+07	3.42E+06	8.72E+06	1.12E+07	1.52E+07
Nine Mile Point 2	05/23/87	04/05/88							
Oyster Creek 1	05/03/69	12/01/69	1.38E+07	6.27E+06	8.44E+06	6.79E+06	9.23E+05	1.04E+06	1.16E+07
Peach Bottom 2	09/16/73	07/05/74	4.58E+07	1.37E+07	2.08E+07	1.53E+07	1.40E+07	7.87E+06	7.85E+06
Peach Bottom 3	08/07/74	12/23/74		2.26E+07	9.85E+06	2.65E+07	7.82E+06	2.32E+07	1.08E+07
Perry 1	06/06/86	11/18/87							
Pilgrim 1	06/16/72	12/01/72	1.47E+07	9.20E+06	1.05E+07	9.90E+06	1.42E+07	4.99E+05	1.50E+07
Quad-Cities 1	10/18/71	02/18/73	3.00E+07	1.17E+07	1.88E+07	1.12E+07	1.89E+07	1.06E+07	1.92E+07
Quad-Cities 2	04/26/72	03/10/73		1.22E+07	1.27E+07	1.67E+07	1.08E+07	1.61E+07	1.46E+07
River Bend 1	10/31/85	06/16/86							
Shoreham 1	02/15/85								
Susquehanna 1	09/10/82	06/08/83				1.16E+06	1.12E+07	1.94E+07	1.70E+07
Susquehanna 2	05/08/84	02/12/85						3.23E+06	2.20E+07
Vermont Yankee 1	03/24/72	11/30/72	1.08E+07	9.38E+06	1.13E+07	1.31E+07	9.12E+06	1.04E+07	9.55E+06
WNP-2	01/19/84	12/13/84						1.21E+06	1.64E+07
Total			3.14E+08	2.90E+08	2.86E+08	2.89E+08	2.75E+08	2.90E+08	3.40E+08
* Fort St. Vrain 1	01/31/74	07/01/79	4.78E+05	2.23E+06	2.23E+06	1.86E+06	2.58E+06	3.40E+05	3.34E+04

* High temperature gas cooled reactor

Table 15

Thermal Energy Generation Comparison By Year

Boiling Water Reactors	Megawatt Hours							
	Initial Criticality	Commercial Operation	1985	1987	1988	1989	1990	1991
Big Rock Point 1	09/27/62	03/29/63	1.66E+06	1.23E+06	1.26E+06	1.14E+07	1.40E+06	1.63E+06
Browns Ferry 1	08/17/73	08/01/74	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Browns Ferry 2	07/20/74	03/01/75	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E+07
Browns Ferry 3	08/08/76	03/01/77	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Brunswick 1	10/08/76	03/18/77	1.89E+07	1.29E+07	1.43E+07	1.32E+07	1.37E+07	1.39E+07
Brunswick 2	03/20/75	11/03/75	9.43E+06	1.83E+07	1.24E+07	1.34E+07	1.30E+07	1.18E+07
Clinton 1	02/27/87	11/24/87		2.15E+06	1.86E+07	9.26E+06	1.15E+07	1.92E+07
Cooper	02/21/74	07/01/74	1.26E+07	1.72E+07	1.31E+07	1.50E+07	1.59E+07	1.50E+07
Dresden 1	10/15/59	07/04/60	0.00E+00	0.00E+00				
Dresden 2	01/07/70	06/09/70	1.52E+07	1.11E+07	1.45E+07	1.56E+07	1.35E+07	1.00E+07
Dresden 3	01/31/71	11/16/71	5.04E+06	1.46E+07	1.36E+07	1.67E+07	1.67E+07	9.00E+06
Duane Arnold	03/23/74	02/01/75	4.48E+06	7.96E+06	9.97E+06	1.00E+07	9.64E+06	1.33E+07
Fermi 2	06/21/85	01/23/86	2.23E+05	5.99E+06	1.30E+07	1.63E+07	2.25E+07	1.96E+07
James A. Fitzpatrick	11/17/74	07/28/75	1.84E+07	1.31E+07	1.34E+07	1.88E+07	1.42E+07	1.04E+07
Grand Gulf 1	08/18/82	07/01/85	1.47E+07	2.55E+07	3.05E+07	2.51E+07	2.43E+07	2.98E+07
Edwin I. Hatch 1	09/12/74	12/31/75	1.18E+07	1.65E+07	1.35E+07	2.09E+07	1.35E+07	1.56E+07
Edwin I. Hatch 2	07/04/78	09/05/79	1.19E+07	1.83E+07	1.36E+07	1.35E+07	2.08E+07	1.59E+07
Hope Creek 1	06/28/86	12/20/86	3.62E+06	2.29E+07	2.22E+07	2.10E+07	1.35E+07	2.35E+07
Humboldt Bay 3	02/16/63	08/ /63	0.00E+00	0.00E+00				
LaCrosse	07/11/67	11/01/69	5.58E+05					
LaSalle 1	06/21/82	01/01/84	6.54E+06	1.31E+07	1.69E+07	1.91E+07	2.64E+07	2.10E+07
LaSalle 2	03/10/84	10/19/84	1.80E+07	1.43E+07	1.81E+07	2.04E+07	1.91E+07	2.68E+07
Limerick 1	12/22/84	02/01/86	2.16E+07	1.73E+07	2.19E+07	1.71E+07	1.82E+07	2.59E+07
Limerick 2	08/12/89	01/08/90				3.54E+06	2.29E+07	2.24E+07
Millstone 1	10/26/70	03/01/71	1.61E+07	1.34E+07	1.70E+07	1.42E+07	1.56E+07	5.52E+06
Monticello	12/10/70	06/30/71	1.04E+07	1.10E+07	1.43E+07	8.48E+06	1.40E+07	1.12E+07
Nine Mile Point 1	09/05/69	12/01/69	9.76E+06	1.42E+07	0.00E+00	0.00E+00	4.07E+06	1.19E+07
Nine Mile Point 2	05/23/87	04/05/88		1.53E+06	8.32E+06	1.41E+07	1.34E+07	2.05E+07
Oyster Creek 1	05/03/69	12/01/69	4.12E+06	9.69E+06	1.09E+07	7.75E+06	1.36E+07	9.43E+06
Peach Bottom 2	09/16/73	07/05/74	2.16E+07	4.98E+06	0.00E+00	1.25E+07	2.11E+07	1.61E+07
Peach Bottom 3	08/07/74	12/23/74	1.55E+07	4.76E+06	0.00E+00	8.84E+05	2.37E+07	1.62E+07
Perry 1	06/06/86	11/18/87		2.56E+06	2.23E+07	1.62E+07	2.00E+07	2.75E+07
Pilgrim 1	06/16/72	12/01/72	3.09E+06	0.00E+00	0.00E+00	5.48E+06	1.29E+07	1.04E+07
Quad-Cities 1	10/18/71	02/18/73	1.41E+07	1.42E+07	1.83E+07	1.40E+07	1.70E+07	1.13E+07
Quad-Cities 2	04/26/72	03/10/73	1.52E+07	1.60E+07	1.36E+07	1.85E+07	1.38E+07	1.69E+07
River Bend 1	10/31/85	06/16/86	9.85E+06	1.55E+07	2.25E+07	1.53E+07	1.78E+07	2.11E+07
Shoreham 1	02/15/85							
Susquehanna 1	09/10/82	06/08/83	1.87E+07	1.98E+07	2.65E+07	2.05E+07	2.05E+07	2.78E+07
Susquehanna 2	05/08/84	02/12/85	1.74E+07	2.72E+07	1.87E+07	2.14E+07	2.63E+07	2.23E+07
Vermont Yankee 1	03/24/72	11/30/72	6.57E+06	1.11E+07	1.30E+07	1.13E+07	1.13E+07	1.29E+07
WNP-2	01/19/84	12/13/84	1.61E+07	1.67E+07	1.87E+07	1.92E+07	1.80E+07	1.33E+07
Total			3.58E+08	4.15E+08	4.65E+08	4.80E+08	5.54E+08	5.71E+08
* Fort St. Vrain 1	01/31/74	07/01/79	3.70E+05	6.68E+05	1.95E+06			

* High temperature gas cooled reactor

Table 16

Thermal Energy Generation Comparison By Year

Facility	Megawatt Hours								
	Initial Criticality	Commercial Operation	1972	1973	1974	1975	1976	1977	1978
Pressurized Water Reactors									
Arkansas One 1	08/06/74	12/19/74			1.99E+06	1.54E+07	1.21E+07	1.64E+07	1.64E+07
Arkansas One 2	12/05/78	03/26/80							4.45E+04
Beaver Valley 1	05/10/76	10/01/76					1.97E+06	1.01E+07	8.80E+06
Beaver Valley 2	08/04/87	11/17/87							
Braidwood 1	05/29/87	07/29/88							
Braidwood 2	03/08/88	10/17/88							
Byron 1	02/02/85	09/16/85							
Byron 2	01/09/87	08/21/87							
Callaway 1	10/02/84	12/19/84							
Calvert Cliffs 1	10/07/74	05/08/75				1.40E+07	1.98E+07	2.97E+07	3.14E+07
Calvert Cliffs 2	11/30/76	04/01/77							
Catawba 1	01/07/85	06/29/85							
Catawba 2	05/08/86	08/19/86							
Comanche Peak 1	04/03/90	08/13/90							
Donald C. Cook 1	01/18/75	08/27/75				1.46E+07	2.15E+07	1.55E+07	3.29E+07
Donald C. Cook 2	03/10/78	07/01/78							
Crystal River 3	01/14/77	03/13/77						1.26E+07	7.97E+06
Davis-Besse 1	08/12/77	07/31/78						1.66E+06	8.52E+06
Diablo Canyon 1	04/29/84	05/07/85							
Diablo Canyon 2	08/19/85	03/13/86							
Joseph M. Farley 1	08/09/77	12/01/77							1.95E+07
Joseph M. Farley 2	05/05/81	07/30/81							
Fort Calhoun 1	08/06/73	06/20/74		2.03E+06	7.58E+06	6.71E+06	7.15E+06	9.40E+06	8.98E+06
R. E. Ginna	11/08/69	07/01/70	7.71E+06	1.08E+07	6.71E+06	9.71E+06	6.98E+06	1.11E+07	1.05E+07
Haddam Neck	07/24/67	01/01/68	1.38E+07	7.73E+06	1.42E+07	1.34E+07	1.30E+07	1.31E+07	1.51E+07
Harris 1	01/03/87	05/02/87							
Indian Point 1	08/02/62	10/ /62		1.47E+06	1.15E+07	1.64E+07	7.60E+06	3.50E+07	1.48E+07
Indian Point 2	05/22/73	08/01/74							
Indian Point 3	04/06/76	08/30/76							1.70E+07
Kewaunee	03/07/74	06/16/74			5.03E+06	1.08E+07	1.08E+07	1.11E+07	1.24E+07
Maine Yankee	10/23/72	12/28/72	1.44E+06	1.08E+07	1.14E+07	1.47E+07	1.94E+07	1.65E+07	1.69E+07
McGuire 1	08/08/81	12/01/81							
McGuire 2	05/08/83	03/01/84							
Millstone 2	10/17/75	12/26/75				6.40E+05	1.52E+07	1.42E+07	1.44E+07
Millstone 3	01/23/86	04/23/86							
North Anna 1	04/05/78	06/06/78							1.22E+07
North Anna 2	06/12/80	12/14/80							
Oconee 1	04/19/73	07/15/73		6.62E+06	1.70E+07	4.68E+07	3.97E+07	4.00E+07	4.84E+07
Oconee 2	11/11/73	09/09/74							
Oconee 3	09/05/74	12/16/74							
Palisades	05/24/71	12/31/71	5.91E+06	7.80E+06	4.00E+05	8.91E+06	9.66E+06	1.73E+07	9.44E+06
Palo Verde 1	05/25/85	02/13/86							
Palo Verde 2	04/18/86	09/19/86							
Palo Verde 3	10/25/87	01/08/88							
Point Beach 1	11/02/70	12/21/70	9.96E+06	1.84E+07	2.04E+07	2.09E+07	2.18E+07	2.23E+07	2.33E+07
Point Beach 2	05/30/72	10/01/71							
Prairie Island 1	12/01/73	12/16/73		1.28E+05	5.26E+06	2.25E+07	2.06E+07	2.46E+07	2.52E+07
Prairie Island 2	12/17/74	12/21/74							
Rancho Seco 1	09/16/74	04/17/75				4.11E+06	6.91E+06	1.81E+07	1.59E+07
H. B. Robinson 2	09/20/70	03/07/71	1.55E+07	1.25E+07	1.56E+07	1.36E+07	1.59E+07	1.43E+07	1.33E+07
Salem 1	12/11/76	06/30/77					5.00E+04	6.70E+06	1.43E+07
Salem 2	08/08/80	10/13/81							
San Onofre 1	06/14/67	01/01/68	8.53E+06	7.09E+06	9.73E+06	1.00E+07	7.75E+06	7.29E+06	8.54E+06
San Onofre 2	07/26/82	08/08/83							
San Onofre 3	08/29/83	04/01/84							
Seabrook 1	06/13/89	08/19/90							
Sequoyah 1	07/05/80	07/01/81							
Sequoyah 2	11/05/81	06/01/82							
South Texas 1	03/08/88	08/25/88							
South Texas 2	03/12/89	06/19/89							

Table 16

Thermal Energy Generation Comparison By Year

Facility	Initial		Megawatt Hours						
	Criticality	Commercial Operation	1972	1973	1974	1975	1976	1977	1978
St. Lucie 1	04/22/76	12/21/76					3.50E+05	1.75E+07	1.64E+07
St. Lucie 2	06/02/83	08/08/83							
Summer 1	10/22/82	01/01/84							
Surry 1	07/01/72	12/22/72	1.29E+06	2.26E+07	1.92E+07	2.90E+07	2.51E+07	3.10E+07	3.27E+07
Surry 2	03/07/73	05/01/73							
Three Mile Island 1	06/05/74	09/02/74			6.20E+06	1.76E+07	1.39E+07	1.76E+07	1.83E+07
Three Mile Island 2	03/28/78	12/30/78							3.16E+06
Trojan	12/15/75	05/20/76					7.54E+06	2.12E+07	5.63E+06
Turkey Point 3	10/20/72	12/14/72	2.90E+05	1.53E+07	2.55E+07	2.78E+07	2.68E+07	2.70E+07	2.81E+07
Turkey Point 4	06/11/73	09/07/73							
Vogtle 1	03/09/87	05/31/87							
Vogtle 2	03/28/89	05/20/89							
Waterford 3	03/04/85	09/24/85							
Wolf Creek 1	05/22/85	09/03/85							
Yankee Rowe 1	08/19/60	07/01/61	2.40E+06	3.57E+06	3.07E+06	4.02E+06	4.25E+06	3.52E+06	4.16E+06
Zion 1	06/19/73	12/31/73		2.73E+06	1.69E+07	3.28E+07	3.11E+07	3.66E+07	4.30E+07
Zion 2	12/24/73	09/17/74							
Total			6.68E+07	1.30E+08	1.98E+08	3.54E+08	3.67E+08	5.01E+08	5.58E+08

Table 16

Thermal Energy Generation Comparison By Year

Facility	Megawatt Hours								
	Initial Criticality	Commercial Operation	1979	1980	1981	1982	1983	1984	1985
Pressurized Water Reactors									
Arkansas One 1	08/06/74	12/19/74	1.05E+07	1.29E+07	1.54E+07	1.22E+07	1.02E+07	1.44E+07	1.62E+07
Arkansas One 2	12/05/78	03/26/80	3.45E+06	1.18E+07	1.39E+07	1.25E+07	1.43E+07	1.95E+07	1.50E+07
Beaver Valley 1	05/10/76	10/01/76	6.11E+06	1.13E+06	1.55E+07	8.88E+06	1.51E+07	1.58E+07	1.96E+07
Beaver Valley 2	08/04/87	11/17/87							
Braidwood 1	05/29/87	07/29/88							
Braidwood 2	03/08/88	10/17/88							
Byron 1	02/02/85	09/16/85							3.34E+06
Byron 2	01/09/87	08/21/87							
Callaway 1	10/02/84	12/19/84						1.00E+06	2.49E+07
Calvert Cliffs 1	10/07/74	05/08/75	3.15E+07	1.52E+07	1.96E+07	1.68E+07	1.75E+07	1.96E+07	1.35E+07
Calvert Cliffs 2	11/30/76	04/01/77		2.05E+07	1.71E+07	1.62E+07	1.96E+07	1.69E+07	1.78E+07
Catawba 1	01/07/85	06/29/85							1.07E+07
Catawba 2	05/08/86	08/19/86							
Comanche Peak 1	04/03/90	08/13/90							
Donald C. Cook 1	01/18/75	08/27/75	3.68E+07	2.02E+07	2.11E+07	1.69E+07	1.68E+07	2.41E+07	6.83E+06
Donald C. Cook 2	03/10/78	07/01/78		2.14E+07	2.04E+07	2.22E+07	2.22E+07	1.70E+07	1.82E+07
Crystal River 3	01/14/77	03/13/77	1.17E+07	1.04E+07	1.27E+07	1.52E+07	1.14E+07	1.97E+07	1.17E+07
Davis-Besse 1	08/12/77	07/31/78	1.00E+07	6.71E+06	1.40E+07	1.03E+07	1.57E+07	1.39E+07	6.31E+06
Diablo Canyon 1	04/29/84	05/07/85						9.48E+05	1.66E+07
Diablo Canyon 2	08/19/85	03/13/86							2.12E+06
Joseph M. Farley 1	08/09/77	12/01/77	5.77E+06	1.54E+07	8.96E+06	1.75E+07	1.76E+07	1.78E+07	1.90E+07
Joseph M. Farley 2	05/05/81	07/30/81			9.47E+06	1.75E+07	1.99E+07	2.15E+07	1.74E+07
Fort Calhoun 1	08/06/73	06/20/74	1.16E+07	6.48E+06	6.98E+06	1.09E+07	9.14E+06	7.43E+06	9.56E+06
R. E. Ginna	11/08/69	07/01/70	9.35E+06	9.93E+06	1.07E+07	7.68E+06	9.67E+06	1.00E+07	1.14E+07
Haddam Neck	07/24/67	01/01/68	1.32E+07	1.14E+07	1.31E+07	1.45E+07	1.22E+07	1.08E+07	1.49E+07
Harris 1	01/03/87	05/02/87							
Indian Point 1	08/02/62	10/1/62	1.61E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Indian Point 2	05/22/73	08/01/74		1.50E+07	1.05E+07	1.51E+07	1.96E+07	1.17E+07	2.21E+07
Indian Point 3	04/06/76	08/30/76	1.57E+07	1.15E+07	1.14E+07	5.06E+06	2.82E+05	1.93E+07	1.51E+07
Kewaunee	03/07/74	06/16/74	1.09E+07	1.15E+07	1.21E+07	1.23E+07	1.19E+07	1.21E+07	1.16E+07
Maine Yankee	10/23/72	12/28/72	1.41E+07	1.41E+07	1.67E+07	1.47E+07	1.83E+07	1.62E+07	1.67E+07
McGuire 1	08/08/81	12/01/81			8.50E+04	1.34E+07	1.39E+07	1.94E+07	2.06E+07
McGuire 2	05/08/83	03/01/84					0.00E+00	1.94E+07	1.68E+07
Millstone 2	10/17/75	12/26/75	1.38E+07	1.55E+07	1.92E+07	1.60E+07	7.88E+06	2.14E+07	1.12E+07
Millstone 3	01/23/86	04/23/86							
North Anna 1	04/05/78	06/06/78	1.41E+07	1.89E+07	1.51E+07	7.95E+06	1.68E+07	1.18E+07	1.81E+07
North Anna 2	06/12/80	12/14/80		1.12E+06	1.77E+07	1.29E+07	1.87E+07	1.51E+07	2.16E+07
Oconee 1	04/19/73	07/15/73	4.37E+07	1.52E+07	9.00E+06	1.57E+07	1.72E+07	1.86E+07	2.14E+07
Oconee 2	11/11/73	09/09/74		1.20E+07	1.59E+07	1.06E+07	1.58E+07	2.23E+07	1.56E+07
Oconee 3	09/05/74	12/16/74		1.59E+07	1.72E+07	6.53E+06	2.14E+07	1.63E+07	1.49E+07
Palisades	05/24/71	12/31/71	1.20E+07	8.19E+06	1.17E+07	1.12E+07	1.27E+07	2.72E+06	1.75E+07
Palo Verde 1	05/25/85	02/13/86							4.39E+06
Palo Verde 2	04/18/86	09/19/86							
Palo Verde 3	10/25/87	01/08/88							
Point Beach 1	11/02/70	12/21/70	2.08E+07	8.09E+06	8.51E+06	8.60E+06	7.59E+06	9.41E+06	1.02E+07
Point Beach 2	05/30/72	10/01/71		1.11E+07	1.15E+07	1.13E+07	9.58E+06	1.09E+07	1.11E+07
Prairie Island 1	12/01/73	12/16/73	1.12E+08	1.06E+07	1.25E+07	1.27E+07	1.24E+07	1.33E+07	1.18E+07
Prairie Island 2	12/17/74	12/21/74		1.14E+07	1.01E+07	1.26E+07	1.19E+07	1.24E+07	1.15E+07
Rancho Seco 1	09/16/74	04/17/75	1.79E+07	1.39E+07	8.92E+06	1.09E+07	9.16E+06	1.21E+07	6.26E+06
H. B. Robinson 2	09/20/70	03/07/71	1.30E+07	1.97E+07	1.19E+07	7.67E+06	1.13E+07	7.84E+05	1.66E+07
Salem 1	12/11/76	06/30/77	6.80E+06	1.84E+07	2.02E+07	1.31E+07	1.67E+07	6.95E+06	2.77E+07
Salem 2	08/08/80	10/13/81		0.00E+00	5.11E+06	2.54E+07	2.95E+06	1.03E+07	1.60E+07
San Onofre 1	06/14/67	01/01/68	1.05E+07	2.55E+06	2.59E+06	1.59E+06	0.00E+00	9.24E+05	8.12E+06
San Onofre 2	07/26/82	08/08/83					9.28E+05	1.23E+07	1.66E+07
San Onofre 3	08/29/83	04/01/84					3.55E+06	1.29E+07	1.21E+07
Seabrook 1	06/13/89	08/19/90							
Sequoyah 1	07/05/80	07/01/81		1.67E+06	8.06E+06	1.52E+07	2.22E+07	1.92E+07	1.24E+07
Sequoyah 2	11/05/81	06/01/82					2.03E+07	1.96E+07	1.71E+07
South Texas 1	03/08/88	08/25/88							
South Texas 2	03/12/89	06/19/89							

Table 16

Thermal Energy Generation Comparison By Year

Pressurized Water Reactors									
Facility	Initial	Commercial	Megawatt Hours						
	Criticality	Operation	1979	1980	1981	1982	1983	1984	1985
St. Lucie 1	04/22/76	12/21/76	1.60E+07	1.70E+07	1.61E+07	2.18E+07	3.53E+06	1.35E+07	1.88E+07
St. Lucie 2	06/02/83	08/08/83					7.66E+06	1.77E+07	1.93E+07
Summer 1	10/22/82	01/01/84				7.95E+05	1.38E+07	1.33E+07	1.65E+07
Surry 1	07/01/72	12/22/72	9.32E+06	8.67E+06	7.94E+06	1.83E+07	1.22E+07	1.11E+07	1.79E+07
Surry 2	03/07/73	05/01/73		7.26E+06	1.68E+07	1.79E+07	1.35E+07	1.73E+07	1.33E+07
Three Mile Island 1	06/05/74	09/02/74	2.83E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.82E+06
Three Mile Island 2	03/28/78	12/30/78	N/R	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trojan	12/15/75	05/20/76	1.70E+07	1.97E+07	2.10E+07	1.56E+07	1.34E+07	1.54E+07	2.25E+07
Turkey Point 3	10/20/72	12/14/72	2.28E+07	1.47E+07	3.03E+06	1.22E+07	1.41E+07	1.56E+07	1.11E+07
Turkey Point 4	06/11/73	09/07/73		1.32E+07	1.48E+07	1.27E+07	9.83E+06	1.04E+07	1.69E+07
Vogtle 1	03/09/87	05/31/87							
Vogtle 2	03/28/89	05/20/89							
Waterford 3	03/04/85	09/24/85							5.64E+06
Wolf Creek 1	05/22/85	09/03/85							8.87E+06
Yankee Rowe 1	03/19/60	07/01/61	4.17E+06	1.13E+06	3.63E+06	3.89E+06	4.69E+06	3.61E+06	4.19E+06
Zion 1	06/10/73	12/31/73	3.31E+07	2.22E+07	1.98E+07	1.52E+07	1.34E+07	1.83E+07	1.85E+07
Zion 2	12/24/73	09/17/74		1.75E+07	1.77E+07	1.71E+07	2.00E+07	1.92E+07	2.16E+07
Total			5.76E+08	5.12E+08	5.76E+08	5.96E+08	6.52E+08	7.37E+08	8.58E+08

N/R = Not Reported

Table 16

Thermal Energy Generation Comparison By Year

Facility	Megawatt Hours							
	Initial Criticality	Commercial Operation	1986	1987	1988	1989	1990	1991
Pressurized Water Reactors								
Arkansas One 1	08/06/74	12/19/74	1.11E+07	1.51E+07	1.24E+07	1.07E+07	1.30E+07	2.01E+07
Arkansas One 2	12/05/78	03/26/80	1.68E+07	2.10E+07	1.58E+07	1.76E+07	2.26E+07	1.94E+07
Beaver Valley 1	05/10/76	10/01/76	1.55E+07	1.84E+07	1.64E+07	1.27E+07	2.02E+07	1.22E+07
Beaver Valley 2	08/04/87	11/17/87		2.39E+06	2.13E+07	1.51E+07	1.43E+07	2.22E+07
Braidwood 1	05/29/87	07/29/88		5.02E+06	1.04E+07	1.44E+07	2.48E+07	1.53E+07
Braidwood 2	03/08/88	10/17/88			4.08E+06	2.18E+07	1.95E+07	2.00E+07
Byron 1	02/02/85	09/16/85	2.32E+07	1.71E+07	1.99E+07	2.77E+07	2.16E+07	1.99E+07
Byron 2	01/09/87	08/21/87		6.47E+06	2.04E+07	1.87E+07	1.87E+07	2.72E+07
Callaway 1	10/02/84	12/19/84	2.26E+07	1.98E+07	2.76E+07	3.15E+07	2.45E+07	3.04E+07
Calvert Cliffs 1	10/07/74	05/08/75	1.82E+07	1.65E+07	1.62E+07	4.23E+06	4.34E+06	1.73E+07
Calvert Cliffs 2	11/30/76	04/01/77	2.18E+07	1.50E+07	2.07E+07	1.45E+06	0.00E+00	1.17E+07
Catawba 1	01/07/85	06/29/85	1.59E+07	1.95E+07	2.29E+07	2.36E+07	2.08E+07	2.02E+07
Catawba 2	05/08/86	08/19/86	4.04E+06	2.17E+07	1.88E+07	1.95E+07	1.93E+07	2.18E+07
Comanche Peak 1	04/03/90	08/13/90					8.16E+06	1.72E+07
Donald C. Cook 1	01/18/75	08/27/75	2.16E+07	1.64E+07	2.42E+07	1.74E+07	2.05E+07	2.38E+07
Donald C. Cook 2	03/10/78	07/01/78	1.44E+07	1.65E+07	7.41E+06	2.13E+07	1.53E+07	2.65E+07
Crystal River 3	01/14/77	03/13/77	8.14E+06	1.11E+07	1.78E+07	9.14E+06	1.28E+07	1.68E+07
Davis-Besse 1	08/12/77	07/31/78	1.29E+05	1.65E+07	3.91E+06	2.35E+07	1.32E+07	1.85E+07
Diablo Canyon 1	04/29/84	05/07/85	1.70E+07	2.54E+07	1.66E+07	2.25E+07	2.72E+07	2.31E+07
Diablo Canyon 2	08/19/85	03/13/86	2.11E+07	1.82E+07	1.98E+07	2.69E+07	2.39E+07	2.45E+07
Joseph M. Farley 1	08/09/77	12/01/77	1.85E+07	2.11E+07	1.92E+07	1.96E+07	2.25E+07	1.78E+07
Joseph M. Farley 2	05/05/81	07/30/81	1.91E+07	1.80E+07	2.29E+07	1.81E+07	1.69E+07	2.18E+07
Fort Calhoun 1	08/06/73	06/20/74	1.13E+07	9.48E+06	8.34E+06	1.07E+07	7.67E+06	1.03E+07
R. E. Ginna	11/08/69	07/01/70	1.13E+07	1.19E+07	1.10E+07	9.65E+06	1.07E+07	1.09E+07
Haddam Neck	07/24/67	01/01/68	7.26E+06	8.39E+06	1.06E+07	9.47E+06	3.81E+06	1.19E+07
Harris 1	01/03/87	05/02/87		1.12E+07	1.71E+07	1.83E+07	2.05E+07	1.89E+07
Indian Point 1	08/02/62	10/ /62	0.00E+00	0.00E+00				
Indian Point 2	05/22/73	08/01/74	1.29E+07	1.71E+07	1.95E+07	1.45E+07	1.66E+07	1.29E+07
Indian Point 3	04/06/76	08/30/76	1.77E+07	1.56E+07	2.14E+07	1.55E+07	1.57E+07	2.25E+07
Kewaunee	03/07/74	06/16/74	1.21E+07	1.26E+07	1.22E+07	1.18E+07	1.24E+07	1.16E+07
Maine Yankee	10/23/72	12/28/72	1.93E+07	1.31E+07	1.67E+07	2.11E+07	1.50E+07	1.94E+07
McGuire 1	08/08/81	12/01/81	1.56E+07	2.21E+07	2.26E+07	2.38E+07	1.48E+07	2.08E+07
McGuire 2	05/08/83	03/01/84	1.96E+07	2.25E+07	2.41E+07	2.19E+07	1.93E+07	2.84E+07
Millstone 2	10/17/75	12/26/75	1.66E+07	2.18E+07	1.81E+07	1.55E+07	1.69E+07	1.25E+07
Millstone 3	01/23/86	04/23/86	2.17E+07	2.05E+07	2.33E+07	2.17E+07	2.52E+07	8.88E+06
North Anna 1	04/05/78	06/06/78	1.98E+07	1.14E+07	2.20E+07	1.37E+07	2.31E+07	1.80E+07
North Anna 2	06/12/80	12/14/80	1.92E+07	1.80E+07	2.50E+07	1.88E+07	1.91E+07	2.46E+07
Oconee 1	04/19/73	07/15/73	1.46E+07	1.56E+07	2.21E+07	1.82E+07	1.96E+07	1.83E+07
Oconee 2	11/11/73	09/09/74	1.79E+07	1.93E+07	1.72E+07	1.84E+07	1.90E+07	2.23E+07
Oconee 3	09/05/74	12/16/74	1.88E+07	1.55E+07	1.80E+07	1.94E+07	2.23E+07	1.69E+07
Palisades	05/24/71	12/31/71	2.76E+06	8.83E+06	1.14E+07	1.21E+07	1.01E+07	1.59E+07
Palo Verde 1	05/25/85	02/13/86	1.82E+07	1.61E+07	2.03E+07	5.57E+06	1.45E+07	2.85E+07
Palo Verde 2	04/18/86	09/19/86	7.02E+06	2.49E+07	2.07E+07	1.47E+07	1.91E+07	2.52E+07
Palo Verde 3	10/25/87	01/08/88		1.24E+06	3.03E+07	4.10E+06	2.92E+07	2.29E+07
Point Beach 1	11/02/70	12/21/70	1.15E+07	1.09E+07	1.17E+07	1.11E+07	1.09E+07	1.12E+07
Point Beach 2	05/30/72	10/01/71	1.06E+07	1.11E+07	1.14E+07	1.06E+07	1.16E+07	1.13E+07
Prairie Island 1	12/01/73	12/16/73	1.22E+07	1.14E+07	1.23E+07	1.40E+07	1.23E+07	1.26E+07
Prairie Island 2	12/17/74	12/21/74	1.23E+07	1.41E+07	1.26E+07	1.25E+07	1.22E+07	1.43E+07
Rancho Seco 1	09/16/74	04/17/75	0.00E+00	0.00E+00	9.47E+06	4.62E+06	0.00E+00	0.00E+00
H. B. Robinson 2	09/20/70	03/07/71	1.52E+07	1.35E+07	1.06E+07	8.86E+06	1.08E+07	1.53E+07
Salem 1	12/11/76	06/30/77	2.24E+07	1.96E+07	2.32E+07	1.97E+07	1.90E+07	2.14E+07
Salem 2	08/08/80	10/13/81	1.74E+07	1.96E+07	1.90E+07	2.44E+07	1.69E+07	2.41E+07
San Onofre 1	06/14/67	01/01/68	3.00E+06	8.82E+06	4.52E+06	3.92E+06	5.04E+06	6.74E+06
San Onofre 2	07/26/82	08/08/83	2.01E+07	1.93E+07	2.75E+07	1.63E+07	2.55E+07	1.80E+07
San Onofre 3	08/29/83	04/01/84	2.13E+07	2.32E+07	1.89E+07	2.73E+07	2.04E+07	2.70E+07
Seabrook 1	06/13/89	08/19/90					1.26E+07	2.05E+07
Sequoyah 1	07/05/80	07/01/81	0.00E+00	0.00E+00	5.16E+05	2.88E+07	2.10E+07	2.23E+07
Sequoyah 2	11/05/81	06/01/82	0.00E+00	0.00E+00	1.26E+07	2.88E+07	2.19E+07	2.87E+07
South Texas 1	03/08/88	08/25/88			8.81E+06	1.99E+07	1.90E+07	2.25E+07
South Texas 1	03/12/89	06/19/89				9.52E+06	2.02E+07	2.27E+07

Table 16

Thermal Energy Generation Comparison By Year

Facility	Megawatt Hours							
	Initial Criticality	Commercial Operation	1986	1987	1988	1989	1990	1991
St. Lucie 1	04/22/76	12/21/76	2.23E+07	1.81E+07	1.97E+07	2.19E+07	1.43E+07	1.85E+07
St. Lucie 2	06/02/83	08/08/83	1.94E+07	1.90E+07	2.35E+07	1.73E+07	1.70E+07	2.33E+07
Summer 1	10/22/82	01/01/84	2.26E+07	1.64E+07	1.61E+07	1.76E+07	1.93E+07	1.69E+07
Surry 1	07/01/72	12/22/72	1.42E+07	1.47E+07	8.45E+06	9.95E+06	1.51E+07	2.09E+07
Surry 2	03/07/73	05/01/73	1.45E+07	1.54E+07	1.16E+07	2.87E+06	1.85E+07	1.27E+07
Three Mile Island 1	06/05/74	09/02/74	1.56E+07	1.56E+07	1.69E+07	2.22E+07	1.69E+07	1.74E+07
Three Mile Island 2	03/28/78	12/30/73	0.00E+00	0.00E+00				
Trojan	12/15/75	05/20/76	2.29E+07	1.39E+07	1.68E+07	1.73E+07	1.90E+07	4.72E+06
Turkey Point 3	10/20/72	12/14/72	1.46E+07	2.96E+06	1.14E+07	1.18E+07	1.12E+07	4.34E+07
Turkey Point 4	06/11/73	09/07/73	5.73E+06	8.69E+06	1.06E+07	7.14E+06	1.44E+07	2.68E+07
Vogtle 1	03/09/87	05/31/87		1.27E+07	2.18E+07	2.76E+07	2.32E+07	2.33E+07
Vogtle 2	03/28/89	05/20/89				1.72E+07	2.17E+07	2.75E+07
Waterford 3	03/04/85	09/24/85	2.27E+07	2.31E+07	2.06E+07	2.37E+07	2.69E+07	2.29E+07
Wolf Creek 1	05/22/85	09/03/85	2.09E+07	1.97E+07	2.01E+07	2.88E+07	2.36E+07	1.80E+07
Yankee Rowe 1	08/19/60	07/01/61	4.90E+06	4.03E+06	4.03E+06	4.66E+06	2.94E+06	3.53E+06
Zion 1	06/19/73	12/31/73	1.88E+07	1.88E+07	1.97E+07	1.56E+07	1.41E+07	1.34E+07
Zion 2	12/24/73	09/17/74	2.30E+07	1.61E+07	2.08E+07	2.40E+07	8.42E+06	1.61E+07
Total			9.38E+08	1.01E+09	1.18E+09	1.21E+09	1.24E+09	1.42E+09

APPENDIX A

Installation: Arkansas One
Unit No.: 1

Location: 6 Mi WNW Russellville, AR

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-313
Thermal Power (MWH): 2.01E+07
Commercial Operation: 12/19/74
Cooling Water Source: Dardanelle Reservoir

Licensee: Arkansas Power & Light
Licensed Power (MWT): 2.57E+03
Net Electrical Power (MWH): 6.54E+06
Initial Criticality: 08/06/74

Airborne Effluents

Nuclide Released	Activity (Ci)
NA-24	5.55E-04
CO-58	5.11E-05
CO-60	5.16E-07
KR-85	4.68E+00
KR-85M	7.64E-01
SR-89	1.07E-05
SR-90	1.72E-07
SB-122	4.60E-07
I-131	7.30E-04
XE-131M	8.98E-04
I-133	2.97E-04
XE-133	4.78E+02
XE-133M	5.67E-01
CS-134	1.63E-03
XE-135	1.14E+01
CS-136	3.77E-05
CS-137	4.83E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	3.62E-04
NA-24	3.90E-02
K-40	2.46E-04
AR-41	6.78E-04
CR-51	9.40E-03
MN-54	7.10E-02
FE-55	2.25E-01
CO-57	5.38E-04
CO-58	3.54E-01
FE-59	1.40E-03
CO-60	3.28E-02
ZN-65	1.19E-03
KR-85	1.08E+00
KR-85M	1.62E-02
KR-88	6.92E-04
RB-88	3.54E-03
Y-88	2.49E-05
SR-89	1.70E-02
SR-92	1.15E-03
NB-95	7.43E-03
ZR-95	4.64E-03
NB-97	1.23E-04
ZR-97	3.65E-05
MO-99	4.24E-04

Installation: Arkansas One
Unit No.: 1

Location: 6 Mi WNW Russellville, AR

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
TC-99M	8.44E-04	
RU-103	1.32E-04	
AG-110M	3.66E-02	
SN-113	4.07E-04	
SB-122	4.58E-05	
SB-124	1.54E-04	
SB-125	1.86E-02	
SB-127	4.09E-05	
I-131	9.01E-02	
XE-131M	3.70E-01	
I-132	6.22E-05	
I-133	4.10E-03	
XE-133	1.55E+01	
XE-133M	1.89E-02	
CS-134	7.20E-02	
I-134	7.75E-06	
I-135	4.93E-04	
XE-135	3.14E-02	
XE-135M	4.55E-02	
CS-136	1.72E-04	
CS-137	1.20E-01	
LA-140	5.37E-03	
BI-214	1.66E-03	
RA-226	4.54E-06	
Total Airborne Tritium Released		1.43E+01 Ci
Total Liquid Tritium Released		5.18E+02 Ci
Volume of Waste Released (Prior to Dilution)		2.28E+07 liters
Volume of Dilution Water Used During Period		3.50E+11 liters

Installation: Arkansas One
Unit No.: 2

Location: 6 Mi WNW Russellville, AR

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-368
Thermal Power(MWH): 1.94E+07
Commercial Operation: 03/26/80
Cooling Water Source: Dardanelle Reservoir

Licensee: Arkansas Power & Light
Licensed Power(MWT): 2.57E+03
Net Electrical Power(MWH): 6.12E+06
Initial Criticality: 12/05/78

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.68E-04
CR-51	4.08E-03
MN-54	1.87E-04
CO-58	1.09E-02
CO-60	4.70E-04
KR-85	5.44E+00
KR-85M	1.24E+00
KR-87	2.69E-04
KR-88	4.39E-04
RB-88	5.33E-04
SR-89	4.36E-06
NB-95	2.42E-03
ZR-95	1.48E-03
NB-97	3.53E-05
AG-110M	6.96E-04
SB-122	5.20E-05
I-131	1.47E-03
XE-131M	1.76E+00
I-132	2.26E-06
I-133	9.46E-05
XE-133	1.53E+03
XE-133M	7.96E+00
CS-134	9.25E-03
XE-135	3.82E+01
XE-135M	8.83E-04
CS-137	1.41E-02
CS-138	1.41E-04
XE-138	2.98E-04

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	2.25E-03
K-40	2.50E-03
AR-41	1.49E-03
CR-51	7.29E-02
MN-54	1.99E-02
FE-55	9.13E-02
CO-57	8.94E-04
CO-58	3.97E-01
FE-59	2.40E-03
CO-60	4.12E-02
KR-85	7.07E-02
KR-85M	6.80E-02
KR-87	7.66E-04

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
KR-88	3.88E-02
RB-88	8.23E-01
Y-88	3.39E-04
SR-89	4.42E-03
MO-90	1.46E-04
SR-90	2.80E-03
SR-92	8.70E-03
Y-92	8.93E-05
NB-95	3.32E-02
ZR-95	2.19E-02
NB-97	1.00E-03
ZR-97	3.43E-04
MO-99	1.34E-02
TC-99M	1.84E-02
RU-103	9.23E-04
RU-106	1.18E-03
AG-110M	1.25E-01
SN-113	1.86E-03
SB-122	5.90E-03
SB-124	9.66E-03
SB-125	1.47E-01
SB-127	1.72E-04
I-131	4.37E-01
XE-131M	1.80E+00
I-132	9.38E-03
TE-132	3.60E-03
BA-133	1.16E-04
I-133	3.46E-02
XE-133	1.92E+02
XE-133M	6.82E+00
CS-134	1.52E-01
I-134	3.04E-04
I-135	4.15E-03
XE-135	2.63E+00
XE-135M	4.66E-03
CS-136	2.40E-02
CS-137	2.11E-01
CS-138	2.21E-03
BA-140	8.83E-05
LA-140	2.78E-03
CE-144	8.59E-05
BI-214	3.17E-05

Total Airborne Tritium Released	9.19E+00 Ci
Total Liquid Tritium Released	9.40E+02 Ci
Volume of Waste Released (Prior to Dilution)	8.62E+06 liters
Volume of Dilution Water Used During Period	3.50E+11 liters

Installation: Arkansas One
Unit No.: 1&2

Location: 6 Mi WNW Russellville, AR

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR Licensee: Arkansas Power & Light
Docket Number: 50-313 Licensed Power(MWT): 2.57E+03
Thermal Power(MWH): 2.01E+07 Net Electrical Power(MWH): 6.54E+06
Commercial Operation: 12/19/74 Initial Criticality: 08/06/74
Cooling Water Source: Dardanelle Reservoir

Unit Number: 2 Type: PWR Licensee: Arkansas Power & Light
Docket Number: 50-368 Licensed Power(MWT): 2.57E+03
Thermal Power(MWH): 1.94E+07 Net Electrical Power(MWH): 6.12E+06
Commercial Operation: 03/26/80 Initial Criticality: 12/05/78
Cooling Water Source: Dardanelle Reservoir

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
7	Cask Shipment	Hanford, WA
11	Unshielded Van/Truck	Hanford, WA
24	Unshielded Van/Truck	Oak Ridge, TN
1	Unshielded Van/Truck	Wampum, PA

Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
1	spent fuel cask	Studsvik, Sweden

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
C-14		1.59E+00
CO-58		1.20E+01
CO-60		7.39E+00
CR-51		9.30E-01
CS-134		7.77E+00
CS-137		1.93E+01
FE-55		2.18E+01
MN-54		1.05E+00
NB-95		1.16E+00
NI-63		2.44E+01
B		
AG-110M		3.40E-01
C-14	2.80E+00	3.29E+00
CO-58	1.59E+01	1.56E+01
CO-60	6.90E+00	5.95E+00
CS-134	9.50E+00	9.22E+00
CS-137	3.29E+01	3.12E+01
FE-55	1.96E+01	2.12E+01
MN-54	1.00E-01	
NB-95	9.00E-02	4.80E-01
NI-63	1.20E+01	1.20E+01
ZR-95	7.00E-02	3.50E-01

Installation: Arkansas One
Unit No.: 1&2

Location: 6 Mi WNW Russellville, AR

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.91E+02 Ci 5.74E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.27E+02 Ci 2.92E+01	compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Beaver Valley
Unit No.: 1

Location: Shippingport, PA

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-334
Thermal Power(MWH): 1.22E+07
Commercial Operation: 10/01/76
Cooling Water Source: Ohio River

Licensee: Duquesne Light
Licensed Power(MWT): 2.65E+03
Net Electrical Power(MWH): 3.70E+06
Initial Criticality: 05/10/76

Airborne Effluents (Ground Level Releases)

Nuclide Released	Activity (Ci)
MN-54	7.01E-05
CO-58	2.65E-03
CO-60	1.66E-04
KR-85	5.25E+00
KR-85M	1.93E-01
SR-90	4.23E-07
NB-95	7.99E-06
NB-95M	1.52E-06
I-131	7.10E-03
XE-131M	1.86E+00
I-133	3.09E-04
XE-133	1.01E+02
XE-133M	4.64E-01
XE-135	1.89E+00
CS-137	1.26E-04
CE-141	3.33E-06

Installation: Beaver Valley
Unit No.: 2

Location: Shippingport, PA

Effluent and Waste Disposal Annual Report for 1991

Type: PWR

Docket Number: 50-412

Thermal Power(MWH): 2.22E+07

Commercial Operation: 11/17/87

Cooling Water Source: Ohio River

Licensee: Duquesne Light

Licensed Power(MWT): 2.65E+03

Net Electrical Power(MWH): 6.76E+06

Initial Criticality: 08/04/87

Airborne Effluents (Ground Level Releases)

Nuclide Released	Activity (Ci)
AR-41	1.36E-01
CO-58	8.42E-06
CO-60	4.46E-06
KR-85	5.19E+00
SR-89	1.71E-06
SR-90	3.60E-08
NB-95M	4.75E-07
XE-131M	3.10E+00
XE-133	7.91E+00
XE-133M	1.88E+00
XE-135	6.73E-03

Installation: Beaver Valley
Unit No.: 1&2

Location: Shippingport, PA

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-334
Thermal Power(MWH): 1.22E+07
Commercial Operation: 10/01/76
Cooling Water Source: Ohio River
Unit Number: 2 Type: PWR
Docket Number: 50-412
Thermal Power(MWH): 2.22E+07
Commercial Operation: 11/17/87
Cooling Water Source: Ohio River

Licensee: Duquesne Light
Licensed Power(MWT): 2.65E+03
Net Electrical Power(MWH): 3.70E+06
Initial Criticality: 05/10/76

Licensee: Duquesne Light
Licensed Power(MWT): 2.65E+03
Net Electrical Power(MWH): 6.76E+06
Initial Criticality: 08/04/87

Airborne Effluents (Elevated Releases)

Nuclide Released	Activity (Ci)
AR-41	9.86E-05
CO-58	9.56E-06
KR-85	9.37E-01
I-131	4.44E-05
XE-131M	3.07E-01
I-133	1.53E-06
XE-133	1.93E+01
XE-133M	1.12E-01
XE-135	2.65E-02

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	4.03E-03
AR-41	2.67E-05
CR-51	4.89E-03
MN-54	6.10E-03
FE-55	1.02E-01
CO-57	1.11E-03
CO-58	8.54E-02
FE-59	1.02E-03
CO-60	8.27E-02
KR-85	7.11E-04
SR-89	4.98E-05
SR-90	4.69E-06
ZR-NB-95	3.32E-03
NB-97	2.89E-03
AG-110M	2.61E-03
SB-124	8.90E-04
SB-125	1.60E-02
I-131	2.46E-05
I-133	5.90E-06
XE-133	6.05E-04
XE-135	7.81E-05
CS-137	6.65E-04

Total Airborne Tritium Released	1.34E+02 Ci
Total Liquid Tritium Released	4.85E+02 Ci
Volume of Waste Released (Prior to Dilution)	5.68E+06 liters
Volume of Dilution Water Used During Period	4.00E+10 liters

Installation: Beaver Valley
Unit No.: 1&2

Location: Shippingport, PA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-334
Thermal Power(MWH): 1.22E+07
Commercial Operation: 10/01/76
Cooling Water Source: Ohio River

Licensee: Duquesne Light
Licensed Power(MWT): 2.65E+03
Net Electrical Power(MWH): 3.70E+06
Initial Criticality: 05/10/76

Unit Number: 2 Type: PWR
Docket Number: 50-412
Thermal Power(MWH): 2.22E+07
Commercial Operation: 11/17/87
Cooling Water Source: Ohio River

Licensee: Duquesne Light
Licensed Power(MWT): 2.65E+03
Net Electrical Power(MWH): 6.76E+06
Initial Criticality: 08/04/87

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
7	Truck	Barnwell, SC
3	Truck	Beatty, NV
30	Truck	Oak Ridge, TN
6	Truck	Wampum, PA

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

AG-110M
AM-241
BA-140
C-14
CE-141
CE-144/PR-144
CM-242
CM-243/244
CO-57
CO-58
CO-60
CR-51
CS-134
CS-137
FE-55
FE-59
H-3
I-129
I-131
MN-54
NB-94
NB-95
NI-59
NI-63
P-32
PU-238
PU-239/240
PU-241

	Jan-June	Jul-Dec
	3.10E-03	2.32E-03
	1.62E-04	1.29E-04
	1.43E-02	2.84E-09
	7.84E-02	1.54E-01
	6.51E-04	
	2.53E-03	3.20E-04
	9.33E-05	1.61E-04
	2.86E-04	1.35E-04
	2.02E-01	1.37E-01
	4.05E+01	3.96E+00
	2.28E+01	4.80E+01
	1.23E+00	1.25E-02
	2.23E+00	3.12E-03
	3.33E+00	1.76E-01
	1.11E+01	2.36E+01
	1.35E-01	6.76E-05
	1.51E-01	1.49E-01
	3.02E-03	2.31E-03
	1.03E+00	
	2.28E+00	6.36E-01
	4.42E-04	3.84E-03
	1.18E-01	2.82E-02
	1.16E-01	1.13E-01
	1.29E+01	2.29E+01
	1.79E-04	3.75E-05
	6.42E-04	3.65E-04
	3.44E-04	2.02E-04
	4.82E-02	2.41E-02

Installation: Beaver Valley
Unit No.: 1&2

Location: Shippingport, PA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

A

RU-RH-106	2.15E-03	
SB-124	7.76E-01	
SB-125	5.66E-01	4.34E-02
SN-113	3.41E-01	9.43E-04
SR-89	7.92E-02	4.17E-05
SR-90	2.69E-02	6.58E-04
TC-99	8.45E-05	1.40E-03
ZN-65	2.85E-02	6.52E-05
ZR-95	5.35E-04	5.21E-02

B

AG-110M		1.43E-02
AM-241	7.26E-04	1.18E-03
BA-133		8.39E-07
BA-140		3.62E-22
C-14	5.69E-01	2.56E+00
CE-141	9.99E-07	
CE-144/PR-144	2.25E-02	
CM-242	1.42E-03	3.07E-05
CM-243/244	1.12E-03	1.79E-03
CO-57	1.17E-01	2.13E-02
CO-58	3.31E+01	4.60E+00
CO-60	1.63E+01	1.48E+01
CR-51	2.51E-01	
CS-134	1.08E+00	1.31E+00
CS-137	4.56E+00	5.73E+00
FE-55	6.93E+00	1.94E+01
FE-59	4.82E-02	1.10E-07
H-3	1.64E+01	4.13E+00
I-129	2.66E-02	3.16E-02
I-131		7.68E-13
MN-54	1.60E+00	4.43E-01
NB-95	4.70E-01	2.54E-02
NI-59	4.21E+00	4.75E-01
NI-63	1.12E+01	4.53E+01
P-32	7.27E-03	3.71E-03
PU-238	2.23E-03	2.52E-03
PU-239/240	1.22E-03	1.49E-03
PU-241	1.90E-01	
RU-103	3.11E-03	
SB-124	1.10E-04	9.17E-05
SB-125	2.22E+00	9.56E-01
SN-113	2.65E-02	
SR-89	3.19E-03	1.51E-05
SR-90	9.02E-04	7.47E-02
TC-99	4.09E-02	4.18E-02
TH-230		1.55E-07
ZN-65	2.83E-02	
ZR-95	5.96E-01	8.86E-05

Installation: Beaver Valley
Unit No.: 1&2

Location: Shippingport, PA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.41E+02	before volume reduction
	m3 9.65E+01	burial volume
	Ci 1.05E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.09E+03	before volume reduction
	m3 7.78E+01	burial volume
	Ci 3.07E+01	
C. Irradiated Components, Control Rods, etc.	m3	
	Ci	
D. Other (describe)	m3	
	Ci	

Installation: Big Rock Point
Unit No.: 1

Location: 4 Mi NE Charlevoix, MI

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-155
Thermal Power(MWH): 1.63E+06
Commercial Operation: 03/29/63
Cooling Water Source: Lake Michigan

Licensee: Consumers Power
Licensed Power(MWT): 2.40E+02
Net Electrical Power(MWH): 4.92E+05
Initial Criticality: 09/27/62

Airborne Effluents

Nuclide Released	Activity (Ci)
CR-51	5.47E-04
MN-54	7.42E-05
CO-58	2.90E-06
FE-59	1.29E-05
CO-60	1.09E-04
ZN-65	2.26E-05
KR-85M	6.80E+01
KR-87	3.59E+02
KR-86	2.19E+02
SR-89	2.33E-04
SR-90	4.71E-06
AG-110M	3.78E-05
I-131	1.32E-03
I-133	9.41E-03
XE-133	2.75E+01
I-135	7.56E-04
XE-135	3.18E+02
XE-135M	6.77E+02
CS-137	1.10E-04
XE-138	2.83E+03
BA-140	5.29E-04
Unidentified	6.93E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	5.15E-05
MN-54	3.93E-02
CO-58	7.06E-04
FE-59	4.55E-03
CO-60	2.71E-02
ZN-65	5.29E-04
AS-76	7.57E-06
SR-89	9.12E-06
SR-90	5.52E-05
MO-99	2.38E-06
AG-110M	6.90E-05
I-133	4.30E-06
CS-134	2.34E-04
CE-137	1.17E-02
CS-137	2.55E-03
Unidentified	3.54E-02

Total Airborne Tritium Released	4.73E+00 Ci
Total Liquid Tritium Released	2.51E-01 Ci
Volume of Waste Released (Prior to Dilution)	3.80E+05 liters
Volume of Dilution Water Used During Period	9.16E+10 liters

Installation: Braidwood
Unit No.: 1

Location: 24 Mi SSW of Joliet, IL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-456
Thermal Power(MWH): 1.53E+07
Commercial Operation: 07/29/88
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 4.98E+06
Initial Criticality: 05/29/87

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.13E+01
CO-58	2.38E-04
CO-60	1.99E-05
KR-85	1.30E+00
KR-85M	8.33E+00
KR-87	1.60E+00
KR-88	1.46E+01
ZR-95	4.93E-05
I-131	5.70E-03
XE-131M	2.90E+01
I-132	1.55E-05
I-133	1.97E-04
XE-133	4.96E+03
XE-133M	5.73E+01
I-135	5.22E-05
XE-135	1.42E+02

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	7.99E-05
AR-41	6.76E-03
CR-51	3.64E-01
MN-54	7.98E-02
FE-55	7.14E+00
CO-57	1.09E-02
CO-58	1.80E+00
FE-59	4.51E-02
CO-60	3.73E-01
NI-65	4.93E-03
ZN-65	4.30E-03
BR-82	2.99E-03
KR-85	4.39E-02
KR-85M	1.33E-05
KR-88	9.78E-03
SR-89	7.02E-04
SR-92	2.55E-04
NB-95	8.86E-02
ZR-95	5.70E-02
MO-99	2.19E-04
TC-99M	2.82E-06
RU-103	4.13E-05
RU-105	3.66E-05
AG-110M	2.00E-03
SN-113	8.25E-03

Installation: Braidwood
Unit No.: 1

Location: 24 Mi SSW of Joliet, IL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
SN-117M	3.49E-04
SB-124	5.89E-03
SB-125	3.02E-02
I-131	4.21E-02
I-132	8.63E-04
I-133	9.24E-05
XE-133	1.56E-01
XE-133M	2.85E-04
CS-134	1.29E-02
I-134	9.53E-03
XE-135	3.11E-03
CS-137	2.36E-03
BA/LA-140	2.35E-03
CE-144	3.08E-04
HP-181	2.71E-03

Total Airborne Tritium Released	9.19E+01 Ci
Total Liquid Tritium Released	3.43E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.97E+07 liters
Volume of Dilution Water Used During Period	1.12E+10 liters

Installation: Braidwood
Unit No.: 2

Location: 24 Mi SSW of Joliet, IL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-457
Thermal Power(MWH): 2.00E+07
Commercial Operation: 10/17/88
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.54E+06
Initial Criticality: 03/08/88

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.24E+00
CO-58	1.60E-05
CO-60	1.43E-07
KR-85	1.50E+00
KR-85M	4.23E+00
KR-87	1.47E+00
KR-88	5.14E+00
SR-89	4.65E-10
I-131	5.06E-03
XE-131M	4.13E+01
I-132	1.02E-04
I-133	2.77E-04
XE-133	5.13E+03
XE-133M	3.89E+01
I-135	8.96E-04
XE-135	5.38E+01

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	7.99E-05
AR-41	6.76E-03
CR-51	3.64E-01
MN-54	7.98E-02
FE-55	7.14E+00
CO-57	1.09E-02
CO-58	1.80E+00
FE-59	4.51E-02
CO-60	3.73E-01
NI-65	4.93E-03
ZN-65	4.30E-03
BR-82	2.99E-03
KR-85	4.39E-02
KR-85M	1.33E-05
KR-88	9.78E-03
SR-89	7.02E-04
SR-92	2.55E-04
NB-95	8.86E-02
ZR-95	5.70E-02
MO-99	2.19E-04
TC-99M	2.82E-06
RU-103	4.13E-05
RU-105	2.46E-04
AG-110M	2.24E-03
SN-113	7.99E-03

Installation: Braidwood
Unit No.: 2

Location: 24 Mi SSW of Joliet, IL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
SN-117M	3.49E-04
SB-124	5.89E-03
SB-125	3.02E-02
I-131	4.21E-02
I-132	8.63E-04
I-133	9.24E-05
XE-133	1.56E-01
XE-133M	2.85E-04
CS-134	1.29E-02
I-134	9.53E-03
XE-135	3.11E-03
CS-137	2.36E-03
BA/LA-140	2.35E-03
CE-144	3.08E-04
HF-181	2.71E-03

Total Airborne Tritium Released	5.57E+00 Ci
Total Liquid Tritium Released	3.43E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.97E+07 liters
Volume of Dilution Water Used During Period	1.12E+10 liters

Installation: Braidwood
Unit No.: 1&2

Location: 24 Mi SSW of Joliet, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-456
Thermal Power(MWH): 1.53E+07
Commercial Operation: 07/29/88
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 4.98E+06
Initial Criticality: 05/29/87

Unit Number: 2 Type: PWR
Docket Number: 50-457
Thermal Power(MWH): 2.00E+07
Commercial Operation: 10/17/88
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.54E+06
Initial Criticality: 03/08/88

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
11	Exclusive Use Vehicle	Quadrex, Oak Ridge, TN
1	Exclusive Use Vehicle	SEG, Oak Ridge, TN
19	Exclusive Use Vehicle	US Ecology, Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

C-14
CO-58
CO-60
CR-51
CS-134
CS-137
FE-55
FE-59
H-3
I-131
MN-54
NB-95
NI-63
SB-125
ZR-95

Jan-June Jul-Dec

2.97E+00	1.19E+00
1.79E+00	1.24E+00
4.45E+00	1.19E+00
1.86E+00	1.49E+00
1.60E+00	1.48E+00
1.55E+00	1.51E+00
5.22E+00	1.19E+00
4.74E+00	1.22E+00
4.77E+00	1.48E+00
1.28E+00	2.00E+00
4.49E+00	1.24E+00
3.33E+00	1.28E+00
4.79E+00	1.19E+00
1.69E+00	1.28E+00
2.95E+00	1.29E+00

B

C-14
CO-57
CO-58
CO-60
CR-51
CS-137
FE-55
FE-59
MN-54
NB-95
NI-63
PU-239
PU-241

2.77E+00	2.27E+00
2.77E+00	2.27E+00
2.78E+00	2.28E+00
2.77E+00	2.27E+00
2.78E+00	2.30E+00
2.77E+00	2.27E+00
2.77E+00	2.27E+00
2.78E+00	2.29E+00
2.77E+00	2.27E+00
2.78E+00	2.29E+00
2.77E+00	2.27E+00
2.77E+00	2.27E+00
2.77E+00	2.27E+00

Installation: Braidwood
Unit No.: 1&2

Location: 24 Mi SSW of Joliet, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

B		Jan-June	July-Dec
ZN-65		2.77E+00	2.27E+00
ZR-95		2.78E+00	2.28E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.10E+02 Ci 5.79E+01	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 7.97E+02 m3 3.47E+02 Ci 7.32E+00	before compaction after compaction
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Browns Ferry
Unit No.: 1&2&3

Location: 10 Mi NW Decatur, AL

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: BWR
Docket Number: 50-259
Thermal Power(MWH): 0.00E+00
Commercial Operation: 08/01/74
Cooling Water Source: Tennessee River
Unit Number: 2 Type: BWR
Docket Number: 50-260
Thermal Power(MWH): 1.18E+07
Commercial Operation: 03/01/75
Cooling Water Source: Tennessee River
Unit Number: 3 Type: BWR
Docket Number: 50-296
Thermal Power(MWH): 0.00E+00
Commercial Operation: 03/01/77
Cooling Water Source: Tennessee River

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 08/17/73

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 3.76E+06
Initial Criticality: 07/20/74

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 08/08/76

Airborne Effluents

Nuclide Released	Activity (Ci)
NA-24	1.12E-02
AR-41	7.70E+01
CR-51	1.53E-03
MN-54	2.82E-05
CO-58	1.27E-04
CO-60	1.53E-03
ZN-65	1.42E-04
ZN-69M	1.00E-04
KR-85	7.06E-07
KR-85M	4.98E+02
KR-87	8.53E+01
KR-88	5.21E+02
SR-89	7.92E-05
SR-90	1.11E-07
SR-91	4.94E-03
MO/TC-99M	5.20E-04
I-131	9.78E-03
I-132	3.55E-03
I-133	5.44E-02
XE-133	6.33E+02
CS-134	7.89E-05
I-134	4.95E-03
I-135	3.29E-02
XE-135	2.88E+02
CS-137	1.28E-02
CS-138	2.45E-01
BA-139	3.49E-01
BA-140	2.18E-03
LA-140	1.54E-03
CE-144	2.87E-05

Installation: Browns Ferry
Unit No.: 1&2&3

Location: 10 Mi NW Decatur, AL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	2.31E-01
CR-51	4.18E-02
MN-54	1.42E-02
MN-56	3.05E-04
CO-58	2.33E-02
CO-60	7.11E-02
ZN-65	2.14E-02
SR-90	7.72E-05
SR-91	1.82E-03
Y-91M	3.29E-05
SR-92	1.30E-04
MO/TC-99M	4.55E-02
SB-125	5.99E-05
I-131	2.14E-02
I-132	5.75E-05
I-133	5.70E-02
XE-133	9.93E-02
XE-133M	2.03E-03
CS-134	2.62E-02
I-135	6.99E-03
XE-135	5.79E-02
XE-135M	6.23E-08
CS-137	2.71E-01
BA-140	4.48E-03
LA-140	9.15E-04
NP-239	3.66E-04

Total Airborne Tritium Released	2.77E+00 Ci
Total Liquid Tritium Released	5.96E+00 Ci
Volume of Waste Released (Prior to Dilution)	3.31E+07 liters
Volume of Dilution Water Used During Period	1.57E+11 liters

Installation: Browns Ferry
Unit No.: 1&2&3

Location: 10 Mi NW Decatur, AL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: BWR
Docket Number: 50-259
Thermal Power(MWH): 0.00E+00
Commercial Operation: 08/01/74
Cooling Water Source: Tennessee River

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 08/17/73

Unit Number: 2 Type: BWR
Docket Number: 50-260
Thermal Power(MWH): 1.18E+07
Commercial Operation: 03/01/75
Cooling Water Source: Tennessee River

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 3.76E+06
Initial Criticality: 07/20/74

Unit Number: 3 Type: BWR
Docket Number: 50-296
Thermal Power(MWH): 0.00E+00
Commercial Operation: 03/01/77
Cooling Water Source: Tennessee River

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 08/08/76

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
24	Sole Use Truck	Barnwell, SC
16	Sole Use Truck	Quadrex, Oak Ridge, TN
16	Sole Use Truck	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

	Jan-June	Jul-Dec
CO-60	3.48E+01	2.61E+01
CS-134	3.81E+00	6.39E+00
CS-137	4.23E+01	4.90E+01
FE-55	2.95E+00	3.09E+00
NI-63	1.46E+01	1.51E+01
Others	1.01E+03	
ZN-65	7.24E-02	

B

AG-110M	8.93E-01	1.05E+00
C-14	8.60E-01	1.21E+00
CE-141	1.09E+00	1.53E+00
CO-60	3.64E+01	3.60E+01
CS-134	1.29E+00	1.28E+00
CS-137	8.17E+00	8.29E+00
FE-55	3.34E+01	3.10E+01
H-3	2.01E+00	2.82E+00
NI-63	8.07E+00	8.26E+00
Others	2.55E+00	3.31E+00
SB-125		1.53E-01
SR-89	1.03E+00	1.45E+00
ZN-65	2.23E+00	2.39E+00
ZR-95	2.00E+00	7.45E-01

Installation: Browns Ferry
Unit No.: 1&2&3

Location: 10 Mi NW Decatur, AL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

C

CO-60	6.42E+01
FE-55	2.67E+01
NI-63	8.75E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.11E+02 Ci 1.57E+02	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.44E+02 Ci 2.69E+01	non-compacted & compacted
C. Irradiated Components, Control Rods, etc.	m3 4.85E+00 Ci 3.34E+04	after volume reduction
D. Other (describe)	m3 Ci	

Installation: Brunswick
Unit No.: 1&2

Location: 20 Mi S Wilmington, NC

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: BWR
Docket Number: 50-325
Thermal Power(MWH): 1.39E+07
Commercial Operation: 03/18/77
Cooling Water Source: Cape Fear River
Unit Number: 2 Type: BWR
Docket Number: 50-324
Thermal Power(MWH): 1.18E+07
Commercial Operation: 11/03/75
Cooling Water Source: Cape Fear River

Licensee: Carolina Power & Light
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 4.39E+06
Initial Criticality: 10/08/76

Licensee: Carolina Power & Light
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 3.64E+06
Initial Criticality: 03/20/75

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.33E+01
CR-51	3.08E-03
MN-54	1.19E-03
CO-57	1.86E-06
CO-58	3.25E-04
FE-59	7.41E-05
CO-60	3.08E-03
KR-85	5.88E-05
KR-85M	6.52E+01
KR-87	1.34E+01
KR-88	6.68E+01
SR-89	6.25E-04
SR-90	2.85E-06
RU-103	4.84E-08
SB-124	1.68E-05
TE-129M	3.43E-05
I-131	9.70E-03
XE-131M	2.83E+00
I-132	3.05E-02
I-133	3.64E-02
XE-133	2.55E+02
XE-133M	1.63E-01
I-134	4.85E-03
I-135	4.05E-02
XE-135	1.66E+02
XE-135M	4.08E+01
CS-137	8.21E-05
XE-137	3.33E+01
XE-138	2.08E+01
BA-140	8.51E-04
LA-140	1.39E-03
CE-141	2.38E-06
CE-144	6.73E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	7.45E-04
CR-51	7.03E-02
MN-54	5.82E-02

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
FE-55	3.26E-02
MN-56	7.19E-05
CO-57	1.57E-06
CO-58	5.18E-02
FE-59	5.44E-04
CO-60	2.02E-01
CU-64	4.93E-04
ZN-65	9.75E-04
ZN-69M	5.11E-06
AS-76	2.88E-04
KR-85	2.05E-04
KR-85M	2.17E-06
KR-87	2.56E-06
SR-89	3.20E-04
Y-91M	1.03E-04
SR-92	7.17E-05
Y-92	4.11E-04
NB-95	1.83E-04
TC-99M	1.33E-03
RU-103	1.81E-04
AG-110M	2.60E-04
SB-124	8.79E-04
SB-125	2.79E-03
TE-129	6.55E-05
TE-129M	2.81E-04
I-131	4.18E-04
I-132	2.65E-04
TE-132	5.15E-06
I-133	9.20E-04
XE-133	1.01E-01
XE-133M	1.55E-03
CS-134	1.24E-03
XE-135	1.23E-01
XE-135M	4.57E-05
CS-137	4.29E-03
BA-140	1.50E-03
LA-140	1.05E-03
CE-141	2.19E-05
LA-141	2.69E-04
CE-144	7.99E-05
HP-181	1.65E-06
W-187	4.60E-04

Total Airborne Tritium Released	1.94E+01 Ci
Total Liquid Tritium Released	7.99E+01 Ci
Volume of Waste Released (Prior to Dilution)	2.67E+07 liters
Volume of Dilution Water Used During Period	8.89E+10 liters

Installation: Brunswick
Unit No.: 1&2

Location: 20 Mi S Wilmington, NC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: BWR
Docket Number: 50-325
Thermal Power(MWH): 1.39E+07
Commercial Operation: 03/18/77
Cooling Water Source: Cape Fear River

Licensee: Carolina Power & Light
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 4.39E+06
Initial Criticality: 10/08/76

Unit Number: 2 Type: BWR
Docket Number: 50-324
Thermal Power(MWH): 1.18E+07
Commercial Operation: 11/03/75
Cooling Water Source: Cape Fear River

Licensee: Carolina Power & Light
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 3.64E+06
Initial Criticality: 03/20/75

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
71	Sole Use	CNSI, Barnwell, SC
3	Railcar	CP&L/SHNPP

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

CO-58	1.65E+00	4.41E-01
CO-60	1.33E+01	3.39E+01
CR-51	1.55E+01	1.11E+00
CS-137	6.44E-01	1.79E+00
FE-57	5.59E+01	5.16E+01
FE-59	1.83E+00	
MN-54	9.12E+00	5.99E+00
NI-63	7.21E-01	2.25E+00
SB-125		3.19E-01

B

CO-58		3.17E+00
CO-60	1.09E+01	2.19E+01
FE-55	8.29E+01	6.57E+01
MN-54	5.81E+00	6.12E+00
NI-63		1.69E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.41E+02 Ci 1.18E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.92E+02 Ci 5.60E+01	after compaction
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Byron
Unit No.: 1

Location: 3 Mi SW Byron, IL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-454
Thermal Power(MWH): 1.99E+07
Commercial Operation: 09/16/85
Cooling Water Source: Rock River

Licensee: Commonwealth Edison Co.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.31E+06
Initial Criticality: 02/02/85

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	9.27E-02
CO-60	1.38E-06
KR-85	4.62E-01
KR-85M	6.76E-03
KR-88	5.65E-02
I-131	7.28E-05
XE-131M	2.07E-01
I-132	1.71E-04
I-133	4.40E-04
XE-133	2.28E+01
XE-133M	7.64E-02
CS-134	7.60E-06
I-135	3.61E-04
XE-135	6.08E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	4.89E-02
MN-54	4.73E-03
FE-55	3.36E-02
MN-56	3.95E-06
CO-57	1.27E-03
CO-58	1.21E-01
FE-59	6.00E-03
CO-60	5.60E-02
NI-65	2.53E-04
ZN-65	1.03E-03
KP-85	2.64E-03
SR-90	4.60E-03
NB-95	6.77E-03
ZR-95	3.55E-03
RU-103	9.53E-05
RU-105	2.21E-03
AG-110M	6.39E-04
SN-113	7.42E-04
SN-117M	2.17E-04
SB-124	9.64E-04
SB-125	1.73E-02
TE-125M	2.33E-02
I-131	1.13E-04
XE-131M	1.29E-02
BA-133	1.15E-04
XE-133	1.08E+00
XE-133M	1.27E-02

Installation: Byron
Unit No.: 1

Location: 3 Mi SW Byron, IL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
CS-134	2.63E-04
I-135	5.05E-06
XE-135	2.14E-03
XE-135M	6.86E-05
CS-136	8.55E-06
CS-137	1.03E-03
BA-141	2.90E-05
CE-144	2.64E-04
YB-169	3.88E-05
HP-181	5.38E-05

Total Airborne Tritium Released	3.91E-01 Ci
Total Liquid Tritium Released	7.15E+02 Ci
Volume of Waste Released (Prior to Dilution)	2.94E+07 liters
Volume of Dilution Water Used During Period	1.76E+10 liters

Installation: Byron
Unit No.: 2

Location: 3 Mi SW Byron, IL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-455
Thermal Power(MWH): 2.72E+07
Commercial Operation: 08/21/87
Cooling Water Source: Rock River

Licensee: Commonwealth Edison Co.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 8.77E+06
Initial Criticality: 01/09/87

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	9.72E-02
CO-60	1.17E-06
KR-85	4.62E-01
KR-85M	6.76E-03
KR-88	6.66E-02
I-131	9.76E-05
XE-131M	1.86E-01
I-132	1.68E-04
I-133	1.88E-04
XE-133	7.83E+01
XE-133M	1.76E-01
I-135	7.10E-05
XE-135	7.96E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	4.89E-02
MN-54	4.73E-03
FE-55	3.36E-02
MN-56	3.95E-06
CO-57	1.27E-03
CO-58	1.21E-01
FE-59	6.00E-03
CO-60	5.60E-02
NI-65	2.53E-04
ZN-65	1.03E-03
KR-85	2.64E-03
SR-90	4.60E-03
NB-95	6.77E-03
ZR-95	3.55E-03
RU-103	9.53E-05
RU-105	2.21E-03
AG-110M	6.39E-04
SN-113	7.42E-04
SN-117M	2.17E-04
SB-124	9.64E-04
SB-125	1.73E-02
TE-125M	2.33E-02
I-131	1.13E-04
XE-131M	1.29E-02
BA-133	1.15E-04
XE-133	1.08E+00
XE-133M	1.27E-02
CS-134	2.63E-04

Installation: Byron
Unit No.: 2

Location: 3 Mi SW Byron, IL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
I-135	5.05E-06
XE-135	2.14E-03
XE-135M	6.86E-05
CS-136	8.55E-06
CS-137	1.03E-03
BA-141	2.90E-05
CE-144	2.64E-04
YB-169	3.88E-05
HF-181	5.38E-05

Total Airborne Tritium Released	5.11E-01 Ci
Total Liquid Tritium Released	7.15E+02 Ci
Volume of Waste Released (Prior to Dilution)	2.94E+07 liters
Volume of Dilution Water Used During Period	1.76E+10 liters

Installation: Byron
Unit No.: 1&2

Location: 3 Mi SW Byron, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-454
Thermal Power(MWH): 1.99E+07
Commercial Operation: 09/16/85
Cooling Water Source: Rock River

Licensee: Commonwealth Edison Co.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.31E+06
Initial Criticality: 02/02/85

Unit Number: 2 Type: PWR
Docket Number: 50-455
Thermal Power(MWH): 2.72E+07
Commercial Operation: 08/21/87
Cooling Water Source: Rock River

Licensee: Commonwealth Edison Co.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 8.77E+06
Initial Criticality: 01/09/87

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
8	Exclusive Use	Barnwell, SC
26	Exclusive Use	Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AM-241	1.00E-04	3.00E-05
C-14	3.83E+00	1.46E+00
CM-242		3.00E-05
CM-244	1.00E-04	5.50E-05
CO-58	4.25E+00	4.50E+00
CO-60	1.41E+01	3.43E+00
CS-134	3.12E+00	3.50E+01
CS-137	5.04E+00	3.90E+01
FE-55	4.70E+01	3.14E+00
H-3	4.00E-01	8.40E-04
I-129	4.00E-04	1.00E-03
MN-54	1.93E+01	1.36E+00
NI-63	3.03E+00	7.56E+00
PU-238	1.00E-04	4.50E-05
PU-239	1.00E-04	1.90E-05
PU-241	4.00E-03	6.80E-03
SB-125		4.50E+00
SR-90	1.60E-03	4.90E-03
TC-99	2.60E-03	4.10E-03

B

AM-241		1.50E-02
C-14	1.14E+00	1.02E+00
CM-242		1.10E-02
CM-244		8.20E-02
CO-58	1.10E+00	1.02E+00
CO-60	3.10E+00	1.92E+01
CS-134	2.00E-01	4.58E+00
CS-137	8.00E-01	2.73E+01
FE-55	7.06E+01	2.95E+01
H-3		1.78E+00

Installation: Byron
Unit No.: 1&2

Location: 3 Mi SW Byron, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

B

I-129	2.30E-02	2.10E-01
MN-54	3.00E-01	1.24E+00
NI-63	2.24E+01	1.08E+01
PU-238		1.30E-02
PU-239		5.00E-03
PU-241		1.60E+00
SB-125		5.50E-01
SR-90		2.60E-01
TC-99	2.30E-02	8.40E-01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.77E+02 Ci 3.31E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.05E+02 Ci 4.54E+01	non-compacted & compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Callaway
Unit No.: 1

Location: 10 Mi SE Fulton, MO

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-483
Thermal Power(MWH): 3.04E+07
Commercial Operation: 12/19/84
Cooling Water Source: Missouri River

Licensee: Union Electric Company
Licensed Power(MWT): 3.57E+03
Net Electrical Power(MWH): 9.98E+06
Initial Criticality: 10/02/84

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	6.03E-01
CO-58	4.36E-07
CO-60	1.97E-07
KR-85	1.20E+00
KR-85M	1.09E+00
KR-87	2.94E-01
KR-88	2.21E+00
SR-90	2.57E-07
I-131	7.96E-06
XE-131M	3.60E-02
I-133	9.43E-06
XE-133	1.16E+02
XE-133M	7.22E-03
CS-134	1.46E-07
XE-135	1.43E+01
CS-137	1.63E-07

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	9.43E-05
MN-54	9.26E-04
FE-55	6.77E-03
CO-57	3.05E-06
CO-58	2.19E-03
FE-59	1.49E-05
CO-60	4.81E-03
KR-85	1.17E-03
NB-95	3.57E-04
ZR-95	1.63E-04
SN-113	2.23E-05
SB-125	1.93E-05
I-131	5.31E-05
XE-131M	3.91E-03
I-132	2.04E-05
XE-133	3.84E-01
XE-133M	4.29E-03
CS-134	1.64E-04
XE-135	3.96E-03
CS-137	3.01E-04
CE-144	3.92E-05

Total Airborne Tritium Released	3.68E+01 Ci
Total Liquid Tritium Released	1.23E+03 Ci
Volume of Waste Released (Prior to Dilution)	7.47E+07 liters
Volume of Dilution Water Used During Period	2.03E+09 liters

Installation: Callaway
Unit No.: 1

Location: 10 Mi SE Fulton, MO

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-483
Thermal Power(MWH): 3.04E+07
Commercial Operation: 12/19/84
Cooling Water Source: Missouri River

Licensee: Union Electric Company
Licensed Power(MWT): 3.57E+03
Net Electrical Power(MWH): 9.98E+06
Initial Criticality: 10/02/84

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
3	Cask	Barnwell, SC
1	Truck	Quadrex, Oak Ridge, TN
9	Cask	Richland, WA
5	Truck	Richland, WA
9	Truck	SEG, Oak Ridge, TN

Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
1	Cask	Chalk River, Canada

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A		
CO-58	1.65E+01	4.07E+00
CO-60	2.36E+01	3.05E+01
FE-55	3.68E+01	4.41E+01
H-3		1.04E+00
MN-54	9.12E+00	4.01E+00
NI-63	1.12E+01	1.50E+01
B		
CO-58	2.35E+01	2.22E+01
CO-60	1.30E+01	1.30E+01
FE-55	4.48E+01	4.46E+01
MN-54	7.40E+00	7.40E+00
NB-95	9.30E+00	9.23E+00
ZR-95	1.90E+00	1.90E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 8.81E+01 Ci 2.46E+03	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 4.75E+01 Ci 1.73E+01	burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Calvert Cliffs
Unit No.: 1&2

Location: 45 Mi SE Washington D.C.

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-317
Thermal Power(MWH): 1.73E+07
Commercial Operation: 05/08/75
Cooling Water Source: Chesapeake Bay
Unit Number: 2 Type: PWR
Docket Number: 50-318
Thermal Power(MWH): 1.17E+07
Commercial Operation: 04/01/77
Cooling Water Source: Chesapeake Bay

Licensee: Baltimore Gas & Electric
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 5.47E+06
Initial Criticality: 10/07/74
Licensee: Baltimore Gas & Electric
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 3.64E+06
Initial Criticality: 11/30/76

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	3.10E-03
KR-85	1.20E+01
KR-85M	1.31E+01
KR-87	1.07E+00
RB-88	7.91E-05
SR-90	7.80E-07
I-131	1.32E-02
XE-131M	1.16E+01
I-133	3.87E-02
XE-133	2.34E+03
XE-133M	1.52E+00
CS-134	1.40E-08
XE-135	1.82E+02
CS-137	3.21E-08

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	2.12E-04
CR-51	1.72E-02
MN-54	4.96E-03
FE-55	4.52E-06
CO-58	1.45E-01
CO-60	3.30E-02
KR-85	5.56E-02
SR-89	7.65E-03
SR-90	1.33E-03
NB-95	5.16E-03
ZR-95	3.36E-03
NB-97	1.12E-02
TC-99M	1.53E-03
RU-103	3.19E-04
RU-106	2.10E-04
AG-110M	7.34E-02
SN-113	1.17E-04
SB-122	3.50E-04
SB-125	1.98E-01
I-131	1.01E-01
I-132	8.29E-06
TE-132	2.85E-06

Installation: Calvert Cliffs
Unit No.: 1&2

Location: 45 Mi SE Washington D.C.

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
I-133	3.12E-02	
XE-133	1.75E+01	
XE-133M	7.27E-03	
CS-134	1.82E-01	
I-135	1.86E-04	
XE-135	4.26E-03	
CS-136	7.94E-04	
CS-137	7.52E-01	
BA-139	4.48E-06	
CE-139	7.27E-07	
BA-140	3.09E-03	
LA-140	8.00E-03	
CE-144	5.94E-03	
W-187	8.06E-04	
Total Airborne Tritium Released		1.16E+01 Ci
Total Liquid Tritium Released		1.02E+03 Ci
Volume of Waste Released (Prior to Dilution)		4.80E+07 liters
Volume of Dilution Water Used During Period		6.07E+11 liters

Installation: Calvert Cliffs
Unit No.: 1&2

Location: 45 Mi SE Washington D.C.

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-317
Thermal Power(MWH): 1.73E+07
Commercial Operation: 05/08/75
Cooling Water Source: Chesapeake Bay

Licensee: Baltimore Gas & Electric
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 5.47E+06
Initial Criticality: 10/07/74

Unit Number: 2 Type: PWR
Docket Number: 50-318
Thermal Power(MWH): 1.17E+07
Commercial Operation: 04/01/77
Cooling Water Source: Chesapeake Bay

Licensee: Baltimore Gas & Electric
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 3.64E+06
Initial Criticality: 11/30/76

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
8	Motor surface transit	CNSI, Barnwell, SC
4	Motor surface transit	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A			
	CO-58	1.41E+01	1.55E+00
	CO-60	4.30E+00	2.95E+00
	CS-134	1.23E+01	1.96E+01
	CS-137	3.82E+01	5.56E+01
	FE-55	4.50E+00	4.55E+00
	NI-63	2.16E+01	1.06E+01
	SB-125	1.27E+00	1.10E+00
B			
	AG-110M		1.41E+00
	C-14	1.33E+00	2.05E+00
	CO-58	2.08E+00	1.52E+00
	CO-60	1.21E+01	1.01E+01
	CR-51		9.62E+00
	CS-134	2.92E+00	2.70E+00
	CS-137	1.11E+01	1.07E+01
	FE-55	3.94E+01	3.55E+01
	NI-63	2.37E+01	1.31E+01
	RU-106	1.42E+00	2.52E+00
	SB-125	1.74E+00	4.75E+00
C			
	CO-60		3.80E+01
	FE-55		5.66E+01
	MN-54		1.20E+00
	NI-63		4.00E+00

Installation: Calvert Cliffs
Unit No.: 1&2

Location: 45 Mi SE Washington D.C.

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.67E+01 Ci 1.48E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 7.41E+02 m3 1.42E+02 Ci 3.68E+01	before compaction burial volume
C. Irradiated Components, Control Rods, etc.	m3 6.20E-01 Ci 4.32E+03	
D. Other (describe)	m3 Ci	

Installation: Catawba
Unit No.: 1

Location: 6 Mi NNW of Rock Hill, SC

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-413
Thermal Power(MWH): 2.02E+07
Commercial Operation: 06/29/85
Cooling Water Source: Lake Wylie

Licensee: Duke Power Co
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.67E+06
Initial Criticality: 01/07/85

Airborne Effluents

Nuclide Released	Activity (Ci)
F-18	1.91E-02
AR-41	1.75E+01
MN-56	1.46E-07
CO-57	1.43E-06
CO-58	2.82E-04
CO-60	9.58E-05
BR-80M	3.90E-07
BR-82	2.46E-07
KR-85	6.58E-01
KR-85M	6.32E-01
KR-87	6.27E-02
KR-88	4.78E-01
RB-88	1.33E-05
NB-97	1.67E-09
ZR-97	8.38E-09
TC-99M	9.70E-08
SN-113	1.05E-06
CD-115	4.13E-09
SB-122	2.34E-10
SB-125	8.56E-05
SB-126	1.59E-05
I-131	9.10E-04
XE-131M	3.97E+00
I-132	6.93E-04
I-133	2.68E-03
XE-133	3.62E+02
XE-133M	4.32E+00
I-134	3.65E-07
I-135	2.22E-04
XE-135	1.17E+01
XE-135M	1.26E-03
CS-136	4.90E-10
CS-137	1.61E-09
CS-138	2.54E-07
XE-138	7.47E-04
BA-139	2.39E-09
CE-144	8.19E-09
NP-239	2.90E-10

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	9.22E-05
F-18	3.02E-03
NA-24	2.92E-05

Installation: Catawba
Unit No.: 1

Location: 6 Mi NNW of Rock Hill, SC

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
CR-51	4.13E-02
MN-54	1.51E-02
FE-55	6.95E-02
MN-56	4.73E-07
CO-57	5.69E-04
CO-58	9.82E-02
FE-59	4.80E-03
CO-60	7.80E-02
ZN-65	5.36E-04
ZN-69M	6.35E-07
BR-80M	5.91E-06
BR-82	8.80E-07
KR-85	1.93E-02
RB-86	3.91E-06
KR-88	3.51E-06
RB-89	2.00E-04
SR-91	2.21E-05
Y-91M	7.64E-06
SR-92	3.71E-04
Y-93	5.41E-05
NB-95	5.75E-03
ZR-95	2.60E-03
NB-97	2.09E-03
ZR-97	3.27E-05
MO-99	1.27E-05
TC-99M	4.66E-05
RU-103	8.66E-05
RU-106	1.84E-03
AG-110M	9.13E-04
SN-113	7.43E-04
SB-122	2.37E-04
SB-124	1.78E-03
SB-125	3.58E-02
SB-126	3.59E-05
I-131	6.09E-03
TE-131M	1.03E-04
I-132	1.90E-04
I-133	1.81E-04
XE-133	8.04E-03
XE-133M	2.25E-06
CS-134	2.81E-03
XE-135	1.67E-04
XE-135M	5.45E-07
CS-136	1.91E-06
CS-137	4.73E-03
CS-138	2.36E-03
BA-140	2.84E-04
LA-140	4.95E-04
CE-141	8.38E-06
CE-143	6.56E-07
TL-208	5.70E-07
BI-214	5.03E-06

Installation: Catawba
Unit No.: 1

Location: 6 Mi NNW of Rock Hill, SC

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
PB-214	2.07E-05	
NP-239	4.00E-04	
Total Airborne Tritium Released		6.23E+01 Ci
Total Liquid Tritium Released		3.23E+02 Ci
Volume of Waste Released (Prior to Dilution)		2.46E+08 liters
Volume of Dilution Water Used During Period		9.22E+10 liters

Installation: Catawba
Unit No.: 2

Location: 6 Mi NNW of Rock Hill, SC

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-414
Thermal Power (MWH): 2.18E+07
Commercial Operation: 08/19/86
Cooling Water Source: Lake Wylie

Licensee: Duke Power Co
Licensed Power (MWT): 3.41E+03
Net Electrical Power (MWH): 7.27E+06
Initial Criticality: 05/08/86

Airborne Effluents

Nuclide Released	Activity (Ci)
F-18	1.91E-02
AR-41	1.75E+01
MN-56	1.46E-07
CO-57	1.43E-06
CO-58	2.82E-04
CO-60	9.58E-05
BR-80M	3.90E-07
BR-82	2.46E-07
KR-85	6.58E-01
KR-85M	6.32E-01
KR-87	6.27E-02
KR-88	4.78E-01
RB-88	1.33E-05
NB-97	1.67E-09
ZR-97	8.38E-09
TC-99M	9.70E-08
SN-113	1.05E-06
CD-115	4.13E-09
SB-122	2.34E-10
SB-125	8.56E-05
SB-126	1.59E-05
I-131	9.10E-04
XE-131M	3.97E+00
I-132	6.93E-04
I-133	2.68E-03
XE-133	3.62E+02
XE-133M	4.32E+00
I-134	3.65E-07
I-135	2.22E-04
XE-135	1.17E+01
XE-135M	1.26E-03
CS-136	4.90E-10
CS-137	1.61E-09
CS-138	2.54E-07
XE-138	7.47E-04
BA-139	2.39E-09
CE-144	8.19E-09
NP-239	2.90E-10

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	9.22E-05
F-18	3.02E-03
NA-24	2.92E-05

Installation: Catawba
Unit No.: 2

Location: 6 Mi NNW of Rock Hill, SC

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
CR-51	4.13E-02
MN-54	1.51E-02
FE-55	6.95E-02
MN-56	4.73E-07
CO-57	5.69E-04
CO-58	9.82E-02
FE-59	4.80E-03
CO-60	7.80E-02
ZN-65	5.36E-04
ZN-69M	6.35E-07
BR-80M	5.91E-06
BR-82	8.80E-07
KR-85	1.93E-02
RB-86	3.91E-06
KR-88	3.51E-06
RB-89	2.00E-04
SR-91	2.21E-05
Y-91M	7.64E-06
SR-92	3.71E-04
Y-93	5.41E-05
NB-95	5.75E-03
ZR-95	2.60E-03
NB-97	2.09E-03
ZR-97	3.27E-05
MO-99	1.27E-05
TC-99M	4.66E-05
RU-103	8.66E-05
RU-106	1.84E-03
AG-110M	9.13E-04
SN-113	7.43E-04
SB-122	2.37E-04
SB-124	1.78E-03
SB-125	3.58E-02
SB-126	3.59E-05
I-131	6.09E-03
TE-131M	1.03E-04
I-132	1.90E-04
I-133	1.81E-04
XE-133	8.04E-03
XE-133M	2.25E-06
CS-134	2.81E-03
XE-135	1.67E-04
XE-135M	5.45E-07
CS-136	1.91E-06
CS-137	4.73E-03
CS-138	2.36E-03
BA-140	2.84E-04
LA-140	4.95E-04
CE-141	8.38E-06
CE-143	6.56E-07
TL-208	5.70E-07
BI-214	5.03E-06

Installation: Catawba
Unit No.: 2

Location: 6 Mi NNW of Rock Hill, SC

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
PB-214	2.07E-05	
NP-239	4.00E-04	
Total Airborne Tritium Released		6.23E+01 Ci
Total Liquid Tritium Released		3.23E+02 Ci
Volume of Waste Released (Prior to Dilution)		2.46E+08 liters
Volume of Dilution Water Used During Period		9.22E+10 liters

Installation: Catawba
Unit No.: 1&2

Location: 6 Mi NNW of Rock Hill, SC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-413
Thermal Power(MWH): 2.02E+07
Commercial Operation: 06/29/85
Cooling Water Source: Lake Wylie

Licensee: Duke Power Co
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 5.67E+06
Initial Criticality: 01/07/85

Unit Number: 2 Type: PWR
Docket Number: 50-414
Thermal Power(MWH): 2.18E+07
Commercial Operation: 08/19/86
Cooling Water Source: Lake Wylie

Licensee: Duke Power Co
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 7.27E+06
Initial Criticality: 05/08/86

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
---------------------	------------------------	-------------

10

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

C-14	1.10E+00	1.10E+00
CO-58	1.14E+01	3.00E+00
CO-60	1.84E+01	2.02E+01
CS-134	7.37E+00	7.20E+00
CS-137	1.37E+01	1.39E+01
FE-55	2.42E+01	2.65E+01
MN-54	9.18E+00	1.36E+01
NI-63	1.20E+01	1.33E+01
SB-122	1.00E+00	

B

CO-58	5.52E+01	5.88E+01
CO-60	8.70E+00	7.73E+00
FE-55	2.02E+01	1.79E+01
H-3	1.38E+00	1.55E+00
MN-54	4.72E+00	3.95E+00
NB-95	5.63E-01	
NI-63	6.90E+00	7.51E+00

D

CO-58	2.87E+01	2.87E+01
CO-60	3.90E+00	3.90E+00
CR-51	3.80E+00	3.80E+00
FE-55	5.21E+01	5.21E+01
MN-54	4.00E+00	4.00E+00
NB-95	1.30E+00	1.30E+00
NI-63	5.70E+00	5.70E+00

Installation: Catawba
Unit No.: 1&2

Location: 6 Mi NNW of Rock Hill, SC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 5.95E+01 Ci 2.59E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 5.18E+01 Ci 8.91E+00	non-compacted & compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Dewatered Mechanical Filters	m3 4.44E+00 Ci 6.71E+01	

Installation: Clinton
Unit No.: 1

Location: 6 Mi E Clinton, IL

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-461
Thermal Power(MWH): 1.92E+07
Commercial Operation: 11/24/87
Cooling Water Source: Salt Creek

Licensee: Illinois Power
Licensed Power(MWT): 2.89E+03
Net Electrical Power(MWH): 6.05E+06
Initial Criticality: 02/27/87

Airborne Effluents

Nuclide Released	Activity (Ci)
CR-51	8.75E-03
MN-54	5.48E-05
CO-58	3.13E-05
CO-60	2.30E-04
SR-89	8.60E-06
I-131	2.92E-05
I-133	3.18E-05
XE-135	7.08E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	1.13E-02
MN-54	5.20E-03
FE-55	6.32E-04
CO-58	3.00E-03
CO-60	1.27E-02
AG-110M	1.43E-05

Total Airborne Tritium Released	5.22E+00 Ci
Total Liquid Tritium Released	4.45E+00 Ci
Volume of Waste Released (Prior to Dilution)	4.52E+06 liters
Volume of Dilution Water Used During Period	3.59E+08 liters

Installation: Clinton
Unit No.: 1

Location: 6 Mi E Clinton, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-461
Thermal Power(MWH): 1.92E+07
Commercial Operation: 11/24/87
Cooling Water Source: Salt Creek

Licensee: Illinois Power
Licensed Power(MWT): 2.89E+03
Net Electrical Power(MWH): 6.05E+06
Initial Criticality: 02/27/87

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
4	Truck	Barnwell, SC
2	Truck	Quadrex
37	Truck	Richland, WA
11	Truck	SEG

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A			
	CO-60	3.87E+01	4.68E+01
	CR-51	4.25E+00	6.20E+00
	FE-55	4.72E+01	3.45E+01
	MN-54	8.28E+00	9.80E+00
	Others	1.56E+00	2.70E+00
B			
	CO-58	1.79E+00	1.90E+00
	CO-60	2.38E+01	3.26E+01
	CR-51	1.22E+01	2.80E+00
	FE-55	5.37E+01	5.38E+01
	MN-54	8.49E+00	8.80E+00
	Others	8.00E-03	

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.06E+02 Ci 7.99E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 4.24E+01 Ci 4.47E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Comanche Peak
Unit No.: 1

Location: 4.5 Mi N of Glen Rose, TX

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-445
Thermal Power(MWH): 1.72E+07
Commercial Operation: 08/13/90
Cooling Water Source: Squaw Creek Reservoir

Licensee: TU Electric Company
Licensed Power(MWF): 3.41E+03
Net Electrical Power(MWH): 5.38E+06
Initial Criticality: 04/03/90

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.84E-01
KR-85	3.03E-01
KR-85M	1.36E-01
KR-88	1.23E-01
I-131	1.85E-05
XE-131M	1.02E+02
XE-133	5.78E+03
XE-133M	6.79E+00
XE-135	9.31E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	3.25E-05
NA-24	5.74E-05
AR-41	2.72E-05
CR-51	1.60E-02
MN-54	4.56E-03
FE-55	1.82E-02
MN-56	3.38E-06
CO-57	2.17E-05
CO-58	6.93E-02
FE-59	7.36E-03
CO-60	1.00E-02
ZN-65	1.38E-05
SE-75	5.33E-04
AS-76	1.00E-06
BR-82	1.36E-05
KR-85M	3.24E-04
KR-88	2.10E-04
RB-88	7.51E-04
NB-95	1.93E-03
ZR-95	7.85E-04
NB-97	4.43E-05
MO-99	1.78E-04
TC-99M	1.32E-04
AG-110M	3.22E-05
IN-113M	1.13E-04
SN-113	1.62E-04
SB-122	3.18E-05
SB-124	6.29E-03
SB-125	6.82E-03
I-131	1.09E-02
XE-131M	1.91E-02
I-133	3.77E-04

Installation: Comanche Peak
Unit No.: 1

Location: 4.5 Mi N of Glen Rose, TX

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
XE-133	1.81E+00
XE-133M	1.22E-02
CS-134	4.22E-04
XE-135	5.01E-03
CS-137	2.22E-03
LA-140	2.73E-05

Total Airborne Tritium Released	2.33E+00 Ci
Total Liquid Tritium Released	4.60E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.03E+08 liters
Volume of Dilution Water Used During Period	1.56E+11 liters

Installation: Comanche Peak
 Unit No.: 1

Location: 4.5 Mi N of Glen Rose, TX

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Type: PWR Licensee: TU Electric Company
 Docket Number: 50-445 Licensed Power(MWT): 3.41E+03
 Thermal Power(MWH): 1.72E+07 Net Electrical Power(MWH): 5.38E+06
 Commercial Operation: 08/13/90 Initial Criticality: 04/03/90
 Cooling Water Source: Squaw Creek Reservoir

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
6	Truck	Barnwell, SC
1	Truck	SEG, Barnwell, SC
6	Truck	SEG, Beatty, NV

Estimate of Major Nuclide Composition (%)
 (by type of waste)

	Jan-June	Jul-Dec
A		
H-3	9.97E+01	
B		
CO-58	6.38E+01	5.61E+01
CO-60		2.40E+00
CR-51		1.97E+01
FE-55	2.98E+01	
FE-59		1.10E+00
I-131		1.40E+00
MN-54	6.40E+00	2.30E+00
NB-95		4.40E+00
NI-63		1.20E+00
Others		7.00E+00
ZR-95		4.40E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 5.83E+00 Ci 1.22E-02	non-compacted
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 6.40E+01 Ci 7.64E-01	non-compacted & compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Donald C. Cook
Unit No.: 1&2

Location: 11 Mi SSW St. Joseph, MI

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-315
Thermal Power(MWH): 2.38E+07
Commercial Operation: 08/27/75
Cooling Water Source: Lake Michigan
Unit Number: 2 Type: PWR
Docket Number: 50-316
Thermal Power(MWH): 2.65E+07
Commercial Operation: 07/01/78
Cooling Water Source: Lake Michigan

Licensee: Indiana Michigan Power Co.
Licensed Power(MWT): 3.25E+03
Net Electrical Power(MWH): 7.34E+06
Initial Criticality: 01/18/75

Licensee: Indiana Michigan Power Co.
Licensed Power(MWT): 3.25E+03
Net Electrical Power(MWH): 8.19E+06
Initial Criticality: 03/10/78

Airborne Effluents

Nuclide Released	Activity (Ci)
NA-24	2.10E-03
AR-41	3.07E+00
MN-54	2.80E-07
CO-58	4.63E-05
CO-60	1.46E-04
KR-85	2.06E+01
KR-85M	2.26E-02
KR-87	6.22E-01
KR-88	5.28E-01
RB-88	3.91E-05
Y-88	4.28E-08
NB-95	8.04E-07
CD-109	2.15E-06
SB-122	7.82E-06
SB-124	1.19E-06
I-130	2.68E-08
I-131	8.38E-04
XE-131M	1.06E-01
I-132	1.02E-04
I-133	6.68E-04
XE-133	4.03E+01
XE-133M	1.03E-01
CS-134	4.05E-04
I-134	1.97E-05
I-135	1.21E-04
XE-135	1.36E+01
XE-135M	1.92E+00
CS-136	2.22E-05
CS-137	9.45E-04
CS-138	7.43E-05
XE-138	1.45E-02
BA-139	4.57E-07
CE-139	7.97E-09

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	6.90E-04
NA-24	4.92E-02
CR-51	4.59E-02

Installation: Donald C. Cook
Unit No. : 1&2

Location: 11 Mi SSW St. Joseph, MI

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
MN-54	3.73E-02
FE-55	2.50E-01
CO-57	1.53E-03
CO-58	2.38E-01
FE-59	4.59E-03
CO-60	8.92E-02
ZN-65	2.48E-03
KR-85	2.28E-03
ZR-NB-95	1.41E-02
CD-109	1.17E-03
AG-110M	1.46E-01
SN-113	2.05E-03
SB-122	4.54E-04
SB-124	3.95E-02
SB-125	5.82E-02
I-131	3.92E-03
XE-131M	1.68E-03
I-132	2.54E-03
TE-132	2.88E-05
I-133	7.75E-03
XE-133	1.18E-01
XE-133M	1.11E-03
CS-134	1.03E-02
I-134	1.64E-03
I-135	4.43E-03
XE-135	5.72E-04
XE-135M	2.20E-03
CS-136	3.36E-04
CS-137	1.88E-02
CS-138	1.36E-03
XE-138	5.31E-06
BA-LA-140	3.07E-04

Total Airborne Tritium Released	2.90E+01 Ci
Total Liquid Tritium Released	1.55E+03 Ci
Volume of Waste Released (Prior to Dilution)	8.78E+08 liters
Volume of Dilution Water Used During Period	3.10E+12 liters

Installation: Cooper
Unit No.: 1

Location: 70 Mi S Omaha, NE

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-298
Thermal Power(MWH): 1.50E+07
Commercial Operation: 07/01/74
Cooling Water Source: Missouri River

Licensee: Nebraska Public Power District
Licensed Power(MWT): 2.38E+03
Net Electrical Power(MWH): 4.80E+06
Initial Criticality: 02/21/74

Airborne Effluents

Nuclide Released	Activity (Ci)
MN-54	1.66E-04
CO-60	2.98E-04
KR-83M	1.86E-01
KR-85	1.03E+00
KR-85M	3.74E-01
KR-87	1.18E+00
KR-88	1.23E+00
RB-88	9.66E-06
KR-89	5.20E+00
I-131	1.00E-04
XE-133	2.27E+00
XE-133M	1.55E-02
XE-135	1.98E+00
XE-135M	7.78E-01
XE-137	6.20E+00
XE-138	5.40E+00

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	2.67E-03
CR-51	1.62E-01
MN-54	5.73E-01
FE-55	2.86E-02
CO-57	3.37E-05
CO-58	2.10E-01
FE-59	1.06E-03
CO-60	1.17E+00
ZN-65	1.57E-02
SR-89	1.30E-02
TC-99M	1.31E-04
AG-110M	1.81E-02
I-133	5.98E-05
CS-134	2.33E-02
CS-136	1.24E-04
CS-137	6.87E-02

Total Liquid Tritium Released	9.05E+00 Ci
Volume of Waste Released (Prior to Dilution)	1.03E+07 liters
Volume of Dilution Water Used During Period	5.38E+10 liters

Installation: Cooper
Unit No.: 1

Location: 70 Mi S Omaha, NE

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-298
Thermal Power(MWH): 1.50E+07
Commercial Operation: 07/01/74
Cooling Water Source: Missouri River

Licensee: Nebraska Public Power District
Licensed Power(MWT): 2.38E+03
Net Electrical Power(MWH): 4.80E+06
Initial Criticality: 02/21/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
2	Exclusive Use Vehicle	Barnwell, SC
3	Exclusive Use Vehicle	Beatty, NV
21	Exclusive Use Vehicle	Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AG-110M	2.15E+00	1.07E+00
C-14	5.36E-01	3.47E-01
CM-242	1.90E-05	4.54E-06
CO-58	1.06E+00	5.12E+00
CO-60	5.87E+01	4.38E+01
CR-51	3.37E-01	1.22E+01
CS-134	4.66E+00	6.49E-01
CS-137	8.19E+00	1.47E+00
FE-55	9.02E+00	1.12E+01
FE-59		5.40E-01
H-3	6.72E-03	3.50E-03
I-131	1.16E-02	
MN-54	1.39E+01	2.18E+01
NI-59	7.72E-03	7.55E-03
NI-63	7.72E-01	7.55E-01
PU-241	1.24E-03	5.78E-04
SR-90	7.78E-03	2.36E-03
TC-99	4.20E-04	4.36E-04
ZN-65	7.37E-01	9.73E-01

B

C-14	2.37E-01	3.09E-02
CM-242	1.72E-05	1.60E-07
CO-57	1.25E-02	1.17E-04
CO-58	1.65E+00	4.46E+00
CO-60	3.31E+01	1.46E+01
CR-51	4.18E+00	4.29E+00
CS-134	3.24E-02	3.01E-04
CS-137	1.41E-01	1.31E-03
FE-55	5.48E+01	3.38E+00
FE-59	1.71E-01	4.12E+00
H-3	9.79E-03	9.14E-05
MN-54	3.72E+00	6.88E+01
NI-59	1.74E-02	1.43E-01
NI-63	1.83E+00	1.60E-01
PU-241	3.33E-03	3.11E-05
SB-125	1.59E-01	1.48E-03

Installation: Cooper
Unit No.: 1

Location: 70 Mi S Omaha, NE

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

B
SR-90 5.92E-04 5.53E-06

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 3.50E+01 m3 4.38E+01 Ci 5.65E+02	non-compacted
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.71E+02 Ci 5.24E+01	compacted & non-compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Crystal River
Unit No.: 3

Location: 70 Mi N Tampa, FL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-302
Thermal Power(MWH): 1.68E+07
Commercial Operation: 03/13/77
Cooling Water Source: Gulf of Mexico

Licensee: Florida Power
Licensed Power(MWT): 2.54E+03
Net Electrical Power(MWH): 5.46E+06
Initial Criticality: 01/14/77

Airborne Effluents

Nuclide Released	Activity (Ci)
KR-85	7.45E+01
KR-85M	1.36E+00
SR-89	2.02E-04
I-131	2.55E-04
XE-131M	3.43E+01
I-133	7.56E-05
XE-133	1.25E+03
XE-133M	9.18E+00
CS-134	1.13E-07
XE-135	3.17E+01
CS-137	2.07E-07

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	1.44E-04
CR-51	3.70E-03
MN-54	9.70E-04
FE-55	2.55E-02
CO-58	6.12E-02
FE-59	2.62E-04
CO-60	1.23E-02
KR-85	1.18E-01
KR-85M	2.16E-05
SR-89	5.10E-04
SR-90	9.95E-05
SR-91	1.23E-03
SR-92	9.55E-04
NB-95	1.17E-03
ZR-95	5.25E-04
ZR-97	2.52E-04
TC-99M	5.65E-04
RU-103	1.81E-04
RU-106	1.15E-03
AG-110M	6.41E-03
I-131	9.44E-04
XE-131M	4.81E-02
I-133	1.05E-04
XE-133	2.79E+00
XE-133M	2.46E-02
CS-134	2.05E-02
XE-135	2.33E-02
CS-137	3.20E-02
BA-139	1.44E-04
BA-140	2.30E-05

Installation: Crystal River
Unit No.: 3

Location: 70 Mi N Tampa, FL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
LA-140	2.52E-03
CE-143	1.80E-06
PR-144	6.97E-03

Total Airborne Tritium Released	1.35E+01 Ci
Total Liquid Tritium Released	4.49E+02 Ci
Volume of Waste Released (Prior to Dilution)	4.34E+07 liters
Volume of Dilution Water Used During Period	1.20E+12 liters

Installation: Crystal River
Unit No.: 3

Location: 70 Mi N Tampa, FL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-302
Thermal Power(MWH): 1.68E+07
Commercial Operation: 03/13/77
Cooling Water Source: Gulf of Mexico

Licensee: Florida Power
Licensed Power(MWT): 2.54E+03
Net Electrical Power(MWH): 5.46E+06
Initial Criticality: 01/14/77

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
5	Exclusive Use Vehicle	Alaron-Wampum, PA
10	Exclusive Use Vehicle	CNSI-Barnwell, SC
3	Exclusive Use Vehicle	DSSI-Kingston, TN
18	Exclusive Use Vehicle	SEG-Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

C-14		4.30E+00
CO-58	3.16E+01	2.50E+00
CO-60	3.54E+01	1.01E+01
CR-51	3.10E+00	
CS-134	5.60E+00	1.85E+01
CS-137	8.20E+00	2.73E+01
FE-55		2.02E+01
H-3		5.90E+00
MN-54	7.20E+00	
NI-63		3.00E+00
SR-89		5.70E+00

B

C-14	2.90E+00	8.50E+00
CO-58	1.20E+00	1.27E+01
CO-60	2.51E+01	1.94E+01
CS-137	7.50E+00	1.80E+00
FE-55	3.96E+01	4.27E+01
MN-54		2.50E+00
NI-63	2.02E+01	7.10E+00

D

CO-60	1.44E+01	
H-3	8.37E+01	

Installation: Crystal River
Unit No.: 3

Location: 70 Mi N Tampa, FL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 5.55E+01	
	m3 9.21E+01	before volume reduction
	m3 2.32E+01	burial volume
	Ci 2.25E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.80E+02	
	m3 3.73E+02	before volume reduction
	m3 7.13E+01	burial volume
	Ci 1.31E+01	
C. Irradiated Components, Control Rods, etc.	m3	
	Ci	
D. Other (describe) Mixed Waste:hazardous solvents&metals	m3 1.51E+01	
	Ci 7.00E-01	

Installation: Davis-Besse
Unit No.: 1

Location: 21 Mi E Toledo, OH

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-346
Thermal Power(MWH): 1.85E+07
Commercial Operation: 07/31/78
Cooling Water Source: Lake Erie

Licensee: Toledo Edison Co.
Licensed Power(MWT): 2.77E+03
Net Electrical Power(MWH): 5.84E+06
Initial Criticality: 08/12/77

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	8.36E-02
CO-58	8.75E-07
CO-60	1.26E-06
KR-85	4.26E+01
KR-85M	6.50E-02
KR-87	1.74E-02
KR-88	5.19E-02
RU-103	7.33E-07
I-131	8.64E-03
XE-131M	7.74E+00
I-132	1.44E-04
I-133	2.55E-03
XE-133	1.09E+03
XE-133M	1.88E+00
CS-134	2.35E-05
I-135	4.82E-04
XE-135	1.85E+01
XE-135M	1.61E-02
CS-137	3.04E-05
XE-138	9.04E-03

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	8.41E-03
MN-54	3.86E-04
FE-55	1.61E-02
CO-57	1.11E-05
CO-58	5.59E-02
FE-59	2.45E-04
CO-60	3.44E-02
CU-64	4.49E-03
KR-85	9.62E-02
KR-85M	1.26E-06
SR-89	6.21E-05
NB-95	4.38E-03
ZR-95	2.67E-03
NB-97	1.32E-05
ZR-97	8.32E-05
TC-99M	8.65E-06
RU-103	1.37E-03
RU-106	1.82E-04
AG-110M	3.48E-02
SN-113	9.00E-04
SB-125	2.44E-03

Installation: Davis-Besse
Unit No.: 1

Location: 21 Mi E Toledo, OH

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
I-131	3.96E-03
XE-131M	5.52E-02
I-132	9.69E-05
TE-132	1.09E-04
I-133	5.04E-06
XE-133	1.41E+00
XE-133M	1.47E-02
CS-134	1.53E-03
XE-135	1.66E-03
CS-136	3.71E-05
CS-137	1.09E-02
BA-140	3.59E-06
LA-140	1.41E-06
CE-141	1.37E-04
CE-144	1.53E-04

Total Airborne Tritium Released	6.47E+01 Ci
Total Liquid Tritium Released	3.26E+02 Ci
Volume of Waste Released (Prior to Dilution)	4.98E+08 liters
Volume of Dilution Water Used During Period	3.18E+10 liters

Installation: Davis-Besse
Unit No.: 1

Location: 21 Mi E Toledo, OH

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-346
Thermal Power(MWH): 1.85E+07
Commercial Operation: 07/31/78
Cooling Water Source: Lake Erie

Licensee: Toledo Edison Co.
Licensed Power(MWT): 2.77E+03
Net Electrical Power(MWH): 5.84E+06
Initial Criticality: 08/12/77

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
8	Truck	Barnwell, SC
7	Truck	Oak Ridge, TN
3		SEG

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A			
CO-60	1.90E+01		
CS-134	1.10E+01	1.86E+01	
CS-137	2.20E+01	5.61E+01	
FE-55	1.50E+01	5.30E+00	
NI-63	1.50E+01	1.27E+01	
B			
CO-58			1.26E+01
CO-60			2.59E+01
CR-51			5.50E+00
CS-134			6.00E+00
CS-137			1.62E+01
FE-55			2.05E+01
MN-54			7.70E+00
NI-63			5.30E+00
D			
CO-58	1.60E+01		
CO-60	3.70E+01	1.80E+01	
CS-137		4.10E+01	
FE-55	2.60E+01	8.30E+00	
NI-63		3.10E+01	

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.38E+02 Ci 5.45E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 9.60E+01 Ci 1.26E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)		
Dewatered primary system cart. filters	m3 3.00E-01 Ci 9.60E-01	
Contaminated oil	m3 4.47E+00 Ci 2.86E-04	

Installation: Diablo Canyon
Unit No.: 1&2

Location: 12 Mi WSW of San Luis Obispo

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-275
Thermal Power(MWH): 2.31E+07
Commercial Operation: 05/07/85
Cooling Water Source: Pacific Ocean
Unit Number: 2 Type: PWR
Docket Number: 50-323
Thermal Power(MWH): 2.45E+07
Commercial Operation: 03/13/86
Cooling Water Source: Pacific Ocean

Licensee: Pacific Gas & Electric Co
Licensed Power(MWT): 3.34E+03
Net Electrical Power(MWH): 7.36E+06
Initial Criticality: 04/29/84

Licensee: Pacific Gas & Electric Co
Licensed Power(MWT): 3.34E+03
Net Electrical Power(MWH): 7.71E+06
Initial Criticality: 08/19/85

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	8.84E-01
CO-58	6.33E-06
KR-85	1.42E+00
KR-85M	2.32E-04
I-131	5.83E-04
XE-131M	1.05E-03
I-133	4.93E-04
XE-133	4.27E+01
XE-133M	8.83E-03
XE-135	1.15E+00

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	1.81E-03
NA-24	1.79E-03
CR-51	3.35E-03
MN-54	1.80E-02
FE-55	2.18E-01
CO-57	1.15E-03
CO-58	2.38E-01
FE-59	2.86E-04
CO-60	7.95E-02
BR-82	1.45E-03
SR-89	1.25E-03
SR-90	3.12E-05
SR-91	5.14E-06
SR-92	3.61E-06
ZR-95	1.09E-03
MO-99	3.62E-03
AG-110M	1.30E-03
SN-113	1.12E-04
SN-117M	7.06E-06
SB-122	1.21E-03
SB-124	1.45E-02
SB-125	1.69E-01
TE-129M	5.85E-04
I-131	5.17E-02
I-132	4.98E-06
TE-132	1.54E-04

Installation: Diablo Canyon
Unit No.: 1&2

Location: 12 Mi WSW of San Luis Obispo

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
I-133	1.43E-02
XE-133	2.38E-02
XE-133M	2.35E-04
CS-134	8.00E-03
I-134	7.62E-15
I-135	6.91E-04
XE-135	2.05E-03
CS-136	6.19E-05
CS-137	1.47E-02
CS-138	1.85E-12
LA-140	1.35E-03
ND-147	9.71E-05
W-187	1.40E-04

Total Airborne Tritium Released	9.38E+01 Ci
Total Liquid Tritium Released	1.05E+03 Ci
Volume of Waste Released (Prior to Dilution)	4.38E+08 liters
Volume of Dilution Water Used During Period	6.34E+11 liters

Installation: Diablo Canyon
Unit No.: 1&2

Location: 12 Mi WSW of San Luis Obispo

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-275
Thermal Power(MWH): 2.31E+07
Commercial Operation: 05/07/85
Cooling Water Source: Pacific Ocean

Licensee: Pacific Gas & Electric Co
Licensed Power(MWT): 3.34E+03
Net Electrical Power(MWH): 7.36E+06
Initial Criticality: 04/29/84

Unit Number: 2 Type: PWR
Docket Number: 50-323
Thermal Power(MWH): 2.45E+07
Commercial Operation: 03/13/86
Cooling Water Source: Pacific Ocean

Licensee: Pacific Gas & Electric Co
Licensed Power(MWT): 3.34E+03
Net Electrical Power(MWH): 7.71E+06
Initial Criticality: 08/19/85

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
44	Truck	Barnwell, SC
52	Truck	Beatty, NV
11	Truck	Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

CO-58	1.34E+00	3.51E+00
CO-60	2.79E+01	2.67E+01
CS-134	1.93E+00	
CS-137	2.76E+00	1.35E+00
FE-55	3.92E+01	4.11E+01
MN-54	1.65E+00	4.02E+00
NI-63	2.41E+01	2.13E+01

B

CO-58	1.22E+01	2.54E+01
CO-60	4.12E+00	5.74E+00
CR-51	1.31E+00	4.83E+00
FE-55	1.74E+01	2.45E+01
H-3	5.54E+01	2.35E+01
NB-95	2.91E+00	5.46E+00
NI-63	3.16E+00	4.04E+00
ZR-95	1.73E+00	3.79E+00

Installation: Diablo Canyon
Unit No.: 1&2

Location: 12 Mi WSW of San Luis Obispo

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 6.16E+01 Ci 1.69E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.27E+02 Ci 5.79E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Dresden
Unit No.: 1

Location: 14 Mi SW Joliet, IL

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-10
Thermal Power(MWH): 0.00E+00
Commercial Operation: 07/04/60
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 7.00E+02
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 10/15/59

Airborne Effluents

Nuclide Released	Activity (Ci)
MN-54	2.00E-06
FE-55	1.87E-05
CO-60	1.04E-04
SR-89	4.64E-06
SR-90	1.59E-06
MO-99	3.14E-06
RU-103	3.96E-03
CS-137	9.90E-05

Installation: Dresden
Unit No.: 2&3

Location: 14 Mi SW Joliet, IL

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 2 Type: BWR
Docket Number: 50-237
Thermal Power(MWH): 1.00E+07
Commercial Operation: 06/09/70
Cooling Water Source: Kankakee River
Unit Number: 3 Type: BWR
Docket Number: 50-249
Thermal Power(MWH): 9.00E+06
Commercial Operation: 11/16/71
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 7.00E+02
Net Electrical Power(MWH): 2.97E+06
Initial Criticality: 01/07/70

Licensee: Commonwealth Edison
Licensed Power(MWT): 8.09E+02
Net Electrical Power(MWH): 2.57E+06
Initial Criticality: 01/31/71

Airborne Effluents

Nuclide Released	Activity (Ci)
CR-51	7.61E-04
MN-54	2.12E-03
FE-55	1.70E-02
CO-58	3.50E-04
FE-59	2.36E-04
CO-60	6.32E-03
ZN-65	5.78E-05
KR-85	7.53E-03
KR-88	8.78E+00
SR-89	5.05E-04
SR-90	1.51E-05
MO-99	7.12E-04
RU-103	5.88E-03
AG-110M	2.23E-05
SB-124	2.16E-06
I-131	1.83E-03
I-133	7.33E-03
I-135	1.51E-02
XE-135	3.82E+00
CS-137	1.95E-04
BA-140	1.56E-03
LA-140	2.08E-03

Liquid Effluents

Nuclide Released	Activity (Ci)
FE-55	1.86E-05
CO-60	5.80E-05
SR-89	1.05E-06
SR-90	5.59E-07
CS-134	1.42E-06
I-135	4.79E-07
CS-137	1.05E-05

Installation: Dresden
Unit No.: 1&2&3

Location: 14 Mi SW Joliet, IL

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: BWR
Docket Number: 50-10
Thermal Power(MWH): 0.00E+00
Commercial Operation: 07/04/60
Cooling Water Source: Kankakee River
Unit Number: 2 Type: BWR
Docket Number: 50-237
Thermal Power(MWH): 1.00E+07
Commercial Operation: 06/09/70
Cooling Water Source: Kankakee River
Unit Number: 3 Type: BWR
Docket Number: 50-249
Thermal Power(MWH): 9.00E+06
Commercial Operation: 11/16/71
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 7.00E+02
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 10/15/59

Licensee: Commonwealth Edison
Licensed Power(MWT): 7.00E+02
Net Electrical Power(MWH): 2.97E+06
Initial Criticality: 01/07/70

Licensee: Commonwealth Edison
Licensed Power(MWT): 8.09E+02
Net Electrical Power(MWH): 2.57E+06
Initial Criticality: 01/31/71

Liquid Effluents

Nuclide Released	Activity (Ci)
MN-54	1.85E-01
FE-55	3.15E-02
CO-58	3.49E-03
FE-59	6.45E-03
CO-60	4.29E-01
AS-76	3.56E-05
SR-89	1.10E-04
SR-90	9.16E-04
RU-103	1.74E-04
AG-110M	2.69E-06
SB-124	1.70E-04
I-132	6.01E-05
XE-133	5.55E-04
I-134	3.01E-05
XE-135	5.47E-04
CS-137	1.06E-01
CS-138	2.77E-05
LA-140	6.89E-06
CE-141	3.50E-05

Total Airborne Tritium Released	6.38E+00 Ci
Total Liquid Tritium Released	1.28E+01 Ci
Volume of Waste Released (Prior to Dilution)	2.64E+07 liters
Volume of Dilution Water Used During Period	5.48E+10 liters

Installation: Dresden
Unit No.: 1&2&3

Location: 14 Mi SW Joliet, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: BWR
Docket Number: 50-10
Thermal Power(MWH): 0.00E+00
Commercial Operation: 07/04/60
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 7.00E+02
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 10/15/59

Unit Number: 2 Type: BWR
Docket Number: 50-237
Thermal Power(MWH): 1.00E+07
Commercial Operation: 06/09/70
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 7.00E+02
Net Electrical Power(MWH): 2.97E+06
Initial Criticality: 01/07/70

Unit Number: 3 Type: BWR
Docket Number: 50-249
Thermal Power(MWH): 9.00E+06
Commercial Operation: 11/16/71
Cooling Water Source: Kankakee River

Licensee: Commonwealth Edison
Licensed Power(MWT): 8.09E+02
Net Electrical Power(MWH): 2.57E+06
Initial Criticality: 01/31/71

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
63	Motor freight	CNSI, Barnwell, SC
10	Motor freight	CNSI, Channahon, IL
21	Motor freight	Quadrex, Oak Ridge, TN
1	Motor freight	US Ecology, Richland, WA
12	Motor freight	Westinghse DDR, Madison, PA

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
CO-60	7.56E+01	6.27E+01
CS-137	3.12E+00	7.15E+00
FE-55	1.52E+01	2.18E+01
MN-54	4.97E+00	7.15E+00
NI-63	8.29E-01	
B		
CO-60	2.23E+01	2.12E+01
CS-137	1.19E+00	5.14E+00
FE-55	6.33E+01	6.44E+01
FE-59	1.78E+00	
MN-54	8.98E+00	6.15E+00
NI-59		1.32E+00
NI-63	1.16E+00	1.02E+00

Installation: Dresden
Unit No.: 1&2&3

Location: 14 Mi SW Joliet, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.37E+02 Ci 9.63E+02	disposal volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.37E+03 Ci 2.39E+01	non-compacted waste
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Duane Arnold
Unit No.: 1

Location: 8 Mi NW Cedar Rapids, IA

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-331
Thermal Power(MWH): 1.33E+07
Commercial Operation: 02/01/75
Cooling Water Source: Cedar Rapids River

Licensee: Iowa Electric Light & Power
Licensed Power(MWT): 1.66E+03
Net Electrical Power(MWH): 4.15E+06
Initial Criticality: 03/23/74

Airborne Effluents

Nuclide Released	Activity (Ci)
N-13	2.46E+00
CR-51	1.49E-03
MN-54	1.45E-04
CO-58	8.92E-05
CO-60	7.65E-04
KR-85	1.76E-04
SR-89	1.93E-05
SR-90	7.22E-08
I-131	1.28E-04
XE-131M	3.90E-06
I-133	2.26E-04
XE-133	4.10E-01
I-135	8.31E-05
XE-135	1.02E+01
XE-135M	1.99E+01
CS-137	4.49E-06

Total Airborne Tritium Released

1.39E+01 Ci

Installation: Duane Arnold
Unit No.: 1

Location: 8 Mi NW Cedar Rapids, IA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-331
Thermal Power(MWH): 1.33E+07
Commercial Operation: 02/01/75
Cooling Water Source: Cedar Rapids River

Licensee: Iowa Electric Light & Power
Licensed Power(MWT): 1.66E+03
Net Electrical Power(MWH): 4.15E+06
Initial Criticality: 03/23/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
9	Truck	Barnwell, SC
5	Truck	Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AG-110M		1.03E-01
AG-110M,CO-57,I-131,SR-89,SR-90,FE-59	1.37E-01	
C-14	7.64E-02	4.43E-02
CO-58	6.03E+00	1.89E+00
CO-60	3.48E+01	3.68E+01
CR-51	4.46E+00	3.90E-01
CS-134	3.54E-01	3.99E-01
CS-137	8.32E-01	8.97E-01
FE-55	3.37E+01	4.42E+01
FE-59		7.08E-02
H-3	6.33E-02	8.18E-03
MN-54	1.78E+01	1.42E+01
NI-59		1.08E-02
NI-63	1.70E+00	9.22E-01
SR-89,SR-90,CO-57,U-233		5.38E-03
TRUs*	1.15E-04	4.52E-05
ZN-65		1.14E-01

B

C-14		1.65E-02
CE-144,CS-137,CS-134,CR-51,ZN-65	9.01E-01	
CM-242	4.32E-03	
CO-58	1.81E+00	
CO-60	2.00E+01	3.03E+01
FE-55	6.76E+01	6.65E+01
FE-59	2.22E+00	
MN-54	5.85E+00	1.34E+00
NI-59		5.58E-03
NI-63	1.54E+00	1.80E+00
PU-241	4.01E-02	
SR-90		2.09E-04
TRUs*	1.22E-03	4.94E-03

* The nuclide TRUs are alpha emitting transuranics with half-life greater than 5 years.

Installation: Duane Arnold
Unit No.: 1

Location: 8 Mi NW Cedar Rapids, IA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 4.81E+01 Ci 4.51E+02	non-compacted
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.45E+02 m3 5.80E+01 Ci 6.40E+00	non-compacted & compacted burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Joseph M. Farley
Unit No.: 1

Location: Dothan, AL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-348
Thermal Power(MWH): 1.78E+07
Commercial Operation: 12/01/77
Cooling Water Source: Chatahoochee River

Licensee: Alabama Power
Licensed Power(MWT): 2.65E+03
Net Electrical Power(MWH): 5.41E+06
Initial Criticality: 08/09/77

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.62E+01
KR-85	2.47E+00
KR-85M	1.58E-06
KR-87	1.73E-05
I-131	1.60E-03
XE-131M	2.52E-01
I-133	5.31E-06
XE-133	7.32E+01
XE-133M	4.85E-02
XE-135	1.66E+01
XE-135M	7.16E-04

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	1.15E-02
MN-54	8.01E-04
FE-55	1.24E-01
CO-57	7.19E-06
CO-58	2.98E-02
FE-59	4.19E-04
CO-60	1.72E-02
ZN-65	6.85E-06
KR-85M	2.13E-06
RB-88	3.33E-05
SR-90	9.76E-06
SR-92	1.09E-04
Y-93	4.17E-06
NB-95	3.11E-03
ZR-95	1.39E-03
NB-97	1.66E-04
TC-99M	1.91E-05
RU-103	3.49E-04
RU-105	7.20E-05
RU-106	2.31E-04
AG-110M	4.95E-03
SB-124	1.05E-03
SB-125	1.41E-02
I-131	3.92E-04
TE-131	2.65E-06
XE-131M	1.05E-04
I-132	5.05E-05
TE-132	5.39E-05
I-133	8.99E-05
XE-133	2.65E-02

Installation: Joseph M. Farley
Unit No.: 1

Location: Dothan, AL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
CS-134	4.07E-04	
XE-135	1.15E-05	
CS-137	2.99E-03	
CS-138	9.96E-06	
LA-140	5.35E-04	
CE-141	2.83E-06	
CE-143	1.26E-06	
CE-144	7.86E-06	
Total Airborne Tritium Released		3.09E+01 Ci
Total Liquid Tritium Released		4.71E+02 Ci
Volume of Waste Released (Prior to Dilution)		3.79E+08 liters
Volume of Dilution Water Used During Period		5.49E+10 liters

Installation: Joseph M. Farley
Unit No.: 2

Location: Dothan, AL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-364
Thermal Power(MWH): 2.18E+07
Commercial Operation: 07/30/81
Cooling Water Source: Chatahoochee River

Licensee: Alabama Power
Licensed Power(MWT): 2.65E+03
Net Electrical Power(MWH): 6.74E+06
Initial Criticality: 05/05/81

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.75E+01
KR-85M	4.29E-04
I-131	1.43E-05
XE-133	1.11E+02
XE-135	2.17E+02

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	7.61E-03
MN-54	7.68E-04
FE-55	1.35E-01
CO-57	4.45E-06
CO-58	1.82E-02
FE-59	2.91E-04
CO-60	1.24E-02
ZN-65	5.24E-06
KR-85M	3.68E-06
RB-88	3.12E-04
RB-89	7.51E-06
SR-89	4.79E-06
SR-92	4.97E-05
NB-95	1.66E-03
ZR-95	7.13E-04
NB-97	1.68E-04
TC-99M	6.68E-06
RU-103	2.14E-04
RU-105	2.55E-05
RU-106	2.94E-05
AG-110M	2.77E-03
SB-124	5.07E-04
SB-125	5.71E-03
I-131	3.94E-04
XE-131M	1.56E-04
I-132	2.18E-05
TE-132	2.67E-05
I-133	4.59E-05
XE-133	3.01E-02
XE-133M	9.78E-06
CS-134	5.20E-04
XE-135	4.30E-03
CS-137	2.18E-03
LA-140	3.20E-04

Installation: Joseph M. Farley
Unit No.: 2

Location: Dothan, AL

Effluent and Waste Disposal Annual Report for 1991

Total Airborne Tritium Released	1.08E+02 Ci
Total Liquid Tritium Released	3.53E+02 Ci
Volume of Waste Released (Prior to Dilution)	3.90E+08 liters
Volume of Dilution Water Used During Period	5.82E+10 liters

Installation: Joseph M. Farley
Unit No.: 1&2

Location: Dothan, AL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-348
Thermal Power(MWH): 1.78E+07
Commercial Operation: 12/01/77
Cooling Water Source: Chatahoochee River

Licensee: Alabama Power
Licensed Power(MWT): 2.65E+03
Net Electrical Power(MWH): 5.41E+06
Initial Criticality: 08/09/77

Unit Number: 2 Type: PWR
Docket Number: 50-364
Thermal Power(MWH): 2.18E+07
Commercial Operation: 07/30/81
Cooling Water Source: Chatahoochee River

Licensee: Alabama Power
Licensed Power(MWT): 2.65E+03
Net Electrical Power(MWH): 6.74E+06
Initial Criticality: 05/05/81

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
78	Highway	CNSI, Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
C-14	3.80E+00	
CO-58	2.32E+01	5.73E+00
CO-60	1.52E+01	2.80E+01
CR-51	1.40E+00	
FE-55	2.24E+01	3.03E+01
H-3	1.43E+01	
MN-54		2.19E+00
NI-63	1.44E+01	3.09E+01
B		
AG-110M	1.50E+00	
BA-140	1.10E+00	2.80E+00
CO-58	4.07E+01	4.47E+01
CO-60	1.12E+01	9.01E+00
CR-51	3.40E+00	4.30E+00
FE-55	1.43E+01	1.62E+01
H-3	1.55E+01	3.00E+00
LA-140		2.10E+00
MN-54	2.00E+00	1.50E+00
NB-95	2.30E+00	2.00E+00
NI-63	2.30E+00	2.90E+00
PU-241		5.97E+00
ZR-95	1.40E+00	1.50E+00

Installation: Joseph M. Farley
Unit No.: 1&2

Location: Dothan, AL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 7.99E+01 Ci 1.03E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 6.97E+01 Ci 4.98E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Fermi
Unit No.: 2

Location: Laguna Beach, MI

Effluent and Waste Disposal Annual Report for 1991

Type: BWR

Docket Number: 50-341

Thermal Power (MWH): 1.96E+07

Commercial Operation: 01/23/88

Cooling Water Source: Lake Erie

Licensee: Detroit Edison Company

Licensed Power (MWT): 3.29E+03

Net Electrical Power (MWH): 6.18E+06

Initial Criticality: 06/21/85

Airborne Effluents

Nuclide Released	Activity (Ci)
NA-24	2.68E-03
AR-41	1.06E+01
CR-51	1.84E-03
MN-54	1.02E-04
CO-58	6.03E-05
FE-59	3.49E-05
CO-60	2.33E-04
ZN-65	7.25E-05
SE-75	8.00E-06
BR-82	1.26E-04
KR-85M	5.43E+00
KR-88	3.39E+00
RB-88	2.33E-04
KR-89	7.92E+00
RB-89	8.79E-01
SR-89	2.07E-04
SR-90	2.14E-06
SR-91	7.53E-03
Y-91M	5.00E-03
TC-99M	9.91E-03
AG-110M	8.94E-07
SN-113	5.27E-06
I-131	2.43E-03
I-132	6.68E-03
I-133	1.23E-02
XE-133	1.93E+00
I-134	1.03E-03
I-135	5.14E-03
XE-135	5.14E-01
XE-135M	3.98E+00
XE-137	1.84E+01
CS-138	3.61E-01
XE-138	1.00E+01
BA-139	7.27E-01
BA-140	6.62E-04
LA-140	5.93E-04
RE-188	1.51E-04

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	8.07E-03
CR-51	1.27E-01
MN-54	1.20E-02
FE-55	2.83E-02

Installation: Fermi
Unit No.: 2

Location: Laguna Beach, MI

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
CO-58	1.05E-02
FE-59	4.51E-04
CO-60	1.52E-02
NI-65	6.27E-05
ZN-65	8.35E-03
AS-76	1.57E-03
SR-89	2.28E-04
TC-99M	2.54E-03
RU-103	1.58E-05
AG-110M	7.10E-06
BA-131	1.04E-04
I-131	1.03E-04
BA-133M	2.50E-05
I-133	2.08E-04
XE-133	1.51E-05
XE-135	6.09E-05
RE-188	1.37E-04

Total Liquid Tritium Released	2.02E+00 Ci
Volume of Waste Released (Prior to Dilution)	2.54E+06 liters
Volume of Dilution Water Used During Period	3.91E+10 liters

Installation: Fermi
Unit No.: 2

Location: Laguna Beach, MI

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-341
Thermal Power(MWH): 1.96E+07
Commercial Operation: 01/23/88
Cooling Water Source: Lake Erie

Licensee: Detroit Edison Company
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 6.18E+06
Initial Criticality: 06/21/85

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
1	Truck	CNSI-Channahon, IL

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

B

C-14	2.00E-01	
CO-60	8.50E+00	
FE-55	8.10E+01	
MN-54	5.60E+00	
ZN-65	4.60E+00	

Type of Waste

Unit

Description

A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 Ci	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.16E+01 Ci 2.02E+00	volume shipped
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: James A. Fitzpatrick
Unit No.: 1

Location: 36 Mi N Syracuse, NY

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-333
Thermal Power(MWH): 1.04E+07
Commercial Operation: 07/28/75
Cooling Water Source: Lake Ontario

Licensee: Power Authority of the State of NY
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 3.38E+06
Initial Criticality: 11/17/74

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.62E+01
CR-51	9.26E-03
MN-54	2.10E-04
CO-58	2.70E-04
FE-59	5.77E-05
CO-60	5.56E-04
ZN-65	1.14E-02
KR-85M	2.12E+02
KR-87	7.67E+01
KR-88	3.15E+02
SR-89	1.64E-04
SR-90	1.73E-06
NB-95	1.03E-06
RU-103	7.71E-07
AG-110M	9.86E-05
SB-124	3.39E-06
SB-125	2.09E-06
I-131	2.60E-03
XE-131M	2.27E+02
I-133	2.24E-03
XE-133	5.46E+02
XE-133M	2.22E+01
CS-134	1.66E-04
XE-135	4.23E+02
XE-135M	3.72E+01
CS-136	2.94E-06
CS-137	1.87E-04
XE-137	8.01E+01
XE-138	9.29E+01
BA/LA-140	2.98E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	1.17E-04
CR-51	1.15E-03
MN-54	1.44E-03
FE-55	1.49E-02
CO-58	8.84E-05
FE-59	2.80E-04
CO-60	2.34E-03
ZN-65	7.39E-03
AS-76	3.82E-04
SR-89	2.37E-04

Installation: James A. Fitzpatrick
Unit No.: 1

Location: 36 Mi N Syracuse, NY

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
SR-90	1.90E-04
SR-92	1.18E-04
NB-95	3.95E-05
ZR-95	2.29E-07
NB-97	4.24E-04
TC-99M	1.13E-04
AG-110M	8.54E-04
I-131	4.71E-04
XE-133	3.21E-04
CS-134	8.94E-05
XE-135	7.32E-04
CS-137	1.75E-04
BA/LA-140	1.18E-05
CE-141	9.50E-07

Total Airborne Tritium Released	5.09E+00 Ci
Total Liquid Tritium Released	7.61E+00 Ci
Volume of Waste Released (Prior to Dilution)	4.35E+06 liters
Volume of Dilution Water Used During Period	6.36E+11 liters

Installation: James A. Fitzpatrick
Unit No.: 1

Location: 36 Mi N Syracuse, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-333
Thermal Power(MWH): 1.04E+07
Commercial Operation: 07/28/75
Cooling Water Source: Lake Ontario

Licensee: Power Authority of the State of NY
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 3.38E+06
Initial Criticality: 11/17/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
34	Truck	Barnwell, SC
61	Truck	Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AG-110M		8.07E-01
C-14	3.60E-01	5.53E-01
CO-58	2.04E+00	1.73E+00
CO-60	9.43E+00	1.78E+01
CR-51	1.75E+00	1.30E+00
CS-134		1.36E+00
CS-137	3.50E-01	3.20E+00
FE-55	9.64E+00	1.31E+01
FE-59		5.10E-01
LA-140		2.29E-01
MN-54	4.32E+00	6.45E+00
NI-63	1.20E-01	1.65E-01
RU-106		2.76E+00
SB-125	1.04E+00	5.44E-01
ZN-65	6.75E+01	4.91E+01
ZR-95		5.79E-01

B

AG-110M		2.70E-01
C-14		1.26E-01
CO-60		1.11E+01
CR-51		4.22E-01
CS-137		1.10E+00
FE-55		5.68E+01
FE-59		2.14E-01
LA-140		1.68E-01
MN-54		2.16E+00
NI-63		4.04E-01
RU-106		1.43E+00
SB-125		3.05E-01
ZN-65		2.52E+01
ZR-95		2.47E-01

Installation: James A. Fitzpatrick
Unit No.: 1

Location: 36 Mi N Syracuse, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 7.63E+01 Ci 2.82E+02	non-compacted
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 9.89E+02 Ci 3.37E+00	compacted & non-compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Port Calhoun
Unit No.: 1

Location: 19 Mi N Omaha, NE

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-285
Thermal Power(MWH): 1.03E+07
Commercial Operation: 06/20/74
Cooling Water Source: Missouri River

Licensee: Omaha Public Power
Licensed Power(MWT): 1.50E+03
Net Electrical Power(MWH): 3.25E+06
Initial Criticality: 08/06/73

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.67E+00
FE-55	1.06E-04
KR-85	6.33E-01
KR-85M	6.08E-02
SR-90	5.95E-08
I-131	2.02E-04
XE-131M	1.40E+00
I-133	3.80E-04
XE-133	3.50E+02
XE-133M	2.21E+00
CS-134	1.27E-05
XE-135	2.30E+00
CS-137	1.20E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	1.15E-03
MN-54	2.67E-04
FE-55	1.37E-01
CO-58	3.47E-02
CO-60	1.37E-02
SR-89	3.86E-05
SR-90	3.33E-04
NB-95	3.07E-04
ZR-95	1.15E-04
MO-99	1.11E-04
TC-99M	9.43E-05
RU-103	7.79E-05
AG-110M	1.97E-03
SB-124	3.23E-03
SB-125	7.46E-02
I-129	2.30E-06
I-131	2.27E-02
XE-131M	1.15E-03
I-133	1.75E-03
XE-133	4.44E-01
XE-133M	2.14E-03
CS-134	3.04E-02
XE-135	1.13E-03
CS-136	7.57E-05
CS-137	6.44E-02
BA-140	3.05E-04
LA-140	1.29E-03

Installation: Fort Calhoun
Unit No.: 1

Location: 19 Mi N Omaha, NE

Effluent and Waste Disposal Annual Report for 1991

Total Airborne Tritium Released	3.40E-01 Ci
Total Liquid Tritium Released	1.77E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.35E+08 liters
Volume of Dilution Water Used During Period	6.90E+11 liters

Installation: Fort Calhoun
Unit No.: 1

Location: 19 Mi N Omaha, NE

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-285
Thermal Power(MWH): 1.03E+07
Commercial Operation: 06/20/74
Cooling Water Source: Missouri River

Licensee: Omaha Public Power
Licensed Power(MWT): 1.50E+03
Net Electrical Power(MWH): 3.25E+06
Initial Criticality: 08/06/73

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
28	Closed Sole Use Vehicle	Barnwell, SC
40	Closed Sole Use Vehicle	Beatty, NV

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

	Jan-June	Jul-Dec
A		
C-14	4.47E+01	1.78E+01
CO-58		1.60E+00
CO-60	1.30E+00	3.40E+00
CS-134	3.38E+01	8.80E+00
CS-137	1.31E+01	5.34E+01
FE-55		5.40E+00
H-3	1.50E+00	7.60E+00
MN-54	1.80E+00	
TC-99	3.58E+00	
B		
AG-110M	4.20E+00	4.60E+00
BE-7	1.10E+00	1.30E+00
CO-58	2.00E+00	1.10E+00
CO-60	1.80E+00	2.00E+00
CS-134	6.40E+00	6.80E+00
CS-137	6.22E+01	6.50E+01
MO-99	9.70E+00	6.20E+00
TC-99	1.06E+01	1.19E+01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 7.87E+00 Ci 1.93E+01	non-compacted
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.99E+01 Ci 4.17E-01	after volume reduction
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Fort St. Vrain
Unit No.: 1

Location: 35 Mi N Denver, CO

Effluent and Waste Disposal Annual Report for 1991

Type: HTG
Docket Number: 50-267
Thermal Power(MWH): 0.00E+00
Commercial Operation: 07/01/79
Cooling Water Source: South Platte River

Licensee: Public Service Co of Colorado
Licensed Power(MWT): 8.42E+02
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 01/31/74

Liquid Effluents

Nuclide Released	Activity (Ci)
CO-60	1.14E-04
SR-90	5.56E-06
XE-133	5.66E-05
CS-137	1.59E-06

Total Airborne Tritium Released	1.02E-01 Ci
Total Liquid Tritium Released	1.11E+01 Ci
Volume of Waste Released (Prior to Dilution)	2.34E+07 liters
Volume of Dilution Water Used During Period	2.19E+09 liters

Installation: Fort St. Vrain
Unit No.: 1

Location: 35 Mi N Denver, CO

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: HTG
Docket Number: 50-267
Thermal Power(MWH): 0.00E+00
Commercial Operation: 07/01/79
Cooling Water Source: South Platte River

Licensee: Public Service Co of Colorado
Licensed Power(MWT): 8.42E+02
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 01/31/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
1	Highway	Barnwell, SC
3	Highway	Quadrex, Oak Ridge, TN
11	Highway	RAMP, Denver, CO
2	Highway	US Ecology, Beatty, NV

Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
3	Highway	INEL, Scoville, ID

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
B		
CO-60	5.80E+00	5.80E+00
FE-55	8.91E+01	8.91E+01
H-3	3.40E+00	3.40E+00
Others	1.70E+00	1.70E+00
C		
CO-60	7.50E+00	7.50E+00
FE-55	7.33E+01	7.33E+01
H-3	5.40E+00	5.40E+00
MN-54	3.30E+00	3.30E+00
NI-63	1.05E+01	1.05E+01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 Ci	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 3.01E+01 Ci 3.83E-01	
C. Irradiated Components, Control Rods, etc.	m3 3.74E+01 Ci 8.10E+03	
D. Other (describe)	m3 Ci	

Installation: R. E. Ginna
Unit No.: 1

Location: 16 Mi NE Rochester, NY

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-244
Thermal Power(MWH): 1.09E+07
Commercial Operation: 07/01/70
Cooling Water Source: Lake Ontario

Licensee: Rochester Gas&Electric
Licensed Power(MWT): 1.52E+03
Net Electrical Power(MWH): 3.48E+06
Initial Criticality: 11/08/69

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	4.91E+00
CO-58	9.40E-08
CO-60	2.01E-07
KR-85	7.51E+00
KR-85M	2.95E+00
KR-87	2.29E-01
KR-88	1.53E+00
I-131	1.60E-03
XE-131M	3.20E+00
I-133	8.81E-04
XE-133	4.02E+02
XE-133M	3.50E+00
XE-135	8.33E+01
XE-135M	4.88E+00
CS-137	1.26E-05
XE-138	4.57E-01
Unidentified	3.62E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	2.82E-04
MN-54	1.46E-04
FE-55	4.24E-05
CO-58	9.13E-03
FE-59	2.31E-06
CO-60	3.13E-03
SR-89	1.07E-04
SR-90	1.24E-03
ZR/NB-95	1.35E-04
MO-99	1.73E-05
AG-110M	2.11E-04
SB-122	3.51E-03
SB-124	4.88E-03
SB-125	5.27E-04
I-131	1.74E-02
I-133	8.04E-03
XE-133	1.09E-01
CS-134	4.76E-02
I-135	2.57E-03
XE-135	4.17E-03
CS-136	3.65E-03
CS-137	4.93E-02
BA/LA-140	4.46E-04

Installation: R. E. Ginna
Unit No.: 1

Location: 16 Mi NE Rochester, NY

Effluent and Waste Disposal Annual Report for 1991

Total Airborne Tritium Released	8.34E+01 Ci
Total Liquid Tritium Released	3.76E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.17E+08 liters
Volume of Dilution Water Used During Period	5.91E+11 liters

Installation: R. E. Ginna
Unit No.: 1

Location: 16 Mi NE Rochester, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-244
Thermal Power(MWH): 1.09E+07
Commercial Operation: 07/01/70
Cooling Water Source: Lake Ontario

Licensee: Rochester Gas&Electric
Licensed Power(MWT): 1.52E+03
Net Electrical Power(MWH): 3.48E+06
Initial Criticality: 11/08/69

Solid Waste Disposition

Number of Shipments Mode of Transportation
7 Sole Use Truck

Destination
Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

AG-110M
CO-58
CO-60
CS-134
CS-137
FE-55
H-3
I-131
MN-54
NI-63
SB-124
SB-125
ZN-65

Jan-June Jul-Dec

1.70E-02
9.90E-02 4.03E+00
 8.06E+00
1.80E-02 6.24E+00
6.20E-02 8.85E+00
5.70E-02 3.42E+00
9.30E+01 4.76E+01
1.20E+00
 1.35E+00
3.90E-02 2.32E+00
2.30E+00 7.07E+00
2.60E+00 1.04E+00
 9.25E+00

B

C-14
CO-58
CO-60
CS-134
CS-137
FE-55
NI-63
SB-125
SR-90
TC-99

2.50E-01
1.55E+01 7.08E+00
1.55E+01 1.55E+01
4.00E+00 6.71E+00
2.06E+01 1.94E+01
3.30E+01
7.00E+00 1.32E+01
3.70E+00 1.16E+00
 2.23E+00
5.90E-01

Installation: R. E. Ginna
Unit No.: 1

Location: 16 Mi NE Rochester, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.59E+01 Ci 2.30E+00	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.41E+01 Ci 8.89E-01	after incineration
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Grand Gulf
Unit No.: 1

Location: 25 Mi Vicksburg, MS

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-416
Thermal Power (MWH): 2.98E+07
Commercial Operation: 07/01/85
Cooling Water Source: Mississippi River

Licensee: System Energy Resources, Inc.
Licensed Power (MWT): 3.83E+03
Net Electrical Power (MWH): 9.12E+06
Initial Criticality: 08/18/82

Airborne Effluents

Nuclide Released	Activity (Ci)
F-18	3.91E+00
NA-24	9.68E-04
AR-41	1.26E-01
CR-51	1.88E-03
MN-54	1.08E-04
CO-58	4.48E-05
CO-60	1.28E-04
AS-76	4.31E-04
KR-85	4.63E-01
KR-87	1.27E-02
KR-88	3.34E-01
KR-89	6.21E+00
SR-89	2.21E-05
SR-90	6.47E-07
MO-99	4.49E-05
TC-99M	5.14E-03
RU-106	6.57E-05
I-131	2.04E-03
I-133	1.24E-03
XE-133	9.29E+00
XE-135	9.34E+00
XE-135M	1.56E+00
XE-137	7.27E-02
XE-138	3.88E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	1.83E-03
CR-51	1.27E-01
MN-54	4.93E-02
FE-55	6.29E-01
MN-56	7.13E-06
CO-58	3.70E-03
FE-59	6.88E-03
CO-60	5.38E-02
CU-64	2.03E-03
ZN-65	4.35E-06
AS-76	1.13E-03
SR-89	9.01E-04
ZR-NB-95	1.22E-04
MO-99	5.73E-05
TC-99M	3.18E-04
AG-110M	1.43E-05
SB-124	4.37E-05

Installation: Grand Gulf
Unit No.: 1

Location: 25 Mi Vicksburg, MS

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
I-131	4.56E-06
I-133	4.51E-06
XE-133	2.59E-04
CS-134	1.05E-04
XE-135	1.12E-03
CS-137	4.94E-06
W-187	3.91E-05
RE-188	2.48E-05

Total Airborne Tritium Released	5.57E+00 Ci
Total Liquid Tritium Released	2.16E+01 Ci
Volume of Waste Released (Prior to Dilution)	3.81E+07 liters
Volume of Dilution Water Used During Period	2.64E+09 liters

Installation: Grand Gulf
Unit No.: 1

Location: 25 Mi Vicksburg, MS

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-416
Thermal Power(MWH): 2.98E+07
Commercial Operation: 07/01/85
Cooling Water Source: Mississippi River

Licensee: System Energy Resources, Inc.
Licensed Power(MWT): 3.83E+03
Net Electrical Power(MWH): 9.12E+06
Initial Criticality: 08/18/82

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
37	Truck	Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

CO-60	1.70E+01	1.40E+01
CR-51		5.00E+00
FE-55	6.80E+01	6.50E+01
MN-54	1.30E+01	1.30E+01
Others	2.00E+00	3.00E+00

B

CO-60	7.00E+00	6.00E+00
CR-51		2.00E+00
FE-55	8.00E+01	8.20E+01
FE-59	1.00E+00	1.00E+00
MN-54	1.20E+01	7.00E+00
Others		2.00E+00

Type of Waste

Unit

Description

A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.94E+02	non-compacted & compacted
	Ci 2.67E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.25E+02	non-compacted
	m3 2.10E+01	compacted/incinerated
	Ci 1.64E+01	
C. Irradiated Components, Control Rods, etc.	m3	
	Ci	
D. Other (describe)	m3	
	Ci	

Installation: Haddam Neck
Unit No.: 1

Location: 9.5 Mi SE Middletown, CT

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-213
Thermal Power(MWH): 1.19E+07
Commercial Operation: 01/01/68
Cooling Water Source: Connecticut River

Licensee: Connecticut Yankee Atomic Power
Licensed Power(MWT): 1.82E+03
Net Electrical Power(MWH): 3.70E+06
Initial Criticality: 07/24/67

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	5.44E-01
CO-58	3.71E-04
CO-60	2.00E-04
KR-85	4.02E+02
KR-85M	1.34E+00
KR-87	1.35E+00
KR-88	2.17E+00
SR-90	4.75E-06
I-131	1.67E-02
XE-131M	1.17E+02
I-133	1.45E-03
XE-133	5.52E+03
XE-133M	2.57E+01
CS-134	2.44E-03
XE-135	3.91E+01
XE-135M	4.97E-01
CS-137	6.22E-03
XE-137	3.88E-01
XE-138	4.65E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	6.17E-03
MN-54	5.49E-03
FE-55	3.63E-01
CO-57	1.50E-04
CO-58	2.92E-02
FE-59	2.92E-03
CO-60	2.17E-01
KR-85	3.38E-01
SR-89	5.22E-04
SR-90	2.82E-03
RU-103	4.76E-05
AG-110M	2.12E-03
SB-124	5.44E-04
I-131	1.67E-02
XE-131M	3.81E-01
I-133	3.36E-05
XE-133	1.10E+01
XE-133M	4.07E-02
CS-134	4.07E-02
XE-135	2.64E-03
CS-136	2.73E-05

Installation: Haddam Neck
Unit No.: 1

Location: 9.5 Mi SE Middletown, CT

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
CS-137	5.45E-02
BA-LA-140	1.24E-04
CE-141	1.46E-05

Total Airborne Tritium Released	3.10E+02 Ci
Total Liquid Tritium Released	4.63E+03 Ci
Volume of Waste Released (Prior to Dilution)	8.33E+07 liters
Volume of Dilution Water Used During Period	6.72E+11 liters

Installation: Haddam Neck
Unit No.: 1

Location: 9.5 Mi SE Middletown, CT

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR Licensee: Connecticut Yankee Atomic Power
Docket Number: 50-213 Licensed Power(MWT): 1.82E+03
Thermal Power(MWH): 1.19E+07 Net Electrical Power(MWH): 3.70E+06
Commercial Operation: 01/01/68 Initial Criticality: 07/24/67
Cooling Water Source: Connecticut River

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
12	Truck	Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AM-241		8.00E-03
C-14		1.46E-01
CE-144		4.63E-01
CM-242		6.00E-03
CM-243		4.00E-03
CM-244		4.00E-03
CO-57		4.10E-02
CO-58		3.99E+00
CO-60		3.84E+01
CS-134		8.05E-01
CS-137		1.31E+00
FE-55		4.68E+01
H-3		5.10E-02
I-129		1.83E-05
MN-54		1.25E+00
NI-63		6.24E+00
PU-238		1.90E-02
PU-239		2.20E-02
PU-240		2.20E-02
PU-241		4.40E-01
SR-90		4.00E-03
TC-99		1.66E-05

B

AM-241	2.30E-02	1.04E-01
C-14	2.20E-01	4.92E-02
CM-242	1.00E-02	4.89E-03
CM-243	2.30E-02	4.78E-02
CM-244	2.30E-02	4.78E-02
CO-58	1.52E+00	4.14E+00
CO-60	9.48E+00	2.59E+01
CS-134	6.96E+00	1.90E+01
CS-137	1.02E+01	2.78E+01
FE-55	5.69E+01	1.39E+01
H-3	4.00E-02	6.20E+00
I-129	2.00E-01	1.13E-03
MN-54	5.30E-01	1.46E+00
NI-63	5.39E+00	8.03E-01

Installation: Haddam Neck
Unit No.: 1

Location: 9.5 Mi SE Middletown, CT

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

	Jan-June	July-Dec
B		
NP-237	2.93E-03	
PU-238	1.70E-01	1.44E-01
PU-239	3.30E-02	2.46E-02
PU-240	3.30E-02	2.46E-02
PU-241	8.14E+00	4.12E-01
SR-90	1.20E-01	7.86E-03
TC-99	3.00E-02	1.26E-03

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.38E+01 Ci 3.32E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.10E+02 Ci 4.96E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Harris
Unit No.: 1

Location: 20 Mi SW Raleigh, NC

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-400
Thermal Power(MWH): 1.89E+07
Commercial Operation: 05/02/87
Cooling Water Source: Makeup Reservoir

Licensee: Carolina Power & Light
Licensed Power(MWT): 2.77E+03
Net Electrical Power(MWH): 5.92E+06
Initial Criticality: 01/03/87

Airborne Effluents

Nuclide Released	Activity (Ci)
CO-58	4.14E-06
CO-60	4.30E-05
KR-85	3.42E-01
KR-85M	1.86E+01
KR-87	6.20E+00
KR-88	3.10E+01
XE-131M	7.11E-03
XE-133	7.44E+02
XE-133M	1.24E+01
XE-135	4.34E+01
XE-135M	7.17E-04
XE-138	6.20E+00

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	3.52E-05
CR-51	4.90E-03
MN-54	2.64E-03
FE-55	2.83E-02
CO-57	1.39E-03
CO-58	4.85E-01
FE-59	2.87E-03
CO-60	7.45E-02
ZN-65	1.61E-05
KR-85M	2.14E-05
KR-87	1.31E-05
SR-92	1.54E-05
Y-93	6.09E-05
NB-95	4.98E-04
ZR-95	2.45E-04
NB-97	9.16E-05
TC-99M	5.43E-06
CD-109	6.52E-05
AG-110M	3.89E-04
SN-113	1.52E-04
SB-122	1.89E-04
SB-124	1.77E-03
SB-125	4.59E-02
I-131	4.39E-03
I-132	5.94E-05
TE-132	2.32E-05
I-133	1.80E-04
XE-133	5.39E-03
XE-133M	1.84E-05

Installation: Harris
Unit No.: 1

Location: 20 Mi SW Raleigh, NC

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
CS-134	1.42E-03	
XE-135	7.69E-05	
CS-137	2.15E-03	
CS-138	8.50E-05	
LA-142	2.17E-05	
CE-143	2.86E-05	
CE-144	4.56E-05	
PR-144	4.33E-03	
HF-181	3.34E-05	
Total Airborne Tritium Released		8.12E-01 Ci
Total Liquid Tritium Released		2.92E+02 Ci
Volume of Waste Released (Prior to Dilution)		1.22E+08 liters
Volume of Dilution Water Used During Period		2.26E+10 liters

Installation: Harris
Unit No.: 1

Location: 20 Mi SW Raleigh, NC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-400
Thermal Power(MWH): 1.89E+07
Commercial Operation: 05/02/87
Cooling Water Source: Makeup Reservoir

Licensee: Carolina Power & Light
Licensed Power(MWT): 2.77E+03
Net Electrical Power(MWH): 5.92E+06
Initial Criticality: 01/03/87

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
8	Truck	Barnwell, SC
33	Truck	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AM-241		2.29E-05
C-14	1.17E-01	3.37E-03
CM-243		5.74E-05
CO-58	3.73E+01	1.53E+00
CO-60	1.58E+01	4.44E+01
CS-134	2.84E-01	
CS-137	3.82E-01	4.88E-01
FE-55	2.22E+01	3.53E+01
H-3	9.63E-02	1.24E-01
MN-54	9.33E+00	3.29E+00
NB-95		1.61E-01
NI-63	1.43E+01	1.46E+01
PU-239		6.38E-05
PU-241		2.30E-02
SB-125	3.00E-01	
SR-90		2.46E-02
ZN-65	1.63E-01	
ZR-95		5.90E-02

B

C-14	2.07E-02	5.30E-02
CO-58	1.55E+00	9.19E+00
CO-60	1.09E+01	1.18E+01
CR-51		5.62E-01
CS-137		4.20E-02
FE-55	8.38E+01	7.11E+01
FE-59		1.33E+00
H-3	3.88E-01	1.74E-01
MN-54		1.06E+00
NB-95		6.47E-01
NI-59	8.11E-01	1.68E+00
NI-63	1.06E+00	2.15E+00
ZR-95	1.45E+00	1.68E-01

Installation: Harris
Unit No.: 1

Location: 20 Mi SW Raleigh, NC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 4.00E+01 Ci 2.74E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 3.84E+01 Ci 2.93E+01	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Edwin I. Hatch
Unit No.: 1&2

Location: 11 Mi N Baxley, GA

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: BWR
Docket Number: 50-321
Thermal Power(MWH): 1.56E+07
Commercial Operation: 12/31/75
Cooling Water Source: Altamaha River
Unit Number: 2 Type: BWR
Docket Number: 50-366
Thermal Power(MWH): 1.59E+07
Commercial Operation: 09/05/79
Cooling Water Source: Altamaha River

Licensee: Georgia Power
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 4.70E+06
Initial Criticality: 09/12/74

Licensee: Georgia Power
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 4.92E+06
Initial Criticality: 07/04/78

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.24E+00
CR-51	5.45E-06
MN-54	3.69E-05
CO-58	1.58E-05
CO-60	9.99E-05
ZN-65	3.24E-04
KR-85	2.26E+01
KR-85M	3.42E+00
KR-87	1.28E+00
SR-89	7.19E-05
SR-90	5.85E-07
MO-99	1.12E-05
I-131	4.72E-03
I-133	1.72E-02
XE-133	5.77E+01
I-135	1.98E-02
XE-135	9.88E+01
XE-135M	4.45E+01
CS-137	9.03E-05
XE-138	4.92E+01
BA-140	2.00E-04
LA-140	3.26E-04

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	2.51E-02
AR-41	7.01E-05
CR-51	1.23E-01
MN-54	3.33E-02
FE-55	3.59E-02
MN-56	6.21E-05
CO-57	2.45E-04
CO-58	2.09E-02
FE-59	4.94E-03
CO-60	1.44E-01
ZN-65	1.63E-01
ZN-69M	1.05E-05
AS-76	5.75E-03
BR-82	3.98E-04

Installation: Edwin I. Hatch
Unit No.: 1&2

Location: 11 Mi N Baxley, GA

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
KR-85	1.86E-04
KR-87	2.36E-05
KR-88	1.28E-05
SR-89	1.59E-04
SR-90	4.41E-05
SR-91	4.05E-05
Y-91M	1.19E-03
SR-92	1.68E-04
NB-95	6.23E-04
ZR-95	8.75E-05
NB-97	1.93E-03
MO-99	4.45E-04
TC-99M	3.07E-03
RU-103	2.97E-04
SB-124	1.64E-03
SB-125	3.11E-03
I-131	6.35E-03
XE-131M	4.49E-04
I-132	9.19E-04
I-133	1.56E-02
XE-133	3.51E-03
XE-133M	1.21E-05
CS-134	1.45E-02
I-134	2.85E-03
I-135	7.65E-03
XE-135	1.85E-02
XE-135M	1.55E-02
CS-137	8.31E-02
BA-140	2.76E-04
LA-140	4.15E-04
CE-141	5.15E-05
CE-144	5.19E-04
NP-239	2.19E-02

Total Airborne Tritium Released	3.39E+01 Ci
Total Liquid Tritium Released	2.91E+01 Ci
Volume of Waste Released (Prior to Dilution)	3.34E+07 liters
Volume of Dilution Water Used During Period	7.78E+09 liters

Installation: Edwin I. Hatch
Unit No.: 1&2

Location: 11 Mi N Baxley, GA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: BWR
Docket Number: 50-321
Thermal Power(MWH): 1.56E+07
Commercial Operation: 12/31/75
Cooling Water Source: Altamaha River

Licensee: Georgia Power
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 4.70E+06
Initial Criticality: 09/12/74

Unit Number: 2 Type: BWR
Docket Number: 50-366
Thermal Power(MWH): 1.59E+07
Commercial Operation: 09/05/79
Cooling Water Source: Altamaha River

Licensee: Georgia Power
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 4.92E+06
Initial Criticality: 07/04/78

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
56	Tractor trailer	Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
CO-60	2.12E+01	2.07E+01
CS-137	3.99E+00	2.20E+00
FE-55	1.95E+01	2.52E+01
Other	2.24E+01	1.81E+01
ZN-65	3.30E+01	3.38E+01
B		
CO-60	3.16E+01	3.72E+02
CS-137	8.42E+00	3.11E-01
FE-55	4.61E+00	2.29E+02
Other	1.94E+01	3.11E+02
ZN-65	3.60E+01	8.44E+01
C		
CO-60	4.00E+01	
CS-137	3.69E-02	
FE-55	4.26E+01	
Other	1.24E+01	
ZN-65	5.00E+00	
D		
CO-60	2.54E+01	3.17E+01
CS-137	6.79E+00	5.92E+00
FE-55	3.76E+00	8.59E+00
Other	1.86E+01	1.00E+01
ZN-65	4.55E+01	4.28E+01

Installation: Edwin I. Hatch
Unit No.: 1&2

Location: 11 Mi N Baxley, GA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 3.28E+02 Ci 1.37E+03	non-compacted
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 4.04E+02 Ci 2.78E+01	partially compacted
C. Irradiated Components, Control Rods, etc.	m3 9.17E+00 Ci 6.05E+02	non-compacted
D. Other (describe) Wet and oily trash (liquid oil)	m3 3.73E+01 Ci 2.69E+00	non-compacted
Vendor to Barnwell (DAW)	m3 1.11E+01 Ci 1.07E-01	non-compacted

Installation: Hope Creek
Unit No.: 1

Location: 18 Mi SE Wilmington, DE

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-354
Thermal Power(MWH): 2.35E+07
Commercial Operation: 12/20/86
Cooling Water Source: Delaware River

Licensee: Public Serv Elec & Gas Co of NJ
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 7.39E+06
Initial Criticality: 06/28/86

Airborne Effluents

Nuclide Released	Activity (Ci)
MN-54	1.47E-04
ZN-65	2.97E-04
KR-83M	1.92E+00
KR-85M	1.92E+00
KR-87	7.68E+00
KR-88	7.68E+00
KR-89	5.18E+01
XE-133	3.84E+00
XE-135	9.61E+00
XE-135M	1.15E+01
XE-137	5.95E+01
XE-138	3.66E+01

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	2.05E-04
CR-51	5.60E-02
MN-54	3.42E-02
FE-55	6.23E-01
CO-58	8.86E-04
FE-59	5.54E-03
CO-60	7.51E-03
ZN-65	5.94E-02
AS-76	8.39E-05
SR-91	4.67E-06
Y-91M	2.48E-05
SR-92	3.26E-04
NB-95	2.01E-05
TC-99M	1.03E-05
AG-110M	8.65E-04
I-133	7.91E-06
XE-133	2.02E-03
XE-135	6.31E-03
CS-137	2.09E-05
HG-203	2.76E-06

Total Airborne Tritium Released	2.44E+01 Ci
Total Liquid Tritium Released	2.45E+01 Ci
Volume of Waste Released (Prior to Dilution)	1.54E+07 liters
Volume of Dilution Water Used During Period	5.78E+10 liters

Installation: Hope Creek
Unit No.: 1

Location: 18 Mi SE Wilmington, DE

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-354
Thermal Power(MWH): 2.35E+07
Commercial Operation: 12/20/86
Cooling Water Source: Delaware River

Licensee: Public Serv Elec & Gas Co of NJ
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 7.39E+06
Initial Criticality: 06/28/86

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
54	Truck	Barnwell, SC
18	Truck	Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

	Jan-June	Jul-Dec
AG-110M	1.00E-01	
CO-58	1.00E-01	
CO-60	1.30E+00	2.50E+00
CR-51	1.40E+00	
FE-55	1.79E+01	7.33E+01
FE-59	1.00E-01	
MN-54	2.00E+00	3.60E+00
NI-63	1.00E-01	
ZN-65	7.68E+01	2.04E+01

B

AG-110M	1.00E-01	
CO-58	1.00E-01	
CO-60	1.30E+00	1.30E+00
CR-51	1.40E+00	1.40E+00
FE-55	1.79E+01	1.79E+01
FE-59	1.00E-01	
MN-54	2.00E+00	2.00E+00
NI-63	1.00E-01	
ZN-65	7.68E+01	7.68E+01

C

CO-60		3.68E+01
FE-55		5.83E+01
MN-54		3.30E+00
NI-63		1.70E+00

D

C-14		3.70E+00
CE-144	2.00E-01	
CO-60	2.10E+00	2.10E+00
CS-137	1.00E-01	
FE-55	7.97E+01	7.97E+01
FE-59	1.40E+00	
H-3		3.70E+00
I-129	3.00E-01	
MN-54		1.40E+00
NI-63	3.00E-01	
TC-99	3.00E-01	

Installation: Hope Creek
Unit No.: 1

Location: 18 Mi SE Wilmington, DE

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

D

ZN-65 8.30E+00 8.30E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.45E+02 Ci 4.66E+03	non-compacted
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 4.98E+01 Ci 7.95E+00	compacted
C. Irradiated Components, Control Rods, etc.	m3 3.25E+00 Ci 3.84E+04	
D. Other (describe)		
Oil	m3 3.26E+01 m3 1.51E+01 Ci 1.00E-03	incinerated

Installation: Humboldt Bay
Unit No.: 3

Location: 4 Mi SW Eureka, CA

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-133
Thermal Power(MWH): 0.00E+00
Commercial Operation: 08/01/63
Cooling Water Source: Humboldt Bay

Licensee: Pacific Gas & Electric
Licensed Power(MWT): 0.00E+00
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 02/16/63

Airborne Effluents

Nuclide Released	Activity (Ci)
CO-60	2.92E-05
SR-90	2.22E-06
Y-90	9.69E-07
CS-137	3.53E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
CO-60	4.13E-05
SR-90	2.22E-04
Y-90	1.22E-04
CS-134	1.93E-05
CS-137	6.47E-03

Total Liquid Tritium Released	2.29E-03 Ci
Volume of Waste Released (Prior to Dilution)	3.46E+05 liters
Volume of Dilution Water Used During Period	5.96E+10 liters

Installation: Humboldt Bay
Unit No.: 3

Location: 4 Mi SW Eureka, CA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-133
Thermal Power(MWH): 0.00E+00
Commercial Operation: 08/01/63
Cooling Water Source: Humboldt Bay

Licensee: Pacific Gas & Electric
Licensed Power(MWT): 0.00E+00
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 02/16/63

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
5	Truck	Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

B

CO-60	5.72E-01
CS-134	1.94E-01
CS-137	9.73E+01
FE-55	5.09E-01
H-3	1.19E-01
NI-63	1.28E-01
PU-241	1.80E-01
SR-90	9.04E-01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 Ci	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 6.48E+01 Ci 1.42E-01	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Indian Point
Unit No.: 1&2

Location: 3 Mi SW Peekskill, NY

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-3
Thermal Power(MWH): 0.00E+00
Commercial Operation: 10/ /62
Cooling Water Source: Hudson River
Unit Number: 2 Type: PWR
Docket Number: 50-247
Thermal Power(MWH): 1.29E+07
Commercial Operation: 08/01/74
Cooling Water Source: Hudson River

Licensee: Consolidated Edison
Licensed Power(MWT): 6.15E+02
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 08/02/62
Licensee: Consolidated Edison
Licensed Power(MWT): 3.07E+03
Net Electrical Power(MWH): 3.86E+06
Initial Criticality: 05/22/73

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	5.82E-01
FE-55	6.78E-06
CO-57	5.59E-08
CO-58	1.13E-06
CO-60	4.25E-04
NI-63	1.40E-05
KR-85	4.10E-01
KR-85M	7.62E-01
KR-87	1.06E-01
KR-88	4.44E-01
SR-89	7.56E-06
SR-90	3.42E-07
NB-95	8.80E-07
SN-113	1.36E-07
TE-123M	3.76E-05
SB-124	1.94E-06
I-131	3.66E-04
XE-131M	1.25E+01
I-133	3.41E-04
XE-133	1.38E+03
XE-133M	8.40E+00
XE-135	1.18E+01
XE-135M	1.03E+00
CS-137	1.24E-03
XE-138	1.42E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	5.76E-02
MN-54	3.67E-04
FE-55	4.23E-02
CO-57	8.05E-05
CO-58	3.18E-02
CO-60	4.29E-02
NI-63	6.02E-02
SR-90	4.44E-05
NB-95	1.48E-04
RU-106	4.00E-03
AG-110M	3.38E-04

Installation: Indian Point
Unit No.: 1&2

Location: 3 Mi SW Peekskill, NY

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
SB-122	9.90E-04
TE-123M	1.53E-02
SB-124	3.62E-01
SB-125	4.95E-04
I-131	7.98E-02
XE-131M	5.37E-03
I-132	4.06E-02
I-133	1.75E-01
XE-133	3.31E-01
XE-133M	3.18E-04
CS-134	1.34E-02
I-134	7.05E-02
I-135	1.30E-01
XE-135	9.29E-03
XE-135M	5.38E-02
CS-137	6.18E-02
CS-138	1.11E-01

Total Airborne Tritium Released	1.58E-01 Ci
Total Liquid Tritium Released	5.45E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.59E+08 liters
Volume of Dilution Water Used During Period	1.06E+12 liters

Installation: Indian Point
Unit No.: 1&2

Location: 3 Mi SW Peekskill, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-3
Thermal Power(MWH): 0.00E+00
Commercial Operation: 10/ /62
Cooling Water Source: Hudson River

Licensee: Consolidated Edison
Licensed Power(MWT): 6.15E+02
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 08/02/62

Unit Number: 2 Type: PWR
Docket Number: 50-247
Thermal Power(MWH): 1.29E+07
Commercial Operation: 08/01/74
Cooling Water Source: Hudson River

Licensee: Consolidated Edison
Licensed Power(MWT): 3.07E+03
Net Electrical Power(MWH): 3.86E+06
Initial Criticality: 05/22/73

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
19	Truck	Barnwell, SC
12	Truck	Channahon, IL

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

	Jan-June	Jul-Dec
AG-108M		3.50E-01
CO-58		1.71E+00
CO-60		2.40E+01
CS-134		3.94E+00
CS-137		1.12E+01
FE-55		1.54E+01
H-3		1.88E+00
MN-54		3.40E-01
NB-95		2.48E+00
NI-63		5.45E+00
Others*		3.05E+00
PU-241		5.40E-01
SB-124		1.36E+01
SB-125		3.50E-01
ZR-95		1.57E+01

B

	Jan-June	Jul-Dec
C-14	6.00E-01	6.30E-01
CE-144	1.00E+00	1.06E+00
CO-58	1.20E+00	1.26E+00
CO-60	2.65E+01	2.71E+01
CS-134	1.15E+01	1.18E+01
CS-137	3.10E+00	3.16E+00
FE-55	3.79E+01	3.90E+01
H-3	2.00E-01	
MN-54	2.00E-01	
NB-94	6.00E-01	
NI-63	1.52E+01	1.55E+01
PU-241	1.00E-01	
SB-124	1.00E-01	

*The nuclide Others include: I-129, TC-99, C-14, CO-57, NI-59, NB-95, SR-90, RU-106
CE-144, CE-141, SR-89, TE-123M, PU-238, PU-239/240, AM-241

Installation: Indian Point
Unit No.: 1&2

Location: 3 Mi SW Peekskill, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

B		Jan-June	July-Dec
SB-125		9.00E-01	
SR-89		4.00E-01	
SR-90		5.00E-01	4.90E-01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 5.34E+01 Ci 7.75E+01	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 4.34E+02 Ci 1.87E+01	non-compacted & compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Indian Point
Unit No.: 3

Location: 3 Mi SW Peekskill, NY

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-286
Thermal Power(MWH): 2.25E+07
Commercial Operation: 08/30/76
Cooling Water Source: Hudson River

Licensee: Power Authority of the State of NY
Licensed Power(MWT): 3.02E+03
Net Electrical Power(MWH): 7.30E+06
Initial Criticality: 04/06/76

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.74E-01
CO-58	1.85E-06
KR-85	6.23E-02
KR-85M	5.84E-03
I-131	1.61E-05
XE-131M	7.30E+00
XE-133	5.16E+01
XE-133M	6.79E-01
CS-134	2.52E-06
XE-135	6.96E-01
CS-137	3.90E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	3.85E-05
AR-41	8.60E-05
CR-51	1.16E-02
MN-54	2.44E-03
FE-55	6.27E-02
CO-57	9.73E-05
CO-58	8.12E-02
FE-59	7.57E-04
CO-60	2.32E-02
NI-63	1.99E-02
SR-89	3.30E-05
SR-90	1.71E-06
NB-95	1.47E-03
ZR-95	5.19E-04
TC-99M	4.76E-06
AG-110M	1.76E-02
SN-113	2.36E-05
SB-124	1.51E-02
SB-125	3.83E-02
XE-131M	3.71E-04
XE-133	4.78E-02
CS-134	5.59E-03
XE-135	6.67E-04
CS-137	5.50E-03
CS-138	6.55E-05

Total Airborne Tritium Released	7.44E+00 Ci
Total Liquid Tritium Released	5.38E+02 Ci
Volume of Waste Released (Prior to Dilution)	5.74E+06 liters
Volume of Dilution Water Used During Period	1.03E+12 liters

Installation: Indian Point
Unit No.: 3

Location: 3 Mi SW Peekskill, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-286
Thermal Power(MWH): 2.25E+07
Commercial Operation: 08/30/76
Cooling Water Source: Hudson River

Licensee: Power Authority of the State of NY
Licensed Power(MWT): 3.02E+03
Net Electrical Power(MWH): 7.30E+06
Initial Criticality: 04/06/76

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
1	Truck	Alaron, Wampum, PA
5	Truck	Barnwell, SC
3	Truck	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
CO-58	1.40E+01	1.74E+01
CO-60	1.10E+01	1.62E+01
CR-51	1.50E+00	1.01E+01
CS-134	2.00E+01	4.31E+00
CS-137	1.80E+01	3.88E+00
FE-55	2.60E+01	3.34E+01
MN-54	1.40E+00	1.79E+00
NI-63	5.90E+00	4.26E+00
B		
CO-58		3.50E+00
CO-60		2.10E+01
CS-134		1.00E+00
CS-137		2.00E+00
FE-55		5.50E+01
NI-63		7.20E+00
D		
CO-58	5.00E+00	5.00E+01
CO-60	2.80E+01	2.80E+01
CS-137	2.00E+00	2.00E+00
FE-55	5.90E+01	5.90E+01
NI-63	5.00E+00	5.00E+00

Installation: Indian Point
Unit No.: 3

Location: 3 Mi SW Peekskill, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.79E+01 Ci 1.63E+01	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.97E+00 Ci 1.61E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Dry comp. contam. equip.-vol. red.	m3 1.09E+02 Ci 2.05E+00	

Installation: Kewaunee
Unit No.: 1

Location: 27 Mi ESE Green Bay, WI

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-305
Thermal Power(MWH): 1.16E+07
Commercial Operation: 06/16/74
Cooling Water Source: Lake Michigan

Licensee: Wisconsin Public Service
Licensed Power(MWT): 1.65E+03
Net Electrical Power(MWH): 3.67E+06
Initial Criticality: 03/07/74

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	8.18E-01
CO-58	1.28E-05
CO-60	4.09E-05
KR-85	2.69E-02
NB-95	8.32E-07
I-131	2.88E-07
XE-131M	2.00E-04
I-133	2.48E-09
XE-133	7.40E-01
XE-133M	1.96E-01
XE-135	2.82E-02
CS-137	2.41E-06
CE-144	1.30E-07
Unidentified	1.87E-03

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	8.58E-05
CR-51	1.38E-02
MN-54	2.34E-03
FE-55	4.90E-02
CO-57	1.97E-04
CO-58	1.01E-01
FE-59	3.68E-03
CO-60	3.48E-02
SR-89	1.51E-03
SR-90	6.87E-05
NB-95	4.87E-03
ZR-95	3.07E-03
ZR-97	7.39E-05
AG-110M	1.31E-02
SN-113	1.93E-03
SN-117M	7.21E-05
SB-122	1.48E-04
SB-124	2.10E-03
SB-125	2.69E-03
CS-134	1.49E-04
CS-137	1.95E-04
W-187	1.83E-04

Total Airborne Tritium Released	7.82E+00 Ci
Total Liquid Tritium Released	4.34E+02 Ci
Volume of Waste Released (Prior to Dilution)	6.14E+07 liters
Volume of Dilution Water Used During Period	3.96E+11 liters

Installation: Kewaunee
Unit No.: 1

Location: 27 Mi ESE Green Bay, WI

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-305
Thermal Power(MWH): 1.16E+07
Commercial Operation: 06/16/74
Cooling Water Source: Lake Michigan

Licensee: Wisconsin Public Service
Licensed Power(MWT): 1.65E+03
Net Electrical Power(MWH): 3.67E+06
Initial Criticality: 03/07/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
5	CNSI Cask	Barnwell, SC
1	CNSI Truck	Barnwell, SC
2	CNSI Van	Barnwell, SC
1	ADCO Truck	Beatty, NV

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

	Jan-June	Jul-Dec
AG-110M	3.05E-01	1.42E-01
C-14	1.29E+00	1.32E+00
CM-242	3.02E-05	2.23E-05
CO-57	2.00E-01	1.96E-01
CO-58	2.71E+00	2.72E+00
CO-60	3.12E+01	3.18E+01
CS-134	9.15E-01	4.55E-01
CS-137	1.29E+00	9.51E-01
FE-55	2.62E+01	2.69E+01
H-3	1.18E-05	1.72E-06
MN-54	3.33E+00	2.49E+00
NB-95		2.46E-03
NI-63	3.11E+01	3.18E+01
SB-125	1.27E+00	1.17E+00
SN-113	1.39E-01	3.81E-02
SR-89	4.32E-03	3.61E-03
SR-90	5.04E-03	3.72E-03
TC-99	1.58E-03	1.17E-03
TRU	1.04E-04	5.96E-05
ZN-65	5.30E-02	2.12E-02
ZR-95	7.42E-03	1.16E-03

B

AG-110M	5.52E-01	2.42E+00
C-14		7.77E-01
CO-57	1.60E-01	1.96E-01
CO-58	7.90E+00	2.39E+01
CO-60	2.50E+01	1.65E-01
CR-51		9.38E-01
CS-134	1.88E-01	
CS-137	1.03E+00	
FE-55	3.68E+01	4.51E+01
FE-59		1.35E-01
MN-54	2.00E+00	1.08E+00
NB-95	1.45E+00	3.83E+00
NI-63	2.32E+01	2.29E+00

Installation: Kewaunee
Unit No.: 1

Location: 27 Mi ESE Green Bay, WI

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

	Jan-June	July-Dec
B		
SB-124		1.04E-01
SB-125	9.21E-01	5.80E-01
SN-113	1.72E-01	2.79E-01
TRU	5.01E-03	2.64E-02
ZN-65		1.40E-01
ZR-95	6.32E-01	1.69E+00
D		
AG-110M		5.02E-02
C-14	1.37E+00	2.93E+00
CO-57	2.52E-01	1.31E-01
CO-58	3.36E+01	1.41E+00
CO-60	2.15E+00	1.88E+01
FE-55	5.53E+01	5.77E+01
H-3		2.53E-07
MN-54	6.16E-01	1.15E+00
NB-95	1.77E-01	1.30E-01
NI-63	5.75E+00	1.49E+01
SB-125	4.76E-01	2.45E+00
SN-113		1.40E-01
TC-99		3.71E-03
TRU	9.88E-03	3.42E-03
ZN-65		1.48E-01
ZR-95	2.20E-01	5.99E-02

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.40E+01 Ci 3.73E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 4.62E+01 Ci 4.63E+00	compacted and non-compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)		
Contaminated Filter Elements	m3 8.96E+00 Ci 1.50E+02	

Installation: LaCrosse
Unit No.: 1

Location: 19 Mi S LaCrosse, WI

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-409
Thermal Power(MWH): 0.00E+00
Commercial Operation: 11/01/69
Cooling Water Source: Mississippi River

Licensee: Dairyland Power
Licensed Power(MWT): 1.65E+02
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 07/11/67

Airborne Effluents

Nuclide Released	Activity (Ci)
MN-54	3.90E-08
CO-60	2.50E-06
CS-137	1.10E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
MN-54	8.70E-04
FE-55	1.26E-01
CO-60	1.66E-02
SR-89	3.19E-04
SR-90	6.10E-04
AG-110M	7.02E-05
CS-134	4.42E-04
CS-137	1.38E-02

Total Airborne Tritium Released	9.33E-01 Ci
Total Liquid Tritium Released	5.36E-01 Ci
Volume of Waste Released (Prior to Dilution)	8.82E+05 liters
Volume of Dilution Water Used During Period	7.53E+09 liters

Installation: LaCrosse
Unit No.: 1

Location: 19 Mi S LaCrosse, WI

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-409
Thermal Power(MWH): 0.00E+00
Commercial Operation: 11/01/69
Cooling Water Source: Mississippi River

Licensee: Dairyland Power
Licensed Power(MWT): 1.65E+02
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 07/11/67

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
4	Sole Use	Barnwell, SC

Estimate of Major Nuclide Composition (%) (by type of waste)	Annual
B	
CO-60	4.24E+01
CS-137	2.10E+00
FE-55	4.74E+01
FE-59	7.00E-01
MN-54	1.90E+00
NI-63	5.11E+00
PU-241	4.00E-01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 Ci	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.40E+01 Ci 3.23E-01	compacted & non-compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: LaSalle
Unit No.: 1&2

Location: 11 Mi SE Ottawa, IL

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: BWR
Docket Number: 50-373
Thermal Power(MWH): 2.10E+07
Commercial Operation: 01/01/84
Cooling Water Source: Reservoir

Licensee: Commonwealth Edison Company
Licensed Power(MWT): 3.32E+03
Net Electrical Power(MWH): 6.83E+06
Initial Criticality: 06/21/82

Unit Number: 2 Type: BWR
Docket Number: 50-374
Thermal Power(MWH): 2.68E+07
Commercial Operation: 10/19/84
Cooling Water Source: Reservoir

Licensee: Commonwealth Edison Company
Licensed Power(MWT): 3.32E+03
Net Electrical Power(MWH): 8.71E+06
Initial Criticality: 03/10/84

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	3.17E+00
CR-51	2.98E-03
MN-54	1.73E-05
CO-60	2.08E-03
ZN-65	1.38E-05
KR-85M	3.00E+01
KR-87	2.61E+01
KR-88	4.58E+01
I-131	1.75E-03
I-132	3.57E-03
I-133	1.72E-02
XE-133	5.29E-03
I-134	4.91E-03
I-135	3.98E-03
XE-135	1.11E+00

Total Airborne Tritium Released

6.71E-01 Ci

Installation: LaSalle
Unit No.: 1&2

Location: 11 Mi SE Ottawa, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: BWR
Docket Number: 50-373
Thermal Power(MWH): 2.10E+07
Commercial Operation: 01/01/84
Cooling Water Source: Reservoir

Licensee: Commonwealth Edison Company
Licensed Power(MWT): 3.32E+03
Net Electrical Power(MWH): 6.83E+06
Initial Criticality: 06/21/82

Unit Number: 2 Type: BWR
Docket Number: 50-374
Thermal Power(MWH): 2.68E+07
Commercial Operation: 10/19/84
Cooling Water Source: Reservoir

Licensee: Commonwealth Edison Company
Licensed Power(MWT): 3.32E+03
Net Electrical Power(MWH): 8.71E+06
Initial Criticality: 03/10/84

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
26	Truck	Barnwell, SC
33	Truck	Beatty, NV
21	Truck	Oak Ridge, TN
3	Truck	Waltzmill, PA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A		
CO-60	2.40E+01	2.30E+01
FE-55	6.50E+01	6.50E+01
MN-54	1.00E+01	9.00E+00
B		
CR-51	1.40E+01	1.40E+01
FE-55	4.50E+01	4.50E+01
FE-59	1.60E+01	1.60E+01
MN-54	1.50E+01	1.50E+01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.35E+02 Ci 5.49E+03	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 6.64E+02 Ci 3.91E+01	non-compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Limerick
Unit No.: 1

Location: 21 Mi NW Philadelphia, PA

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-352
Thermal Power(MWH): 2.59E+07
Commercial Operation: 02/01/86
Cooling Water Source: Schuylkill River

Licensee: Philadelphia Electric Company
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 8.13E+06
Initial Criticality: 12/22/84

Airborne Effluents

Nuclide Released	Activity (Ci)
CR-51	9.24E-05
XE-133	2.52E+01
XE-135	1.23E-01

Installation: Limerick
Unit No.: 2

Location: 21 Mi NW Philadelphia, PA

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-353
Thermal Power(MWH): 2.24E+07
Commercial Operation:
Cooling Water Source: Schuylkill River

Licensee: Philadelphia Electric Company
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 7.14E+06
Initial Criticality: 08/12/89

Airborne Effluents

Nuclide Released	Activity (Ci)
MN-54	8.58E-06
CO-60	1.17E-05
XE-133	3.44E-01

Installation: Limerick
Unit No.: 1&2

Location: 21 Mi NW Philadelphia, PA

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: BWR
Docket Number: 50-352
Thermal Power(MWH): 2.59E+07
Commercial Operation: 02/01/86
Cooling Water Source: Schuylkill River
Unit Number: 2 Type: BWR
Docket Number: 50-353
Thermal Power(MWH): 2.24E+07
Commercial Operation:
Cooling Water Source: Schuylkill River

Licensee: Philadelphia Electric Company
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 8.13E+06
Initial Criticality: 12/22/84

Licensee: Philadelphia Electric Company
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 7.14E+06
Initial Criticality: 08/12/89

Airborne Effluents

Nuclide Released	Activity (Ci)
KR-85	6.48E-04
XE-133	4.38E+01
XE-135	1.68E+00

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	1.71E-02
MN-54	1.86E-03
CO-58	1.11E-03
FE-59	2.57E-05
CO-60	3.29E-03
ZN-65	8.03E-03
TC-99M	1.19E-04
XE-133	2.22E-02
CS-134	5.19E-04
XE-135	1.18E-02
CS-137	1.34E-03
CE-144	1.42E-05

Total Liquid Tritium Released	1.37E+01 Ci
Volume of Waste Released (Prior to Dilution)	1.53E+07 liters
Volume of Dilution Water Used During Period	1.48E+10 liters

Installation: Limerick
Unit No.: 1&2

Location: 21 Mi NW Philadelphia, PA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: BWR
Docket Number: 50-352
Thermal Power(MWH): 2.59E+07
Commercial Operation: 02/01/86
Cooling Water Source: Schuylkill River

Licensee: Philadelphia Electric Company
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 8.13E+06
Initial Criticality: 12/22/84

Unit Number: 2 Type: BWR
Docket Number: 50-353
Thermal Power(MWH): 2.24E+07
Commercial Operation:
Cooling Water Source: Schuylkill River

Licensee: Philadelphia Electric Company
Licensed Power(MWT): 3.29E+03
Net Electrical Power(MWH): 7.14E+06
Initial Criticality: 08/12/89

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
70	Truck	Limerick to Barnwell, SC
28	Truck	Quadrex to Barnwell, SC
16	Truck	SEG to Barnwell, SC
80	Truck	SEG to Beatty, NV
1	Truck	SEG to Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

C-14	2.00E-02	3.00E-02
CO-58	3.71E+00	5.67E+00
CO-60	4.84E+00	8.07E+00
CR-51	4.77E+01	4.48E+01
CS-134	3.35E+00	2.04E+00
CS-137	6.64E+00	4.31E+00
FE-55	3.41E+00	3.36E+00
H-3	4.00E-02	4.00E-02
MN-54	4.22E+00	7.25E+00
NI-63	2.80E-01	2.90E-01
ZN-65	2.58E+01	2.41E+01

B

C-14	1.30E-01	1.00E-01
CE-144	2.00E-02	
CO-58	4.20E-01	1.70E-01
CO-60	3.28E+00	3.22E+00
CR-51		2.80E-01
CS-134	1.31E+01	1.46E+01
CS-137	2.42E+01	2.80E+01
FE-55	4.08E+00	4.70E+00
H-3	2.00E-02	1.68E+00
I-129		2.00E-02
MN-54	4.90E-01	1.00E-01
NB-95	5.00E-02	3.00E-02
NI-63	6.80E-01	1.10E-01
P-32	1.10E-01	
SR-89	3.10E-01	4.00E-02

Installation: Limerick
 Unit No.: 1&2

Location: 21 Mi NW Philadelphia, PA

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Estimate of Major Nuclide Composition (%) (continued)	Jan-June	July-Dec
(by type of waste)		
B		
SR-90	1.00E-02	
ZN-65	5.31E+01	4.70E+01
D		
CE-144	1.00E-02	
CO-58	3.10E+00	
CO-60	5.99E+00	
CR-51	2.02E+01	
CS-134	8.48E+00	
CS-137	1.68E+01	
FE-55	4.79E+00	
MN-54	4.70E+00	
NB-95	2.00E-02	
NI-63	6.10E-01	
P-32	3.00E-02	
SR-89	1.00E-02	
SR-90	1.00E-02	
ZN-65	3.52E+01	

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 5.59E+02 Ci 5.76E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 9.95E+01 Ci 7.43E+00	Portion processed by vendors
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)		
CRD Filters & Trash	m3 2.08E+00 Ci 1.19E+01	

Installation: Maine Yankee
Unit No.: 1

Location: 3.9 Mi S Wicasset, ME

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-309
Thermal Power(MWH): 1.94E+07
Commercial Operation: 12/28/72
Cooling Water Source: Back River

Licensee: Maine Yankee Atomic Power
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 6.26E+06
Initial Criticality: 10/23/72

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.03E-03
CO-58	1.73E-05
CO-60	1.74E-05
KR-85	9.86E+00
KR-85M	8.14E-01
KR-87	1.04E-02
KR-88	2.24E-02
SR-90	1.15E-06
CD-109	5.93E-04
I-131	6.46E-03
XE-131M	7.38E+00
I-133	4.26E-04
XE-133	1.09E+03
XE-133M	2.86E+00
CS-134	5.98E-06
I-135	3.07E-09
XE-135	1.85E+01
XE-135M	8.90E-03
CS-137	1.26E-04
XE-138	2.41E-03
EU-152	1.84E-09

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	4.59E-06
CR-51	3.26E-03
MN-54	1.35E-04
FE-55	1.61E-02
CO-57	9.37E-06
CO-58	1.69E-02
FE-59	9.50E-05
CO-60	2.60E-02
KR-85M	2.98E-04
SR-85	3.32E-04
SR-89	4.15E-03
ZR-NB-95	2.32E-04
MO-99	2.15E-04
TC-99M	6.34E-04
RU-103	4.64E-05
AG-110M	2.14E-03
SN-113	1.78E-04
SB-122	5.33E-05
SB-124	3.86E-02
SB-125	4.10E-02

Installation: Maine Yankee
Unit No.: 1

Location: 3.9 Mi S Wicasset, ME

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
I-131	2.43E-01
XE-131M	5.16E-02
TE-132	1.20E-05
BA-133	4.07E-05
I-133	1.51E-03
XE-133	1.99E+00
XE-133M	8.31E-03
CS-134	2.13E-03
I-135	2.46E-04
XE-135	3.68E-03
XE-135M	1.30E-04
CS-137	1.39E-02
BA-LA-140	1.20E-03
CE-141	8.15E-06
LA-141	9.67E-05
CE-144	1.36E-05
NP-239	1.90E-04

Total Airborne Tritium Released	9.14E+00 Ci
Total Liquid Tritium Released	3.89E+02 Ci
Volume of Waste Released (Prior to Dilution)	6.90E+07 liters
Volume of Dilution Water Used During Period	7.92E+11 liters

Installation: Maine Yankee
Unit No.: 1

Location: 3.9 Mi S Wicassett, ME

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-309
Thermal Power(MWH): 1.94E+07
Commercial Operation: 12/28/72
Cooling Water Source: Back River

Licensee: Maine Yankee Atomic Power
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 6.26E+06
Initial Criticality: 10/23/72

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
1	Trucking over highway	CNSI, Barnwell, SC
3	Trucking over highway	SEG, Oak Ridge, TN
10	Trucking over highway	U.S. Ecology, Beatty, NV

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A			
	CO-58	1.90E+00	3.00E+00
	CO-60	3.16E+01	1.23E+01
	CR-51	7.80E+00	1.10E+00
	CS-134	3.10E+00	7.10E+00
	CS-137	2.56E+01	4.65E+01
	FE-55	1.20E+01	1.70E+00
	NI-63	9.10E+00	2.60E+01
	PM-147		1.50E+00
	RU-106	4.50E+00	
	SB-125	1.20E+00	
B			
	AG-110M		2.30E+00
	CE-144		1.10E+00
	CO-58	1.52E+01	5.90E+00
	CO-60	1.73E+01	2.58E+01
	CR-51	2.60E+00	1.40E+00
	CS-137	1.34E+01	8.50E+00
	FE-55	1.60E+01	3.04E+01
	NI-63	3.51E+01	1.45E+01
	RU-106		6.80E+00
	SB-125		1.40E+00
	ZR-95		1.50E+00
D			
	AG-110M		2.00E+00
	CO-58		4.60E+00
	CO-60		1.98E+01
	CS-134		2.50E+00
	CS-137		1.29E+01
	FE-55		2.39E+01
	H-3		1.48E+01
	NB-95		3.50E+00
	NI-63		1.25E+01
	SB-125		1.80E+00

Installation: Maine Yankee
Unit No.: 1

Location: 3.9 Mi S Wicasset, ME

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.43E+01 Ci 3.38E+02	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.20E+02 Ci 6.72E+00	burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Contaminated rocks, dirt, dried sludge	m3 2.40E+00 Ci 9.76E-01	burial volume

Installation: McGuire
Unit No.: 1

Location: 17 Mi N of Charlotte, NC

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-369
Thermal Power(MWH): 2.08E+07
Commercial Operation: 12/01/81
Cooling Water Source: Lake Norman

Licensee: Duke Power Co.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.84E+06
Initial Criticality: 08/08/81

Airborne Effluents

Nuclide Released	Activity (Ci)
CL-38	4.16E-08
K-40	1.28E-06
AR-41	2.20E+00
CR-51	2.77E-05
MN-54	3.04E-06
CO-57	2.17E-07
CO-58	9.43E-05
CO-60	2.49E-04
BR-82	8.42E-08
BR-84	3.24E-09
KR-85	9.02E+00
KR-85M	9.86E-01
KR-87	2.14E-01
KR-88	1.07E+00
RB-88	2.25E-05
NB-95	3.92E-06
RU-106	5.11E-09
I-130	9.58E-08
I-131	5.96E-04
XE-131M	3.44E+00
I-132	6.61E-05
TE-132	7.57E-12
I-133	6.01E-04
XE-133	4.11E+02
XE-133M	5.26E+00
CS-134	8.87E-10
I-134	4.49E-06
I-135	2.25E-05
XE-135	1.56E+01
XE-135M	4.73E-02
CS-137	6.71E-06
CS-138	8.59E-07
XE-138	2.89E-03
BA-139	2.39E-08
PB-214	1.94E-09

Liquid Effluents

Nuclide Released	Activity (Ci)
F-18	3.76E-06
NA-24	3.63E-05
K-40	3.93E-06
CR-51	8.81E-02
MN-54	4.26E-02
FE-55	1.37E-01

Installation: McGuire
Unit No.: 1

Location: 17 Mi N of Charlotte, NC

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
CO-57	1.56E-03
CO-58	1.85E-01
FE-59	3.86E-03
CO-60	3.43E-01
NI-65	5.83E-06
ZN-65	6.64E-04
BR-82	1.09E-04
KR-85	6.47E-04
RB-88	4.87E-04
SR-89	4.72E-05
Y-91M	2.68E-06
SR-92	2.42E-04
Y-93	3.52E-05
NB-95	2.17E-02
ZR-95	1.09E-02
NB-97	5.86E-04
ZR-97	5.33E-05
TC-99M	4.58E-04
RU-103	9.52E-04
RU-106	4.55E-03
AG-110M	1.38E-02
SN-113	2.82E-03
CD-115	1.23E-05
SB-122	1.16E-04
SB-124	3.47E-03
SB-125	7.73E-02
I-131	2.17E-02
XE-131M	3.35E-04
I-132	4.20E-03
TE-132	1.05E-03
I-133	2.35E-02
XE-133	2.31E-01
XE-133M	1.27E-03
CS-134	1.59E-02
I-134	2.13E-04
I-135	1.01E-02
XE-135	6.40E-03
XE-135M	1.36E-03
CS-136	3.96E-05
CS-137	2.10E-02
CS-138	1.60E-04
XE-138	3.79E-07
BA-140	7.76E-05
LA-140	9.04E-04
CE-141	1.65E-04
CE-144	8.02E-04
PB-214	1.44E-05

Total Airborne Tritium Released	3.23E+01 Ci
Total Liquid Tritium Released	4.39E+02 Ci
Volume of Waste Released (Prior to Dilution)	5.77E+06 liters
Volume of Dilution Water Used During Period	3.37E+12 liters

Installation: McGuire
Unit No.: 2

Location: 17 Mi N of Charlotte, NC

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-370
Thermal Power(MWH): 2.84E+07
Commercial Operation: 03/01/84
Cooling Water Source: Lake Norman

Licensee: Duke Power Co.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 9.52E+06
Initial Criticality: 05/08/83

Airborne Effluents

Nuclide Released	Activity (Ci)
CL-38	4.16E-08
K-40	1.28E-06
AR-41	2.20E+00
CR-51	2.77E-05
MN-54	3.04E-06
CO-57	2.17E-07
CO-58	9.43E-05
CO-60	2.49E-04
BR-82	8.42E-08
BR-84	3.24E-09
KR-85	9.02E+00
KR-85M	9.86E-01
KR-87	2.14E-01
KR-88	1.07E+00
RB-88	2.25E-05
NB-95	3.92E-06
RU-106	5.11E-09
I-130	9.58E-08
I-131	5.96E-04
XE-131M	3.44E+00
I-132	6.61E-05
TE-132	7.57E-12
I-133	6.01E-04
XE-133M	5.26E+00
CS-134	8.87E-10
I-134	4.49E-06
I-135	2.25E-05
XE-135	1.56E+01
XE-135M	4.73E-02
CS-137	6.71E-06
CS-138	8.59E-07
XE-138	4.11E+02
BA-139	2.39E-08
PB-214	1.94E-09

Liquid Effluents

Nuclide Released	Activity (Ci)
F-18	3.76E-06
NA-24	3.63E-05
K-40	3.93E-06
CR-51	8.81E-02
MN-54	4.26E-02
FE-55	1.37E-01
CO-57	1.56E-03

Installation: McGuire
Unit No.: 2

Location: 17 Mi N of Charlotte, NC

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
CO-58	1.85E-01
FE-59	3.86E-03
CO-60	3.43E-01
NI-65	5.83E-06
ZN-65	6.64E-04
BR-82	1.09E-04
KR-85	6.47E-04
RB-88	4.87E-04
SR-89	4.72E-05
Y-91M	2.68E-06
SR-92	2.42E-04
Y-93	3.52E-05
NB-95	2.17E-02
ZR-95	1.09E-02
NB-97	5.86E-04
ZR-97	5.33E-05
TC-99M	4.58E-04
RU-103	9.52E-04
RU-106	4.55E-03
AG-110M	1.38E-02
SN-113	2.82E-03
CD-115	1.23E-05
SB-122	1.16E-04
SB-124	3.47E-03
SB-125	7.73E-02
I-131	2.17E-02
XE-131M	3.35E-04
I-132	4.20E-03
TE-132	1.05E-03
I-133	2.35E-02
XE-133	2.21E-01
XE-133M	1.27E-03
CS-134	1.59E-02
I-134	2.13E-04
I-135	1.01E-02
XE-135	6.40E-03
XE-135M	1.36E-03
CS-136	3.96E-05
CS-137	2.10E-02
CS-138	1.60E-04
XE-138	3.79E-07
BA-140	7.76E-05
LA-140	9.04E-04
CE-141	1.65E-04
CE-144	8.02E-04
PB-214	1.44E-05

Total Airborne Tritium Released	3.23E+01 Ci
Total Liquid Tritium Released	4.39E+02 Ci
Volume of Waste Released (Prior to Dilution)	5.77E+06 liters
Volume of Dilution Water Used During Period	3.37E+12 liters

Installation: McGuire
Unit No.: 1&2

Location: 17 Mi N of Charlotte, NC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-369
Thermal Power(MWH): 2.08E+07
Commercial Operation: 12/01/81
Cooling Water Source: Lake Norman

Licensee: Duke Power Co.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.84E+06
Initial Criticality: 08/08/81

Unit Number: 2 Type: PWR
Docket Number: 50-370
Thermal Power(MWH): 2.84E+07
Commercial Operation: 03/01/84
Cooling Water Source: Lake Norman

Licensee: Duke Power Co.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 9.52E+06
Initial Criticality: 05/08/83

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
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18

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

C-14	7.60E-03	1.00E-02
CM-242	4.88E-05	1.10E-05
CO-57	6.00E-02	2.40E-02
CO-58	2.75E+00	5.00E-01
CO-60	1.55E+01	2.12E+01
CS-134	9.78E+00	1.60E+00
CS-137	1.70E+01	3.70E+00
FE-55	4.59E+01	6.29E+01
H-3	2.89E-04	2.60E-04
MN-54	1.58E+00	5.00E-01
NI-63	6.86E+00	9.40E+00
PU-241	1.20E-02	2.60E-03
SB-125	5.20E-01	9.80E-02
SR-90	5.20E-02	1.10E-02
TE-125M	2.00E-02	3.50E-03
TRU	1.20E-03	2.60E-04

B

C-14	5.20E-02	5.20E-02
CM-242	1.60E-03	1.60E-03
CO-58	2.27E+00	2.27E+00
CO-60	1.96E+01	1.96E+01
CS-137	1.00E-01	1.00E-01
FE-55	7.16E+01	7.16E+01
MN-54	4.21E+00	4.21E+00
NI-63	2.06E+00	2.06E+00
PU-241	3.60E-02	3.60E-02
SR-90	3.20E-02	3.20E-02
TRU	6.70E-04	6.70E-04

D

AM-241		1.50E-05
C-14		6.70E-03

Installation: McGuire
Unit No.: 1&2

Location: 17 Mi N of Charlotte, NC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

D

CE-144	4.80E-01
CM-242	1.20E-02
CO-58	3.06E+00
CO-60	1.16E+01
CS-137	1.30E-01
FE-55	7.78E+01
H-3	2.50E-03
MN-54	1.79E+00
NB-95	2.10E+00
NI-63	1.70E+00
PU-238	3.50E-06
PU-241	2.50E-01
SR-90	2.10E-03
TRU	5.00E-03
ZR-95	1.02E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 4.72E+00 m3 2.36E+00 Ci 5.88E+02	brokered
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.42E+01 m3 2.30E+01 Ci 3.09E+02	brokered brokered and non-compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) filters	m3 8.70E-01 Ci 3.15E+01	

Installation: Millstone
Unit No.: 1

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-245
Thermal Power(MWH): 5.52E+06
Commercial Operation: 03/01/71
Cooling Water Source: Niantic Bay

Licensee: Northeast Nuclear Energy
Licensed Power(MWT): 2.01E+03
Net Electrical Power(MWH): 1.75E+06
Initial Criticality: 10/26/70

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	8.30E-02
CR-51	1.86E-04
MN-54	8.66E-05
CO-58	1.28E-04
FE-59	3.91E-06
CO-60	8.11E-04
ZN-65	7.39E-04
KR-85M	1.73E-01
KR-87	8.88E-01
KR-88	7.16E-01
SR-89	8.80E-05
SR-90	1.81E-06
I-131	4.45E-04
I-133	5.80E-04
XE-133	1.48E+01
CS-134	9.35E-07
XE-135	1.79E+00
XE-135M	9.54E-01
CS-137	1.44E-04
XE-138	4.12E+00
CE-144	6.64E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	5.40E-05
CR-51	2.13E-04
MN-54	1.39E-01
FE-55	2.43E-01
CO-58	6.01E-03
FE-59	3.99E-03
CO-60	5.44E-01
ZN-65	2.68E-01
SR-89	3.29E-04
SR-90	1.55E-03
Y-91M	2.38E-05
SR-92	7.42E-04
NB-97	3.06E-03
MO-99	1.47E-04
TC-99M	4.98E-04
RU-106	4.28E-04
AG-110M	3.75E-03
SB-124	1.00E-06
I-131	1.01E-03
XE-131M	2.89E-05

Installation: Millstone
Unit No.: 1

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
I-133	5.88E-05	
XE-133	9.26E-04	
CS-134	3.92E-04	
XE-135	3.73E-05	
CS-137	1.40E-01	
Total Airborne Tritium Released		3.26E+01 Ci
Total Liquid Tritium Released		8.40E+00 Ci
Volume of Waste Released (Prior to Dilution)		1.14E+07 liters
Volume of Dilution Water Used During Period		4.01E+11 liters

Installation: Millstone
Unit No.: 1

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-245
Thermal Power(MWH): 5.52E+06
Commercial Operation: 03/01/71
Cooling Water Source: Niantic Bay

Licensee: Northeast Nuclear Energy
Licensed Power(MWT): 2.01E+03
Net Electrical Power(MWH): 1.75E+06
Initial Criticality: 10/26/70

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
34	Truck (Sole Use Vehicle)	CNSI, Barnwell, SC
4	Truck (Sole Use Vehicle)	Quadrex, Oak Ridge, TN
1	Truck (Sole Use Vehicle)	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
AG-110M	3.50E-01	2.00E-02
C-14	1.10E-01	1.50E-01
CO-58	4.80E-01	4.30E-01
CO-60	4.09E+00	3.98E+00
CR-51	2.83E+00	1.13E+00
CS-137	3.80E-01	3.50E+00
FE-55	1.57E+01	1.53E+01
FE-59	8.00E-02	7.00E-02
H-3	1.00E-02	1.30E-01
I-131	1.00E-02	
MN-54	2.63E+00	5.23E+00
NI-63	1.60E-01	2.90E-01
PU-241	1.00E-02	2.00E-02
SB-125		1.00E-02
SR-89	4.00E-02	1.00E-02
SR-90	1.00E-02	4.00E-02
ZN-65	7.31E+01	6.97E+01
B		
AM-241	1.82E-02	
C-14	4.43E-02	4.92E-03
CM-244	9.11E-03	
CO-58	5.02E-02	2.95E-02
CO-60	3.15E+01	1.96E+01
CS-134	7.88E-02	1.77E-01
CS-137	2.88E+00	1.78E+00
FE-55	5.52E+01	6.48E+01
H-3	1.37E+00	7.30E+00
I-131		9.85E-03
MN-54	1.49E+00	2.50E+00
NI-63	5.05E+00	2.36E+00
PU-238	9.11E-03	
PU-239	9.11E-03	
PU-241	3.00E-01	
SR-89	1.82E-02	
ZN-65	1.97E+00	1.53E+00

Installation: Millstone
Unit No.: 1

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

C

C-14	2.00E-02
CO-58	1.42E+00
CO-60	3.12E+01
CR-51	4.00E-01
CS-134	4.00E-02
CS-137	4.29E+00
FE-55	5.52E+01
FE-59	1.00E-01
H-3	3.00E-02
MN-54	3.41E+00
NI-63	2.15E+00
PU-241	1.00E-02
ZN-65	1.68E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.00E+02 Ci 2.24E+03	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.50E+02 Ci 5.41E+00	burial volume
C. Irradiated Components, Control Rods, etc.	m3 1.00E-01 Ci 6.24E-01	burial volume
D. Other (describe)	m3 Ci	

Installation: Millstone
Unit No.: 2

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-336
Thermal Power(MWH): 1.25E+07
Commercial Operation: 12/26/75
Cooling Water Source: Niantic Bay

Licensee: Northeast Nuclear Energy
Licensed Power(MWT): 2.01E+03
Net Electrical Power(MWH): 3.94E+06
Initial Criticality: 10/17/75

Airborne Effluents

Nuclide Released	Activity (Ci)
CR-51	7.00E-07
CO-58	1.10E-06
KR-85	5.37E+00
KR-85M	7.72E-03
I-131	1.27E-02
XE-131M	1.68E+00
I-133	9.31E-03
XE-133	3.69E+02
XE-133M	6.65E-01
XE-135	1.24E+01

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	1.82E-03
CR-51	1.46E-02
MN-54	6.96E-03
FE-55	1.30E-01
CO-57	2.32E-04
CO-58	1.44E-01
FE-59	2.52E-04
CO-60	1.87E-01
ZN-69M	1.41E-04
KR-85	6.72E-01
KR-85M	1.74E-04
KR-87	1.96E-05
SR-87M	6.76E-05
KR-88	1.51E-03
SR-89	5.48E-04
SR-90	1.49E-04
SR-92	2.87E-02
Y-93	3.22E-04
NB-95	3.95E-03
ZR-95	6.83E-05
NB-97	1.16E-01
MO-99	1.67E-04
TC-99M	1.92E-04
TC-101	1.57E-03
RU-103	4.66E-05
RU-106	4.48E-04
AG-110M	9.01E-02
SB-124	5.08E-02
SB-125	6.94E-02
I-131	2.58E-01
XE-131M	4.95E-02

Installation: Millstone
Unit No.: 2

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
I-132	4.38E-03
I-133	7.49E-02
XE-133	3.65E+00
XE-133M	2.79E-02
CS-134	3.87E-01
I-134	1.07E-03
I-135	1.65E-02
XE-135	2.38E-02
XE-135M	2.56E-02
CS-136	4.11E-03
CS-137	4.58E-01
BA-139	1.62E-03
LA-140	6.39E-04
LA-141	4.65E-03
LA-142	1.76E-04
PR-144	6.47E-03

Total Airborne Tritium Released	1.01E+02 Ci
Total Liquid Tritium Released	2.66E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.41E+08 liters
Volume of Dilution Water Used During Period	8.49E+11 liters

Installation: Millstone
Unit No.: 2

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-336
Thermal Power(MWH): 1.25E+07
Commercial Operation: 12/26/75
Cooling Water Source: Niantic Bay

Licensee: Northeast Nuclear Energy
Licensed Power(MWT): 2.01E+03
Net Electrical Power(MWH): 3.94E+06
Initial Criticality: 10/17/75

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
3	Truck (Sole Use Vehicle)	CNSI, Barnwell, SC
4	Truck (Sole Use Vehicle)	Quadrex, Oak Ridge, TN
1	Truck (Sole Use Vehicle)	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AG-110M		5.00E-02
C-14	5.40E-01	1.12E+00
CO-57	8.00E-02	
CO-58	5.32E+00	1.70E-01
CO-60	9.96E+00	1.87E+01
CS-134	5.56E+00	4.00E-01
CS-137	1.08E+01	3.02E+00
FE-55	9.20E+00	5.86E+01
H-3		2.00E-02
MN-54	5.20E-01	1.00E-01
NI-63	5.75E+01	1.73E+01
PU-241	8.00E-02	1.80E-01
SR-89	6.00E-02	
SR-90	2.00E-01	3.00E-02
TC-99		2.00E-02
ZN-65		3.20E-01
ZR-95		1.00E-02

B

AM-241	9.82E-03	2.10E-02
C-14	6.26E+01	6.45E+01
CM-242		6.49E-05
CM-244	9.82E-03	2.10E-02
CO-58	8.64E-01	6.39E-01
CO-60	1.26E+01	1.08E+01
CS-134	8.56E-01	8.47E-01
CS-136	1.79E-01	
CS-137	3.30E+00	2.99E+00
FE-55	1.31E+01	1.15E+01
H-3	1.43E-01	5.54E+00
I-131		1.30E-02
MN-54	1.52E-01	1.36E-01
NI-63	5.70E+00	4.90E+00
PU-238	9.82E-03	2.01E-02
PU-239	1.06E-03	6.96E-03
PU-241	4.98E-01	9.29E-01
SB-125		6.49E-05

Installation: Millstone
Unit No.: 2

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued)	Jan-June	July-Dec
(by type of waste)		
B		
ZN-65	8.76E-02	6.91E-02
C		
CO-60		5.00E-02
FE-55		9.59E+01
MN-54		3.05E+00
NI-59		1.00E-02
NI-63		1.02E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.22E+01 Ci 8.77E+02	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.24E+02 Ci 1.79E+00	burial volume
C. Irradiated Components, Control Rods, etc.	m3 1.02E-01 Ci 2.11E-01	burial volume
D. Other (describe)	m3 Ci	

Installation: Millstone
Unit No.: 3

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991

Type: PWR

Licensee: Northeast Nuclear Energy

Docket Number: 50-423

Licensed Power(MWT): 3.41E+03

Thermal Power(MWH): 8.88E+06

Net Electrical Power(MWH): 2.84E+06

Commercial Operation: 04/23/86

Initial Criticality: 01/23/86

Cooling Water Source: Niantic Bay

Airborne Effluents

Nuclide Released	Activity (Ci)
BE-7	1.09E-05
CR-51	1.04E-04
MN-54	1.93E-05
CO-57	1.47E-08
CO-58	1.92E-04
CO-60	3.27E-05
NB-95	2.15E-05
ZR-95	6.65E-06
I-131	4.15E-03
XE-131M	5.78E+00
I-133	1.84E-03
XE-133	1.19E+02
XE-133M	3.74E-02
CS-134	5.38E-06
XE-135	1.12E-01
CS-137	1.96E-05
CE-144	1.05E-05
ND-147	4.64E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	3.95E-04
NA-24	4.79E-03
AR-41	1.45E-04
CR-51	8.81E-02
MN-54	7.30E-02
FE-55	4.38E-01
CO-57	1.26E-03
CO-58	2.18E-01
FE-59	5.93E-03
CO-60	4.81E-01
ZN-65	2.02E-03
KR-85	6.87E-04
KR-85M	8.09E-06
KR-87	1.46E-04
KR-88	2.80E-05
RB-88	9.84E-05
RB-89	8.38E-05
SR-92	1.55E-02
NB-95	2.18E-02
ZR-95	6.77E-03
NB-97	6.87E-02
MO-99	3.12E-04
TC-99M	1.27E-03

Installation: Millstone
Unit No.: 3

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
RU-103	1.86E-04
RU-106	1.00E-03
AG-110M	4.22E-02
SB-122	1.56E-02
SB-124	3.65E-02
SB-125	2.10E-01
SB-126	1.18E-03
I-131	7.08E-02
XE-131M	1.08E-03
I-132	3.27E-04
I-133	5.73E-03
XE-133	4.71E-02
XE-133M	2.48E-04
CS-134	5.64E-01
I-134	2.56E-04
I-135	9.71E-04
XE-135	2.46E-02
XE-135M	4.76E-04
CS-136	1.30E-03
CS-137	5.42E-01
CS-138	2.85E-04
XE-138	1.09E-04
BA-139	3.65E-05
CE-141	1.24E-05
LA-141	1.15E-02
CE-144	7.84E-03
FR-144	5.33E-02
ND-147	8.59E-06
HF-181	1.64E-03
Total Airborne Tritium Released	1.43E-02 Ci
Total Liquid Tritium Released	8.56E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.41E+07 liters
Volume of Dilution Water Used During Period	1.02E+12 liters

Installation: Millstone
Unit No.: 3

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-423
Thermal Power(MWH): 8.88E+06
Commercial Operation: 04/23/86
Cooling Water Source: Niantic Bay

Licensee: Northeast Nuclear Energy
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 2.84E+06
Initial Criticality: 01/23/86

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
7	Truck (Sole Use Vehicle)	CNSI, Barnwell, SC
1	Truck (Sole Use Vehicle)	Quadrex, Oak Ridge, TN
1	Truck (Sole Use Vehicle)	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AG-110M	1.00E-02	1.00E-02
C-14	1.00E-02	1.70E-01
CO-57	2.70E-01	5.00E-02
CO-58	3.27E+01	2.86E+00
CO-60	7.78E+00	6.72E+00
CR-51	1.83E+00	
CS-134	1.40E+01	2.15E+01
CS-137	1.51E+01	3.31E+01
FE-55	1.43E+01	2.72E+01
H-3	7.00E-02	1.40E-01
I-131	2.00E-02	
MN-54	1.76E+00	1.49E+00
NB-95	6.00E-02	
NI-63	1.07E+01	5.80E+00
PU-241		1.00E-02
SB-125	1.33E+00	9.90E-01
SR-89	1.00E-02	
SR-90	2.00E-02	1.00E-02
ZN-65	2.00E-02	
ZR-95	5.00E-02	

B

AG-110M	2.11E-02	7.90E-02
C-14	2.06E-02	5.28E-02
CO-57	3.13E-03	
CO-58	1.16E+00	6.63E-01
CO-60	3.86E+00	9.72E+00
CS-134	1.64E+01	7.62E+00
CS-136	5.93E-01	2.60E-01
CS-137	2.01E+01	1.00E+01
FE-55	5.06E+01	5.48E+01
H-3	2.29E+00	1.15E+01
I-131	1.56E+00	7.18E-01
MN-54	9.71E-01	1.40E+00
NI-63	2.13E+00	2.96E+00
PU-241		1.90E-02
SB-125	3.78E-02	1.70E-01

Installation: Millstone
Unit No.: 3

Location: 3.2 Mi WSW of New London, CT

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

B

SR-90	6.41E-04	3.15E-03
ZN-65	3.86E-02	3.07E-01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.80E+01 Ci 1.03E+02	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 8.77E+01 Ci 1.65E+00	burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Monticello
Unit No.: 1

Location: 23 Mi SE St. Cloud, MN

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-263
Thermal Power(MWH): 1.12E+07
Commercial Operation: 06/30/71
Cooling Water Source: Mississippi River

Licensee: Northern States Power
Licensed Power(MWT): 1.67E+03
Net Electrical Power(MWH): 3.59E+06
Initial Criticality: 12/10/70

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.16E-01
CR-51	1.17E-04
MN-54	1.25E-04
CO-57	5.49E-08
CO-58	2.57E-05
FE-59	1.38E-06
CO-60	1.39E-03
ZN-65	8.66E-04
KR-85	4.44E-02
KR-85M	1.22E+01
KR-87	2.44E+01
KR-88	2.38E+01
KR-89	2.78E+01
SR-89	1.20E-03
KR-90	7.51E-02
SR-90	5.70E-06
ZR-95	2.28E-07
I-131	3.02E-02
XE-131M	2.88E-03
I-133	1.93E-01
XE-133	5.88E+02
XE-133M	1.09E+01
I-135	2.56E-01
XE-135	2.76E+02
XE-135M	2.58E+02
CS-137	1.62E-04
XE-137	4.92E+02
XE-138	2.80E+02
XE-139	8.56E-01
BA-140	2.02E-03
CE-141	6.36E-05

Total Airborne Tritium Released

6.44E+01 Ci

Installation: Monticello
Unit No.: 1

Location: 23 Mi SE St. Cloud, MN

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-263
Thermal Power(MWH): 1.12E+07
Commercial Operation: 06/30/71
Cooling Water Source: Mississippi River

Licensee: Northern States Power
Licensed Power(MWT): 1.67E+03
Net Electrical Power(MWH): 3.59E+06
Initial Criticality: 12/10/70

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
11	Truck	CNSI, Barnwell, SC
26	Truck	US Ecology, Beatty, NV
3	Railway	US Ecology, Richland, WA
8	Truck	US Ecology, Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

	Jan-June	Jul-Dec
AM-241		3.22E-04
BA-140	9.65E-03	1.72E-01
C-14		2.48E-01
CE-141	1.54E-02	2.69E-02
CM-242		2.56E-04
CM-243		7.05E-04
CO-58	7.95E-01	5.24E-01
CO-60	3.41E+01	3.07E+01
CR-51	1.25E+00	2.08E-01
CS-134	2.43E-01	7.51E-02
CS-136	9.05E-01	
CS-137	1.69E+00	2.13E+00
FE-55	3.61E+01	2.94E+01
FE-59	2.53E-01	1.89E-01
H-3		1.21E-02
I-129		1.34E-04
I-131	2.17E-02	4.17E-01
LA-140	1.86E-03	5.24E-02
MN-54	3.02E+00	5.60E+00
NI-63	1.21E-01	1.52E-01
PU-238		2.56E-04
PU-239		1.36E-04
PU-241		1.53E-02
PU-242		1.77E-08
RU-103	3.73E-02	
SB-124	1.68E-03	
SR-89	2.14E-01	3.18E-01
SR-90	3.94E-02	3.42E-02
TC-99		6.81E-05
ZN-65	2.10E+01	2.98E+01

B

AM-241		4.96E-03
CM-242		1.65E-02
CM-243		2.46E-03
CO-58		1.04E-01

Installation: Monticello
Unit No.: 1

Location: 23 Mi SE St. Cloud, MN

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

B

CO-60	3.58E+01	4.26E+01
CS-134		1.87E-01
CS-137	4.58E+00	4.07E+00
FE-55	3.87E+01	2.40E+01
H-3		6.60E+00
I-129		1.91E-04
MN-54	5.56E+00	4.13E+00
NI-63	1.35E+00	2.41E-01
PU-238		1.15E-02
PU-239		6.53E-03
PU-241		4.44E-02
PU-242		1.46E-04
SR-89	2.58E+00	9.20E-01
SR-90	5.35E-01	1.93E-01
TC-99		1.12E-05
ZN-65	6.19E+00	1.68E+01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 9.77E+01 Ci 1.41E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.18E+02 Ci 4.51E+01	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Nine Mile Point
Unit No.: 1

Location: 8 Mi NE Oswego, NY

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-220
Thermal Power(MWH): 1.19E+07
Commercial Operation: 12/01/69
Cooling Water Source: Lake Ontario

Licensee: Niagara Mohawk Power
Licensed Power(MWT): 1.85E+03
Net Electrical Power(MWH): 3.87E+06
Initial Criticality: 09/05/69

Airborne Effluents

Nuclide Released	Activity (Ci)
CR-51	1.48E-03
FE-55	2.02E-04
CO-60	6.76E-04
KR-85M	2.67E-01
SR-89	3.82E-04
SR-90	5.48E-06
I-131	4.16E-03
I-133	5.97E-02
XE-133	3.93E+01
I-135	1.10E-01
XE-135	1.09E+01
BA-LA-140	2.94E-04

Total Airborne Tritium Released

1.53E+01 Ci

Installation: Nine Mile Point
Unit No.: 1

Location: 8 Mi NE Oswego, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR Licensee: Niagara Mohawk Power
Docket Number: 50-220 Licensed Power(MWT): 1.85E+03
Thermal Power(MWH): 1.19E+07 Net Electrical Power(MWH): 3.87E+06
Commercial Operation: 12/01/69 Initial Criticality: 09/05/69
Cooling Water Source: Lake Ontario

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
23	Truck	Barnwell, SC
1	Train	Hanford, WA
53	Truck	Processor to Barnwell, SC
1	Truck	U.S. Ecology, Hanford, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

CO-58	9.76E-01	
CO-60	4.34E+01	3.26E+01
CS-137	1.06E+01	4.77E+01
FE-55	4.15E+01	1.67E+01
MN-54	7.57E-01	
NI-63	8.39E-01	
Others	9.95E-01	3.00E+00

B

CO-60	1.58E+01	
CS-137	1.93E+01	
FE-55	6.39E+01	
MN-54	4.31E-01	
NI-63	1.01E+00	
SR-90	2.00E-01	

C

CO-60	7.39E+01	7.54E+01
FE-55	2.01E+01	1.93E+01
H-3	1.02E+00	1.29E+00
MN-54	1.39E+00	
NI-63	3.57E+00	3.63E+00
Others	2.00E-02	3.80E-01

D

C-14	1.70E+00	
CO-60	6.68E+01	5.93E+01
CS-137	1.99E+01	2.89E+01
FE-55	7.60E+00	9.70E+00
H-3	2.60E+00	
NI-63	1.30E+00	
Others	1.00E-01	2.10E+00

Installation: Nine Mile Point
Unit No.: 1

Location: 8 Mi NE Oswego, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.15E+02 Ci 4.44E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.14E+01 Ci 2.48E+00	non-compacted
C. Irradiated Components, Control Rods, etc.	m3 4.30E+00 Ci 9.99E+04	non-compacted
D. Other (describe) DAW shipped offsite for processing	m3 4.65E+01 Ci 1.93E+00	compacted

Installation: Nine Mile Point
Unit No.: 2

Location: 8 Mi NE Oswego, NY

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-410
Thermal Power(MWH): 2.05E+07
Commercial Operation: 04/05/88
Cooling Water Source: Lake Ontario

Licensee: Niagara Mohawk Power
Licensed Power(MWT): 1.85E+03
Net Electrical Power(MWH): 6.56E+06
Initial Criticality: 05/23/87

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.93E+01
CR-51	9.66E-03
MN-54	8.29E-05
FE-55	5.86E-05
CO-58	1.24E-04
CO-60	4.64E-04
ZN-65	2.35E-03
KR-85	5.96E-04
KR-85M	1.05E+00
KR-87	2.77E+00
KR-88	3.44E+01
SR-89	9.91E-05
MO-99	3.14E-03
XE-127	1.20E-05
I-131	9.37E-04
I-133	1.52E-02
XE-133	1.05E-01
XE-135	1.11E+00
XE-135M	4.36E+00
CS-137	5.16E-06
XE-137	1.57E+01
XE-138	2.12E+01
BA-LA-140	2.44E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	3.17E-02
MN-54	7.35E-03
FE-55	4.42E-03
CO-58	1.10E-03
FE-59	1.09E-03
CO-60	1.50E-02
ZN-65	1.06E-01
SR-89	4.53E-04
SR-90	3.62E-05
XE-133	3.25E-04
XE-135	1.24E-05

Total Airborne Tritium Released	1.54E+01 Ci
Total Liquid Tritium Released	7.78E+00 Ci
Volume of Waste Released (Prior to Dilution)	9.54E+06 liters
Volume of Dilution Water Used During Period	5.76E+10 liters

Installation: Nine Mile Point
Unit No.: 2

Location: 8 Mi NE Oswego, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-410
Thermal Power(MWH): 2.05E+07
Commercial Operation: 04/05/88
Cooling Water Source: Lake Ontario

Licensee: Niagara Mohawk Power
Licensed Power(MWT): 1.85E+03
Net Electrical Power(MWH): 6.56E+06
Initial Criticality: 05/23/87

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
34	Truck	Barnwell, SC
30	Truck	Processor to Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

CO-58		1.01E+00
CO-60	1.08E+01	8.35E+00
CR-51	8.38E+00	4.16E+01
FE-55	9.63E+00	1.93E+00
MN-54	3.43E+00	3.04E+00
Others	1.82E+00	2.47E+00
ZN-65	6.59E+01	4.16E+01

B

CO-58		1.39E+00
CO-60	8.10E+00	1.90E+01
CR-51	4.61E+01	2.34E+01
FE-55	1.14E+01	1.85E+00
FE-59	1.10E+00	1.56E+00
H-3	1.97E+00	
MN-54	2.64E+00	7.67E+00
NI-63	1.60E+00	
Others	7.90E-01	1.93E+00
ZN-65	2.63E+01	4.32E+01

D

CO-58	3.25E+01	
CO-60	2.96E+01	8.20E+00
CS-137	4.62E+00	
FE-55	2.20E+00	3.63E+01
H-3		4.47E+00
MN-54	8.28E+00	3.61E+00
Others		1.62E+00
ZN-65	2.28E+01	4.58E+01

Installation: Nine Mile Point
Unit No.: 2

Location: 8 Mi NE Oswego, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.59E+02 Ci 1.38E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 8.67E+01 Ci 1.36E+00	compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) DAW shipped offsite for processing	m3 2.06E+01 Ci 7.53E-02	compacted

Installation: North Anna
Unit No.: 1&2

Location: 40 Mi NW Richmond, VA

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-338
Thermal Power(MWH): 1.80E+07
Commercial Operation: 06/06/78
Cooling Water Source: Lake Anna
Unit Number: 2 Type: PWR
Docket Number: 50-339
Thermal Power(MWH): 2.46E+07
Commercial Operation: 12/14/80
Cooling Water Source: Lake Anna

Licensee: Virginia Electric & Power
Licensed Power(MWT): 2.89E+03
Net Electrical Power(MWH): 5.63E+06
Initial Criticality: 04/05/78

Licensee: Virginia Electric & Power
Licensed Power(MWT): 2.89E+03
Net Electrical Power(MWH): 7.68E+06
Initial Criticality: 06/12/80

Airborne Effluents

Nuclide Released	Activity (Ci)
NA-24	1.96E-05
AR-41	1.12E+01
MN-54	2.33E-09
FE-55	2.24E-05
CO-58	4.54E-05
CO-60	1.41E-05
KR-85	5.45E+00
KR-85M	3.00E-01
KR-87	2.23E-01
KR-88	4.88E-01
RB-88	1.43E-07
RU-106	9.52E-09
SB-122	4.44E-10
SB-124	1.09E-08
I-131	2.55E-03
XE-131M	6.87E+00
I-132	1.69E-05
I-133	2.46E-03
XE-133	2.16E+03
XE-133M	7.71E+00
CS-134	1.44E-05
I-134	6.81E-06
I-135	4.00E-05
XE-135	4.75E+01
XE-135M	7.42E-01
CS-136	4.10E-09
CS-137	4.99E-05
CS-138	2.49E-07
XE-138	1.75E-01
BA-139	2.50E-05
CE-143	2.36E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	1.95E-04
AR-41	3.93E-04
CR-51	4.74E-03
MN-54	1.51E-03
CO-58	3.99E-02

Installation: North Anna
Unit No.: 1&2

Location: 40 Mi NW Richmond, VA

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
FE-59	4.05E-03
CO-60	9.46E-02
KR-85	3.71E-02
SR-85	1.60E-04
NB-95	5.63E-03
AG-110M	4.44E-02
SB-122	1.87E-05
SB-124	1.66E-03
SB-125	3.59E-02
TE-129M	3.80E-04
I-131	4.05E-02
XE-131M	1.44E-02
I-132	7.86E-05
I-133	3.16E-02
XE-133	4.14E+00
XE-133M	1.00E-02
CS-134	2.74E-03
I-135	1.40E-04
XE-135	4.59E-03
XE-135M	8.31E-04
CS-136	3.08E-04
CS-137	1.07E-02
BA-139	6.93E-04
BA-140	9.60E-05

Total Airborne Tritium Released	4.90E+01 Ci
Total Liquid Tritium Released	1.16E+03 Ci
Volume of Waste Released (Prior to Dilution)	3.17E+08 liters
Volume of Dilution Water Used During Period	2.77E+12 liters

Installation: North Anna
Unit No.: 1&2

Location: 40 Mi NW Richmond, VA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-338
Thermal Power(MWH): 1.80E+07
Commercial Operation: 06/06/78
Cooling Water Source: Lake Anna

Licensee: Virginia Electric & Power
Licensed Power(MWT): 2.89E+03
Net Electrical Power(MWH): 5.63E+06
Initial Criticality: 04/05/78

Unit Number: 2 Type: PWR
Docket Number: 50-339
Thermal Power(MWH): 2.46E+07
Commercial Operation: 12/14/80
Cooling Water Source: Lake Anna

Licensee: Virginia Electric & Power
Licensed Power(MWT): 2.89E+03
Net Electrical Power(MWH): 7.68E+06
Initial Criticality: 06/12/80

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
20	Truck	Barnwell, SC
3	Truck	Quadrex, Oak Ridge, TN
14	Truck	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
C-14		1.78E+00
CO-58	9.94E+00	1.60E+00
CO-60	1.83E+01	3.50E+01
CS-134		3.14E+00
CS-137		6.99E+00
FE-55	5.45E+01	1.10E+01
MN-54		1.34E+00
NI-63	1.35E+01	3.85E+01
B		
CO-58	3.02E+01	9.94E+00
CO-60	1.42E+01	2.37E+01
CR-51	2.75E+00	
CS-134	1.53E+00	1.27E+00
CS-137	7.84E+00	3.39E+00
FE-55	2.71E+01	4.07E+01
MN-54	1.45E+00	
NB-95	4.24E+00	5.83E+00
NI-63	3.92E+00	9.09E+00
SB-125		1.01E+00
ZR-95	5.10E+00	2.81E+00
D		
CO-58	6.00E+00	
CO-60	2.52E+01	
CS-134	1.90E+01	
CS-137	4.98E+01	

Installation: North Anna
Unit No.: 1&2

Location: 40 Mi NW Richmond, VA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.33E+02 Ci 2.88E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 7.63E+02 m3 1.02E+02 Ci 1.32E+01	before offsite processing actual burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Dry Innocuous Waste	m3 3.63E+01 m3 0.00E+00 Ci 4.02E-03	before offsite processing actual burial volume

Installation: Oconee
Unit No.: 1&2&3

Location: 30 Mi W Greenville, SC

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-269
Thermal Power(MWH): 1.83E+07
Commercial Operation: 07/15/73
Cooling Water Source: Lake Keowee
Unit Number: 2 Type: PWR
Docket Number: 50-270
Thermal Power(MWH): 2.23E+07
Commercial Operation: 09/09/74
Cooling Water Source: Lake Keowee
Unit Number: 3 Type: PWR
Docket Number: 50-287
Thermal Power(MWH): 1.69E+07
Commercial Operation: 12/16/74
Cooling Water Source: Lake Keowee

Licensee: Duke Power
Licensed Power(MWT): 2.57E+03
Net Electrical Power(MWH): 6.01E+06
Initial Criticality: 04/19/73
Licensee: Duke Power
Licensed Power(MWT): 2.57E+03
Net Electrical Power(MWH): 7.43E+06
Initial Criticality: 11/11/73
Licensee: Duke Power
Licensed Power(MWT): 2.57E+03
Net Electrical Power(MWH): 5.59E+06
Initial Criticality: 09/05/74

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.04E-01
MN-54	1.03E-05
MN-56	7.19E-09
CO-57	4.82E-10
CO-58	1.70E-04
CO-60	1.26E-05
SE-75	6.75E-11
KR-85	1.27E+01
KR-85M	1.63E+01
KR-87	1.44E-03
KR-88	8.18E+00
RB-88	5.32E-02
Y-91M	1.56E-04
NB-95	5.18E-05
MO-99	1.14E-07
TC-99M	3.14E-07
AG-110M	2.01E-04
SB-125	3.04E-04
I-130	3.13E-06
I-131	2.79E-02
XE-131M	2.97E+00
I-132	1.24E-03
I-133	8.54E-03
XE-133	3.08E+03
XE-133M	1.42E+01
CS-134	5.96E-05
I-134	1.04E-05
I-135	3.00E-03
XE-135	3.11E+02
CS-136	2.49E-07
CS-137	2.96E-04
XE-137	1.29E-01
CS-138	3.05E-02
CE-141	1.32E-06

Installation: Oconee
Unit No.: 1&2&3

Location: 30 Mi W Greenville, SC

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents

Nuclide Released	Activity (Ci)
P-18	1.32E-04
NA-24	6.27E-05
AR-41	9.13E-06
CR-51	3.08E-02
MN-54	3.01E-03
FE-55	4.43E-02
CO-57	3.30E-04
CO-58	2.35E-01
FE-59	4.32E-04
CO-60	6.23E-02
SE-75	2.44E-05
KR-85M	3.25E-04
KR-88	5.06E-05
RB-88	2.19E-04
SR-89	9.28E-05
SR-92	2.16E-04
NB-95	8.04E-03
ZR-95	3.13E-03
NB-97	4.58E-04
MO-99	9.12E-03
TC-99M	2.06E-03
RU-103	9.38E-04
RU-106	3.43E-02
AG-110M	2.82E-01
SN-113	5.63E-04
SB-122	5.71E-06
SB-124	1.42E-02
SB-125	5.05E-01
SB-126	2.20E-04
TE-129	1.26E-03
TE-129M	1.26E-03
I-131	2.67E-02
XE-131M	2.52E-02
I-132	3.54E-03
TE-132	4.67E-03
I-133	1.30E-03
XE-133	2.73E+00
XE-133M	3.72E-02
CS-134	2.53E-02
XE-135	6.28E-02
CS-136	1.65E-03
CS-137	4.75E-02
XE-137	1.35E-04
BA-139	2.00E-03
BA-140	1.25E-03
LA-140	4.38E-02
CE-141	3.09E-05
CE-144	8.45E-04
NP-239	2.29E-05

Total Airborne Tritium Released	1.09E+02 Ci
Total Liquid Tritium Released	1.13E+03 Ci
Volume of Waste Released (Prior to Dilution)	4.90E+09 liters
Volume of Dilution Water Used During Period	8.73E+11 liters

Installation: Oconee
Unit No.: 1&2&3

Location: 30 Mi W Greenville, SC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-269
Thermal Power(MWH): 1.83E+07
Commercial Operation: 07/15/73
Cooling Water Source: Lake Keowee

Licensee: Duke Power
Licensed Power(MWT): 2.57E+03
Net Electrical Power(MWH): 6.01E+06
Initial Criticality: 04/19/73

Unit Number: 2 Type: PWR
Docket Number: 50-270
Thermal Power(MWH): 2.23E+07
Commercial Operation: 09/09/74
Cooling Water Source: Lake Keowee

Licensee: Duke Power
Licensed Power(MWT): 2.57E+03
Net Electrical Power(MWH): 7.43E+06
Initial Criticality: 11/11/73

Unit Number: 3 Type: PWR
Docket Number: 50-287
Thermal Power(MWH): 1.69E+07
Commercial Operation: 12/16/74
Cooling Water Source: Lake Keowee

Licensee: Duke Power
Licensed Power(MWT): 2.57E+03
Net Electrical Power(MWH): 5.59E+06
Initial Criticality: 09/05/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation
15	
92	

Destination
Barnwell, SC
SEG to CNSI, Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

AG-110M
BA-140
C-14
CE-144
CO-57
CO-58
CO-60
CR-51
CS-134
CS-136
CS-137
FE-55
H-3
I-131
LA-140
MN-54
NB-95
NI-63
PU-241
RU-106
SB-125
SR-90
TE-125M
XE-131M

	Jan-June	Jul-Dec
	2.10E+00	4.68E-01
		3.22E-02
		7.74E-02
		9.21E-03
		1.38E-02
	1.20E+01	3.63E+00
	1.20E+01	6.68E+00
		1.38E-02
	1.01E+01	2.15E+01
		6.45E-02
	1.33E+01	4.00E+01
	1.74E+01	9.17E+00
		1.43E-01
		1.76E+00
		1.20E-01
	1.00E+00	5.09E-01
		4.60E-02
	2.88E+01	1.51E+01
		1.19E-01
		3.22E-02
		2.53E-01
		2.99E-01
		1.38E-02
		2.62E-01

Installation: Oconee
 Unit No.: 1&2&3

Location: 30 Mi W Greenville, SC

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
 (by type of waste)

A

XE-133 1.47E-01
 ZR-95 6.45E-02

B

C-14 1.59E+00
 CO-58 5.93E+00
 CO-60 2.37E+00
 CS-134 1.80E+01
 CS-137 5.18E+01
 FE-55 4.22E+00
 NI-63 1.61E+01

D

AG-110M 1.04E+01
 C-14 1.45E+00 3.02E-01
 CE-144 1.01E+00
 CO-58 8.50E+00 4.32E+01
 CO-60 2.60E+00 8.23E+00
 CS-134 1.80E+01
 CS-137 4.71E+01 4.42E-01
 FE-55 5.65E+00 6.58E+00
 H-3 3.95E+00 1.43E-01
 MN-54 4.70E-01 1.45E+00
 NB-95 1.50E-01 7.32E+00
 NI-63 1.20E+01 1.11E+01
 PU-241 6.63E-01
 RU-106 7.57E+00
 SR-90 1.01E-01
 TRU 4.03E-02
 ZR-95 2.06E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.69E+01 Ci 3.55E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 3.11E+01 m3 6.48E+01 m3 2.64E+01 Ci 8.19E+00	compacted brokered burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Dewatered Mechanical Filters	m3 1.76E+01 Ci 4.07E+01	

Installation: Oyster Creek
Unit No.: 1

Location: 9 Mi S Toms River, NJ

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-219
Thermal Power(MWH): 9.43E+06
Commercial Operation: 12/01/69
Cooling Water Source: Barnegat Bay

Licensee: GPU Nuclear Corporation
Licensed Power(MWT): 1.93E+03
Net Electrical Power(MWH): 2.95E+06
Initial Criticality: 05/03/69

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.46E-02
CR-51	7.19E-05
MN-54	1.30E-04
CO-60	1.25E-04
KR-85M	3.71E+01
KR-87	1.17E+02
KR-88	8.73E+01
SR-89	5.51E-03
SR-90	2.15E-05
TC-99M	8.84E-03
I-131	2.55E-02
XE-131M	2.72E+01
I-133	8.73E-02
XE-133	5.76E+00
I-135	7.74E-02
XE-135	1.86E+02
CS-137	4.44E-05
BA-140	1.10E-03
CE-141	4.24E-07
CE-144	1.55E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
CO-60	1.34E-04
XE-133	2.09E-03
XE-135	1.42E-02
CS-137	2.68E-05

Total Airborne Tritium Released	7.64E+00 Ci
Total Liquid Tritium Released	6.03E-01 Ci
Volume of Waste Released (Prior to Dilution)	8.36E+05 liters
Volume of Dilution Water Used During Period	4.24E+10 liters

Installation: Oyster Creek
Unit No.: 1

Location: 9 Mi S Toms River, NJ

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-219
Thermal Power(MWH): 9.43E+06
Commercial Operation: 12/01/69
Cooling Water Source: Barnegat Bay

Licensee: GPU Nuclear Corporation
Licensed Power(MWT): 1.93E+03
Net Electrical Power(MWH): 2.95E+06
Initial Criticality: 05/03/69

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
72	Truck	Barnwell, SC
39	Truck	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
C-14	4.40E-02	4.70E-02
CM-242	1.00E-03	
CO-58	2.59E+00	
CO-60	3.86E+01	4.52E+01
CR-51	1.79E+00	
CS-134	3.48E+00	1.43E+00
CS-137	1.31E+01	1.10E+01
FE-55	3.42E+01	3.90E+01
H-3	1.60E-02	8.00E-03
MN-54	5.45E+00	1.75E+00
NI-59		3.00E-03
NI-63	4.28E-01	6.15E-01
PU-241	1.41E-01	3.70E-02
SR-90	1.49E-01	1.05E-01
B		
C-14	3.69E-04	2.03E-04
CE-141	1.27E-02	
CE-144	5.09E-03	
CM-242		4.21E-04
CO-58	5.60E-01	
CO-60	3.50E+01	3.43E+01
CR-51	2.00E+00	1.31E+00
CS-134	2.11E+00	1.84E+00
CS-137	7.33E+00	9.02E+00
FE-55	4.73E+01	5.03E+01
FE-59	1.78E-01	
H-3	8.68E-03	3.91E-03
LA-140	1.11E+00	
MN-54	3.39E+00	2.48E+00
NI-59		3.05E-02
NI-63	3.05E-01	3.55E-01
PU-241	7.63E-02	9.13E-02
SR-89	1.27E-01	
SR-90	1.32E-01	6.20E-02
ZN-65	2.04E-01	
C		
C-14	1.00E-03	

Installation: Oyster Creek
 Unit No.: 1

Location: 9 Mi S Toms River, NJ

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
 (by type of waste)

C

CO-58	2.32E+00
CO-60	2.64E+01
CR-51	7.77E+00
CS-137	1.00E-02
FE-55	5.96E+01
H-3	3.00E-03
MN-54	2.60E+00
NI-59	5.00E-03
NI-63	1.25E+00
PU-241	3.20E-02

D

C-14	2.00E-03
CO-60	3.42E+01
CR-51	1.31E+00
CS-134	1.83E+00
CS-137	9.02E+00
FE-55	5.01E+01
H-3	4.00E-03
MN-54	2.47E+00
NI-59	3.00E-02
NI-63	3.54E-01
PU-241	9.10E-02
SR-90	6.20E-02

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 3.24E+02 Ci 1.35E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.33E+02 Ci 1.51E+01	waste shipped offsite
C. Irradiated Components, Control Rods, etc.	m3 2.06E+01 Ci 2.76E+01	
D. Other (describe) Other waste (Metals)	m3 1.56E+01 Ci 7.49E-02	

Installation: Palisades
Unit No.: 1

Location: 5 Mi S South Haven, MI

Effluent and Waste Disposal Annual Report for 1991

Type: PWR

Docket Number: 50-255

Thermal Power(MWH): 1.59E+07

Commercial Operation: 12/31/71

Cooling Water Source: Lake Michigan

Licensee: Consumers Power

Licensed Power(MWT): 2.53E+03

Net Electrical Power(MWH): 4.87E+06

Initial Criticality: 05/24/71

Airborne Effluents

Nuclide Released	Activity (Ci)
CO-58	8.86E-07
CO-60	1.35E-05
SE-75	8.11E-07
KR-85	2.48E-01
SR-89	5.46E-06
SR-90	2.56E-06
RU-106	7.79E-06
I-131	1.04E-04
XE-131M	1.69E-03
I-133	6.30E-05
XE-133	6.24E+01
XE-133M	6.89E-04
XE-135	2.28E-04
XE-135M	1.79E-05
CS-137	3.71E-06
Unidentified	1.64E-04

Liquid Effluents

Nuclide Released	Activity (Ci)
CO-58	5.71E-04
CO-60	2.40E-03
SR-89	1.60E-06
SR-90	8.01E-06
SB-125	4.17E-04
XE-133	2.58E-04
CS-134	6.33E-05
CE-137	5.06E-04
CS-137	5.74E-03
Unidentified	1.72E-03

Total Airborne Tritium Released	4.89E+00 Ci
Total Liquid Tritium Released	5.52E+01 Ci
Volume of Waste Released (Prior to Dilution)	9.09E+05 liters
Volume of Dilution Water Used During Period	1.36E+11 liters

Installation: Palo Verde
Unit No.: 1

Location: 36 Mi W Phoenix, AZ

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-528
Thermal Power(MWH): 2.85E+07
Commercial Operation: 01/28/86
Cooling Water Source: Sewage Treatment

Licensee: Arizona Public Service Co.
Licensed Power(MWT): 3.80E+03
Net Electrical Power(MWH): 9.31E+06
Initial Criticality: 05/25/85

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	8.85E-01
CO-58	9.30E-06
SE-75	8.11E-06
BR-82	7.28E-05
KR-85	4.44E+01
KR-85M	6.98E-01
KR-87	1.17E-01
KR-88	4.06E-01
RB-88	1.38E-02
RU-103	1.08E-05
SB-122	3.63E-06
TE-123M	1.76E-06
SB-124	2.77E-05
I-131	1.11E-02
XE-131M	1.77E+01
I-132	4.30E-04
I-133	2.64E-03
XE-133	2.77E+03
XE-133M	1.69E+01
CS-134	1.46E-04
I-135	5.22E-04
XE-135	6.37E+01
XE-135M	2.09E-01
CS-136	1.83E-05
CS-137	1.56E-04
CS-138	2.54E-04
CE-141	2.17E-06

Total Airborne Tritium Released

3.89E+02 Ci

Installation: Palo Verde
Unit No.: 2

Location: 36 Mi W Phoenix, AZ

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-529
Thermal Power(MWH): 2.52E+07
Commercial Operation: 09/19/86
Cooling Water Source: Sewage Treatment

Licensee: Arizona Public Service Co.
Licensed Power(MWT): 3.80E+03
Net Electrical Power(MWH): 8.27E+06
Initial Criticality: 04/18/86

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	6.89E-01
CO-58	6.45E-04
CO-60	2.82E-05
BR-82	1.67E-04
KR-85	2.75E+01
KR-88	1.55E-02
RB-88	1.03E-04
SR-89	4.17E-07
SR-90	4.32E-07
NB-95	5.98E-06
MO-99	1.87E-06
RU-103	2.42E-05
SB-124	5.16E-04
I-131	1.96E-02
XE-131M	9.90E+00
I-132	5.08E-03
I-133	5.60E-04
XE-133	4.87E+02
XE-133M	8.98E-02
I-135	2.61E-05
XE-135	2.93E+00

Total Airborne Tritium Released

5.59E+02 Ci

Installation: Palo Verde
Unit No.: 3

Location: 36 Mi W Phoenix, AZ

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-530
Thermal Power(MWH): 2.29E+07
Commercial Operation: 01/08/88
Cooling Water Source: Sewage Treatment

Licensee: Arizona Public Service Co.
Licensed Power(MWT): 3.80E+03
Net Electrical Power(MWH): 7.52E+06
Initial Criticality: 10/25/87

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	5.43E-01
CR-51	2.91E-04
MN-54	1.37E-05
CO-58	6.27E-04
CO-60	8.80E-05
BR-82	7.21E-04
KR-85	1.31E+01
KR-85M	1.66E+00
KR-87	8.00E-04
RB-88	1.15E-03
SR-89	1.96E-06
SR-90	1.28E-07
NB-95	9.51E-06
ZR-95	9.85E-06
RU-103	3.82E-06
AG-110M	9.14E-07
SB-124	1.13E-04
I-131	2.17E-03
XE-131M	1.12E+01
I-132	7.77E-04
I-133	1.63E-05
XE-133	3.95E+02
XE-133M	4.84E-01
XE-135	1.54E+01
CS-137	5.31E-07

Total Airborne Tritium Released

3.84E+02 Ci

Installation: Palo Verde
Unit No.: 1&2&3

Location: 36 Mi W Phoenix, AZ

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-528
Thermal Power(MWH): 2.85E+07
Commercial Operation: 01/28/86
Cooling Water Source: Sewage Treatment

Licensee: Arizona Public Service Co.
Licensed Power(MWT): 3.80E+03
Net Electrical Power(MWH): 9.31E+06
Initial Criticality: 05/25/85

Unit Number: 2 Type: PWR
Docket Number: 50-529
Thermal Power(MWH): 2.52E+07
Commercial Operation: 09/19/86
Cooling Water Source: Sewage Treatment

Licensee: Arizona Public Service Co.
Licensed Power(MWT): 3.80E+03
Net Electrical Power(MWH): 8.27E+06
Initial Criticality: 04/18/86

Unit Number: 3 Type: PWR
Docket Number: 50-530
Thermal Power(MWH): 2.29E+07
Commercial Operation: 01/08/88
Cooling Water Source: Sewage Treatment

Licensee: Arizona Public Service Co.
Licensed Power(MWT): 3.80E+03
Net Electrical Power(MWH): 7.52E+06
Initial Criticality: 10/25/87

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
25	Truck	Hanford, WA
28	Truck	Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A	Jan-June	Jul-Dec
AG-110M	1.12E-02	9.56E-02
C-14	1.19E+00	1.36E-02
CE-144	9.46E-02	2.32E-01
CO-58	1.96E+00	1.90E+00
CO-60	7.75E+00	1.17E+01
CR-51		7.50E-04
CS-134	9.72E+00	2.02E+01
CS-137	2.42E+01	4.35E+01
FE-55	1.89E+01	1.16E+01
FE-59	6.30E-02	
H-3	2.02E+00	3.50E-01
I-131	9.59E-04	
MN-54	8.35E-01	1.76E+00
NB-95		4.35E-04
NI-63	4.28E+00	5.24E+00
PU-238	3.48E-04	6.82E-04
PU-239/240	5.17E-04	8.99E-04
PU-241	3.79E-02	8.01E-02
RU-106		1.32E-01
SB-124	5.99E-01	4.60E-01
SB-125	5.05E-01	1.05E+00
SR-89		3.82E-02
SR-90	9.63E-02	1.66E-01
TC-99	1.66E-02	2.83E-03

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Estimate of Major Nuclide Composition (%) (continued)	Jan-June	July-Dec
(by type of waste)		
A		
ZR-95	7.59E-03	
B		
AG-110M	1.08E+00	4.28E-01
AM-241		4.93E-04
C-14	5.46E-01	6.64E-01
CE-144	4.60E-01	4.03E-01
CO-58	6.22E+00	1.62E+00
CO-60	1.49E+01	2.33E+01
CR-51		1.29E-03
CS-134	8.83E+00	8.37E+00
CS-137	2.21E+01	2.78E+01
FE-55	2.70E+01	2.50E+01
FE-59		1.65E-03
H-3	5.26E-01	6.35E-01
MN-54	4.81E-01	8.42E-01
NB-95	5.38E-01	2.79E-02
NI-63	1.14E+01	9.68E+00
PU-238		1.21E-03
PU-239/240		1.48E-03
PU-241		5.79E-02
RU-106		1.32E-01
SB-124	5.61E+00	7.47E-01
SB-125		1.75E-01
SR-90		7.14E-02
TC-99		1.90E-03
ZR-95	3.96E-01	1.54E-03
D		
C-14		7.82E-04
CO-58		1.68E-03
CO-60		3.25E-03
CS-137		1.96E-03
FE-55		4.51E-02
H-3		4.65E-04
NI-63		3.92E-03

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.90E+02 Ci 8.80E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.87E+02 Ci 1.07E+01	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)		
Dewatered charcoal	m3 5.60E+00 Ci 8.64E-02	

Installation: Peach Bottom
Unit No.: 2&3

Location: 17.9 Mi S Lancaster, PA

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 2 Type: BWR
Docket Number: 50-277
Thermal Power(MWH): 1.61E+07
Commercial Operation: 07/05/74
Cooling Water Source: Susquehanna River
Unit Number: 3 Type: BWR
Docket Number: 50-278
Thermal Power(MWH): 1.62E+07
Commercial Operation: 12/23/74
Cooling Water Source: Susquehanna River

Licensee: Philadelphia Electric
Licensed Power(MWT): 3.44E+03
Net Electrical Power(MWH): 5.06E+06
Initial Criticality: 09/16/73

Licensee: Philadelphia Electric
Licensed Power(MWT): 3.44E+03
Net Electrical Power(MWH): 5.11E+06
Initial Criticality: 08/07/74

Airborne Effluents

Nuclide Released	Activity (Ci)
CR-51	2.89E-04
MN-54	4.80E-07
CO-58	2.82E-06
CO-60	2.31E-04
CU-64	1.88E-03
ZN-65	9.72E-06
KR-85M	2.10E+03
KR-87	2.98E+02
KR-88	1.27E+03
RB-88	1.15E-02
SR-89	3.28E-03
SR-90	5.84E-05
SR-91	1.60E-03
Y-91M	1.86E-02
MO-99	2.66E-04
TC-99M	4.17E-04
CD-109	4.28E-04
I-131	3.51E-02
XE-131M	3.62E+02
I-132	9.23E-05
TE-132	7.67E-05
I-133	4.86E-02
XE-133	1.70E+04
XE-133M	2.50E+02
CS-134	1.28E-06
I-135	1.32E-02
XE-135	1.78E+03
XE-135M	1.26E+02
CS-137	9.70E-04
CS-138	1.70E-01
XE-138	3.14E+02
BA-139	2.86E-02
BA-140	2.18E-03
LA-140	7.24E-04
CE-144	3.61E-05
Unidentified	4.07E+02

Installation: Peach Bottom
Unit No.: 2&3

Location: 17.9 Mi S Lancaster, PA

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	3.12E-04
P-32	1.71E-03
CR-51	2.17E-03
MN-54	3.20E-04
FE-55	3.30E-03
CO-58	4.31E-04
CO-60	4.05E-03
CU-64	1.09E-02
ZN-65	4.71E-03
SR-89	2.61E-04
SR-90	1.34E-04
Y-91M	2.50E-05
SR-92	5.75E-04
NB-95	3.44E-04
MO-99	1.18E-05
TC-99M	1.25E-05
AG-110M	2.95E-03
SB-125	2.44E-04
I-131	2.46E-03
XE-131M	2.53E-04
I-133	7.14E-04
XE-133	2.16E-02
CS-134	4.47E-04
XE-135	3.18E-02
XE-135M	4.70E-04
CS-137	8.35E-04
LA-140	3.85E-04

Total Airborne Tritium Released	3.99E+01 Ci
Total Liquid Tritium Released	1.46E+01 Ci
Volume of Waste Released (Prior to Dilution)	1.01E+07 liters
Volume of Dilution Water Used During Period	1.03E+11 liters

Installation: Peach Bottom
Unit No.: 2&3

Location: 17.9 Mi S Lancaster, PA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 2 Type: BWR
Docket Number: 50-277
Thermal Power(MWH): 1.61E+07
Commercial Operation: 07/05/74
Cooling Water Source: Susquehanna River

Licensee: Philadelphia Electric
Licensed Power(MWT): 3.44E+03
Net Electrical Power(MWH): 5.06E+06
Initial Criticality: 09/16/73

Unit Number: 3 Type: BWR
Docket Number: 50-278
Thermal Power(MWH): 1.62E+07
Commercial Operation: 12/23/74
Cooling Water Source: Susquehanna River

Licensee: Philadelphia Electric
Licensed Power(MWT): 3.44E+03
Net Electrical Power(MWH): 5.11E+06
Initial Criticality: 08/07/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
84		
140		Quadrex to burial
74		SEG to burial

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 4.03E+02 Ci 1.79E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 4.01E+02 Ci 1.90E+01	after volume reduction
C. Irradiated Components, Control Rods, etc.	m3 5.51E+00 Ci 8.37E+04	
D. Other (describe) Filters	m3 2.33E+01 Ci 4.93E+01	
Dewatered filters	m3 3.49E+01 Ci 5.62E+01	

Installation: Perry
Unit No.: 1

Location: 7 Mi NE Painesville, OH

Effluent and Waste Disposal Annual Report for 1991

Type: BWR

Licensee: Cleveland Electric
Illuminating Company
Licensed Power(MWT): 3.58E+03
Net Electrical Power(MWH): 8.98E+06
Initial Criticality: 06/06/86

Docket Number: 50-440
Thermal Power(MWH): 2.75E+07
Commercial Operation: 11/18/87
Cooling Water Source: Lake Erie

Airborne Effluents

Nuclide Released	Activity (Ci)
KR-85M	6.39E-01
KR-87	2.64E-01
KR-88	4.70E-01
SR-89	3.62E-04
SR-90	1.08E-06
I-131	1.39E-02
I-132	3.53E-04
I-133	3.20E-02
XE-133	8.13E+01
XE-133M	1.22E+00
XE-135	1.88E+01
XE-135M	7.27E+00
XE-137	5.18E-01
CS-138	4.25E-04
XE-138	8.40E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	2.63E-02
MN-54	3.70E-03
FE-55	2.34E-02
CO-58	8.76E-04
CO-60	3.04E-02
ZN-65	1.46E-02
SR-89	2.44E-03
TC-99M	7.42E-05
AG-110M	1.43E-03
SB-125	2.42E-04
XE-133	2.27E-02
CS-134	6.03E-03
XE-135	4.27E-02
CS-137	8.64E-03
LA-140	2.76E-04

Total Liquid Tritium Released	1.06E+01 Ci
Volume of Waste Released (Prior to Dilution)	1.41E+10 liters
Volume of Dilution Water Used During Period	7.81E+10 liters

Installation: Perry
Unit No.: 1

Location: 7 Mi NE Painesville, OH

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR

Licensee: Cleveland Electric
Illuminating Company
Licensed Power(MWT): 3.58E+03
Net Electrical Power(MWH): 8.98E+06
Initial Criticality: 06/06/86

Docket Number: 50-440
Thermal Power(MWH): 2.75E+07
Commercial Operation: 11/18/87
Cooling Water Source: Lake Erie

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
23	Truck	Barnwell, SC
52	Truck	Richland, WA
3	Truck	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

	Jan-June	Jul-Dec
AG-110M	4.21E-01	
AM-241	2.05E-05	
C-14	5.10E-02	1.20E+00
CE-144	1.86E-01	
CM-241	7.30E-07	
CM-242	2.80E-05	1.62E-05
CO-58	5.83E-01	
CO-60	1.91E+01	1.14E+02
CR-51	4.21E-01	1.80E+01
CS-134	1.24E+00	7.77E+00
CS-137	1.24E+00	1.03E+01
FE-55	5.88E+01	3.62E+02
FE-59	1.92E-01	
H-3	1.15E-01	4.24E+00
MN-54	4.23E+00	1.77E+01
NI-59	9.80E-03	3.33E-03
NI-63	3.79E-01	3.68E+00
PU-238	1.04E-05	
PU-239/240	6.67E-05	
PU-241	1.43E-03	3.15E-01
SR-90	1.33E-01	3.65E-01
TC-99	7.70E-05	8.21E-06
ZN-65	1.31E+01	8.53E+01

B

AG-110M	4.60E-02	
C-14		1.95E-01
CE-144	1.40E-02	
CO-58	2.95E-01	
CO-60	8.59E+00	6.41E-01
CR-51	7.60E-02	
CS-134	1.00E-02	
CS-137	2.10E-02	
FE-55	8.45E+01	6.12E+00
FE-59	2.04E-01	
H-3		1.32E-05

Installation: Perry
Unit No.: 1

Location: 7 Mi NE Painesville, OH

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

B	Jan-June	July-Dec
MN-54	6.03E+00	3.97E-01
NB-95	2.30E-02	
NI-63	4.40E-02	
SB-124	6.10E-02	
SR-90	1.00E-03	
TC-99		1.39E-06
ZN-65	1.39E-01	

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 3.37E+02 Ci 2.67E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 5.83E+02 Ci 8.57E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Pilgrim
Unit No.: 1

Location: 25 Mi SE Boston, MA

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-293
Thermal Power(MWH): 1.04E+07
Commercial Operation: 12/01/72
Cooling Water Source: Cape Cod Bay

Licensee: Boston Edison
Licensed Power(MWT): 2.00E+03
Net Electrical Power(MWH): 3.42E+06
Initial Criticality: 06/16/72

Airborne Effluents

Nuclide Released	Activity (Ci)
MN-54	3.15E-06
CO-58	1.12E-06
CO-60	1.35E-04
KR-85M	1.89E+02
KR-87	1.86E+02
KR-88	2.39E-02
SR-89	3.36E-03
SR-90	2.47E-05
I-131	3.85E-02
I-133	1.36E-01
XE-133	4.98E+02
XE-135	2.96E+02
XE-135M	1.83E+02
CS-137	1.84E-05
XE-138	6.31E+02
BA/LA-140	5.10E-03
CE-141	1.00E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	5.56E-05
CR-51	1.05E-03
MN-54	1.46E-03
FE-55	1.52E-03
CO-58	4.91E-04
FE-59	6.54E-05
CO-60	9.85E-03
ZN-65	1.83E-05
SR-89	2.25E-05
SR-90	7.65E-05
Y-92	2.49E-04
ZR/NB-95	1.44E-04
MO-99-TC-99M	2.71E-04
RU-103	4.80E-05
AG-110M	1.78E-05
I-131	1.88E-05
XE-133	1.11E-03
CS-134	7.72E-04
XE-135	4.95E-03
CS-137	1.70E-02
BA/LA-140	2.27E-04
CE-141	7.23E-05
CE-PR-144	2.54E-04
NP-239	2.89E-04

Installation: Pilgrim
Unit No.: 1

Location: 25 Mi SE Boston, MA

Effluent and Waste Disposal Annual Report for 1991

Total Airborne Tritium Released	2.18E+01 Ci
Total Liquid Tritium Released	1.02E+01 Ci
Volume of Waste Released (Prior to Dilution)	2.71E+06 liters
Volume of Dilution Water Used During Period	6.01E+09 liters

Installation: Pilgrim
Unit No.: 1

Location: 25 Mi SE Boston, MA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-293
Thermal Power(MWH): 1.04E+07
Commercial Operation: 12/01/72
Cooling Water Source: Cape Cod Bay

Licensee: Boston Edison
Licensed Power(MWT): 2.00E+03
Net Electrical Power(MWH): 3.42E+06
Initial Criticality: 06/16/72

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
2	Tractor-Trailer	Alaron-Wampum, PA/CNSI-SC
30	Tractor-Trailer	CNSI-Barnwell, SC
4	Tractor-Trailer	Quadrex-Oak Ridge, TN /CNSI-SC
12	Tractor-Trailer	SEG-Oak Ridge, TN/CNSI-SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AG-110M	7.45E-01	1.57E-01
AM-241	2.00E-03	
BA-140	1.47E-01	1.83E+00
C-14	2.00E-03	4.20E-02
CE-141	6.20E-02	1.95E-01
CE-144	2.12E+00	4.60E-01
CO-58	6.82E+00	2.88E+00
CO-60	3.72E+01	3.81E+01
CR-51	1.51E+01	2.14E+01
CS-134	1.77E+00	9.70E-01
CS-137	1.01E+01	5.13E+00
FE-55	1.47E+01	1.50E+01
FE-59	1.11E+00	6.68E-01
H-3	1.20E-02	9.00E-03
I-129	5.00E-03	4.00E-03
I-131	5.30E-02	3.78E-01
LA-140	7.00E-03	3.10E-02
MN-54	6.44E+00	1.08E+01
NB-95	2.60E-02	1.31E-01
NI-63	6.50E-01	8.92E-01
PU-241	1.46E-01	4.90E-02
SR-89	3.75E-01	1.03E-01
SR-90	9.20E-02	4.30E-02
TC-99	8.00E-03	
ZN-65	2.26E+00	7.90E-01
ZR-95	7.40E-02	

B

AG-110M	1.00E-02	1.00E-02
AM-241	1.00E-02	1.00E-02
C-14	2.00E-02	2.00E-02
CE-144	3.91E-01	3.91E-01
CM-242	1.00E-02	1.00E-02
CM-243/244	1.00E-02	1.00E-02
CO-57	1.00E-02	1.00E-02

Installation: Pilgrim
 Unit No.: 1

Location: 25 Mi SE Boston, MA

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
 (by type of waste)

B

CO-58	1.89E+00	1.89E+00
CO-60	3.32E+01	3.32E+01
CR-51	6.65E+00	6.65E+00
CS-134	1.40E-01	1.40E-01
CS-137	9.13E+00	9.13E+00
FE-55	4.11E+01	4.11E+01
FE-59	6.31E-01	6.31E-01
H-3	1.00E-02	1.00E-02
I-129	1.00E-02	1.00E-02
MN-54	2.92E+00	2.92E+00
NI-59	2.00E-02	2.00E-02
NI-63	2.86E+00	2.86E+00
PU-238	1.00E-02	1.00E-02
PU-239/240	1.00E-02	1.00E-02
PU-241	4.41E-01	4.41E-01
SB-124	4.01E-02	4.01E-02
SR-89	5.01E-02	5.01E-02
SR-90	9.02E-02	9.02E-02
TC-99	2.00E-02	2.00E-02
ZN-65	3.51E-01	3.51E-01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.63E+02 Ci 6.98E+02	non-compacted
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 7.24E+01 m3 1.14E+02 Ci 8.04E+00	compacted & incinerated compacted, non-compacted & incinerated
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Point Beach
Unit No.: 1&2

Location: 15 Mi N Manitowoc, WI

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-266
Thermal Power(MWH): 1.12E+07
Commercial Operation: 12/21/70
Cooling Water Source: Lake Michigan
Unit Number: 2 Type: PWR
Docket Number: 50-301
Thermal Power(MWH): 1.13E+07
Commercial Operation: 10/01/72
Cooling Water Source: Lake Michigan

Licensee: Wisconsin Electric Power Company
Licensed Power(MWT): 1.52E+03
Net Electrical Power(MWH): 3.63E+06
Initial Criticality: 11/02/70

Licensee: Wisconsin Electric Power Company
Licensed Power(MWT): 1.52E+03
Net Electrical Power(MWH): 3.69E+06
Initial Criticality: 05/30/72

Airborne Effluents

Nuclide Released	Activity (Ci)
F-18	6.59E-04
AR-41	1.07E+00
CR-51	7.58E-09
CO-57	4.80E-07
CO-58	3.85E-06
FE-59	4.87E-09
CO-60	1.06E-04
KR-85	2.74E-01
KR-85M	1.03E-01
KR-87	2.31E-01
KR-88	2.56E-01
RB-88	1.62E-01
NB-97	1.65E-09
I-131	3.46E-04
I-132	2.95E-05
TE-132	2.34E-06
I-133	1.13E-04
XE-133	1.60E+01
XE-133M	3.97E-02
CS-134	1.10E-03
I-135	1.58E-05
XE-135	6.03E-01
XE-135M	3.44E-01
CS-137	1.91E-03
CS-138	1.92E-02
XE-138	1.06E+00
BA-139	1.17E-07
CE-144	3.94E-09

Liquid Effluents

Nuclide Released	Activity (Ci)
F-18	4.54E-03
MN-54	1.96E-04
CO-58	2.93E-03
CO-60	5.53E-03
SR-89	2.68E-04
SR-90	1.35E-04

Installation: Point Beach
Unit No.: 1&2

Location: 15 Mi N Manitowoc, WI

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
NB-97	5.30E-06
AG-110M	4.06E-04
SN-113	3.07E-06
SB-125	1.08E-02
I-131	1.83E-03
I-132	7.62E-04
TE-132	1.74E-04
I-133	1.88E-02
CS-134	1.49E-03
CS-134M	4.67E-04
I-134	6.83E-04
I-135	8.21E-04
CS-137	8.93E-03
CE-144	9.64E-06
U-235	1.24E-04

Total Airborne Tritium Released	1.13E+02 Ci
Total Liquid Tritium Released	7.87E+02 Ci
Volume of Waste Released (Prior to Dilution)	4.39E+08 liters
Volume of Dilution Water Used During Period	6.45E+11 liters

Installation: Point Beach
Unit No.: 1&2

Location: 15 Mi W Manitowoc, WI

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-266
Thermal Power(MWH): 1.12E+07
Commercial Operation: 12/21/70
Cooling Water Source: Lake Michigan

Licensee: Wisconsin Electric Power Company
Licensed Power(MWT): 1.52E+03
Net Electrical Power(MWH): 3.63E+06
Initial Criticality: 11/02/70

Unit Number: 2 Type: PWR
Docket Number: 50-301
Thermal Power(MWH): 1.13E+07
Commercial Operation: 10/01/72
Cooling Water Source: Lake Michigan

Licensee: Wisconsin Electric Power Company
Licensed Power(MWT): 1.52E+03
Net Electrical Power(MWH): 3.69E+06
Initial Criticality: 05/30/72

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
25		Barnwell, SC
2		Hanford, WA

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.39E+01 Ci 2.17E+02	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 6.34E+01 Ci 2.76E+00	burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Scrap Metal	m3 9.08E+00 Ci 3.07E-01	burial volume

Installation: Prairie Island
Unit No.: 1&2

Location: 26 Mi SE Minneapolis, MN

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-282
Thermal Power(MWH): 1.26E+07
Commercial Operation: 12/16/73
Cooling Water Source: Mississippi River
Unit Number: 2 Type: PWR
Docket Number: 50-306
Thermal Power(MWH): 1.43E+07
Commercial Operation: 12/21/74
Cooling Water Source: Mississippi River

Licensee: Northern States Power
Licensed Power(MWT): 1.65E+03
Net Electrical Power(MWH): 3.98E+06
Initial Criticality: 12/01/73

Licensee: Northern States Power
Licensed Power(MWT): 1.65E+03
Net Electrical Power(MWH): 4.48E+06
Initial Criticality: 12/17/74

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	6.54E-03
MN-54	1.18E-05
CO-58	2.16E-05
CO-60	1.88E-04
KR-85	2.20E+00
NB-95	1.15E-06
I-131	1.19E-04
XE-131M	8.71E-03
I-133	1.32E-05
XE-133	5.28E+01
XE-133M	5.69E-01
CS-134	6.69E-05
XE-135	4.48E-01
CS-137	7.97E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	1.35E-03
SC-47	2.78E-04
CR-51	7.44E-03
MN-54	4.20E-04
FE-55	1.02E-01
CO-57	1.30E-05
CO-58	1.62E-02
FE-59	1.50E-03
CO-60	8.44E-03
ZN-65	6.26E-06
SE-75	1.34E-05
KR-85	2.31E-04
SR-92	3.30E-04
NB-95	8.48E-05
ZR-95	1.04E-04
NB-97	4.61E-06
ZR-97	1.33E-06
RH-105	1.21E-05
AG-108M	3.60E-06
AG-110M	8.44E-02
SN-113	1.58E-03
SB-122	2.64E-04

Installation: Prairie Island
Unit No.: 1&2

Location: 26 Mi SE Minneapolis, MN

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
SB-124	5.03E-03
SB-125	6.26E-03
SB-126	5.96E-06
I-131	1.55E-04
XE-131M	3.18E-05
XE-133	9.56E-03
XE-133M	3.18E-05
CS-134	1.06E-04
XE-135	2.85E-05
CS-137	2.62E-04
XE-137	2.40E-04
LA-140	4.62E-05
W-187	2.36E-05

Total Airborne Tritium Released	7.04E+01 Ci
Total Liquid Tritium Released	5.58E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.32E+08 liters
Volume of Dilution Water Used During Period	6.70E+11 liters

Installation: Prairie Island
Unit No.: 1&2

Location: 26 Mi SE Minneapolis, MN

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-282
Thermal Power(MWH): 1.26E+07
Commercial Operation: 12/16/73
Cooling Water Source: Mississippi River

Licensee: Northern States Power
Licensed Power(MWT): 1.65E+03
Net Electrical Power(MWH): 3.98E+06
Initial Criticality: 12/01/73

Unit Number: 2 Type: PWR
Docket Number: 50-306
Thermal Power(MWH): 1.43E+07
Commercial Operation: 12/21/74
Cooling Water Source: Mississippi River

Licensee: Northern States Power
Licensed Power(MWT): 1.65E+03
Net Electrical Power(MWH): 4.48E+06
Initial Criticality: 12/17/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
1	Truck	Barnwell, SC
2	Truck	Oak Ridge, TN
1	Truck	Quadrex, Oak Ridge, TN
10	Truck	Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

CO-58		1.86E+01
CO-60		4.06E+01
CS-134		1.70E+00
CS-137		5.50E+00
FE-55		3.50E+00
NI-63		2.85E+01

B

C-14	1.13E+01	7.02E+00
CO-60	2.95E+01	4.12E+01
CS-134		9.04E-01
CS-137		1.23E+00
FE-55	4.65E+01	1.81E+01
H-3	1.60E+00	1.95E+00
NI-63	1.16E+01	2.71E+01
SB-125		9.46E-01

Installation: Prairie Island
Unit No.: 1&2

Location: 26 Mi SE Minneapolis, MN

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.98E+01 Ci 1.80E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 8.16E+01 Ci 9.70E+00	compacted & non-compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Quad-Cities
Unit No.: 1&2

Location: 20 Mi NE Moline, IL

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: BWR
Docket Number: 50-254
Thermal Power(MWH): 1.13E+07
Commercial Operation: 02/18/73
Cooling Water Source: Mississippi River
Unit Number: 2 Type: BWR
Docket Number: 50-265
Thermal Power(MWH): 1.69E+07
Commercial Operation: 03/10/73
Cooling Water Source: Mississippi River

Licensee: Commonwealth Edison Co.
Licensed Power(MWT): 2.51E+03
Net Electrical Power(MWH): 3.54E+06
Initial Criticality: 10/18/71

Licensee: Commonwealth Edison Co.
Licensed Power(MWT): 2.51E+03
Net Electrical Power(MWH): 5.30E+06
Initial Criticality: 04/26/72

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.02E+00
CR-51	9.48E-04
MN-54	6.70E-04
CO-57	2.14E-06
CO-58	1.48E-04
CO-60	6.73E-03
ZN-65	9.37E-07
KR-85M	7.77E-01
KR-87	1.68E+00
KR-88	1.17E+00
SR-89	7.35E-04
SR-90	3.36E-06
NB-95	4.71E-06
MO-99	3.55E-03
I-131	1.57E-03
XE-131M	8.96E-03
I-133	7.69E-03
XE-133	1.48E+00
I-135	4.21E-03
XE-135	1.61E+00
XE-135M	6.10E+00
CS-137	4.98E-04
XE-138	2.83E+01
BA-140	6.17E-04
LA-140	1.01E-03

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	1.87E-04
MN-54	3.08E-02
FE-55	6.44E-02
CO-58	2.06E-02
CO-60	5.90E-01
ZN-65	2.03E-02
SR-89	4.78E-03
SR-90	3.31E-05
AG-110M	9.67E-05
CS-134	1.11E-05
XE-135	1.11E-05

Installation: Quad-Cities
Unit No.: 1&2

Location: 20 Mi NE Moline, IL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
CS-137	2.29E-03	
Total Airborne Tritium Released		1.50E+02 Ci
Total Liquid Tritium Released		4.43E+00 Ci
Volume of Waste Released (Prior to Dilution)		9.74E+05 liters
Volume of Dilution Water Used During Period		1.72E+12 liters

Installation: Quad-Cities
Unit No.: 1&2

Location: 20 Mi NE Moline, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: BWR
Docket Number: 50-254
Thermal Power(MWH): 1.13E+07
Commercial Operation: 02/18/73
Cooling Water Source: Mississippi River

Licensee: Commonwealth Edison Co.
Licensed Power(MWT): 2.51E+03
Net Electrical Power(MWH): 3.54E+06
Initial Criticality: 10/18/71

Unit Number: 2 Type: BWR
Docket Number: 50-265
Thermal Power(MWH): 1.69E+07
Commercial Operation: 03/10/73
Cooling Water Source: Mississippi River

Licensee: Commonwealth Edison Co.
Licensed Power(MWT): 2.51E+03
Net Electrical Power(MWH): 5.30E+06
Initial Criticality: 04/26/72

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
39	CNSI	Barnwell, SC
8	Raytech	Channahan
7	Kindrick	Quadrex
2	Hittman	SEG
4	CNSI	U. S. Ecology, WA
3	Raytech	U. S. Ecology, WA
1	Hittman	Westinghouse, GA

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 7.56E+02 Ci 1.04E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 Ci	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Rancho Seco
Unit No.: 1

Location: 25 Mi SE Sacramento, CA

Effluent and Waste Disposal Annual Report for 1991

Type: PWR	Licensee: Sacramento Municipal Utility
Docket Number: 50-312	Licensed Power(MWT): 2.77E+03
Thermal Power(MWH): 0.00E+00	Net Electrical Power(MWH): 0.00E+00
Commercial Operation: 04/17/75	Initial Criticality: 09/16/74
Cooling Water Source: Folsom Canal	

Liquid Effluents

Nuclide Released	Activity (Ci)
CO-60	6.24E-05
CS-134	1.56E-05
CS-137	1.26E-04

Total Airborne Tritium Released	1.90E+01 Ci
Total Liquid Tritium Released	9.84E-01 Ci
Volume of Waste Released (Prior to Dilution)	7.30E+06 liters
Volume of Dilution Water Used During Period	1.81E+10 liters

Installation: Rancho Seco
Unit No.: 1

Location: 25 Mi SE Sacramento, CA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-312
Thermal Power(MWH): 0.00E+00
Commercial Operation: 04/17/75
Cooling Water Source: Folsom Canal

Licensee: Sacramento Municipal Utility
Licensed Power(MWT): 2.77E+03
Net Electrical Power(MWH): 0.00E+00
Initial Criticality: 09/16/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
6	Truck	Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AG-110M		1.44E-01
CO-58	1.20E-01	
CO-60	3.49E+00	2.70E+00
CS-134	1.27E+01	7.90E+00
CS-137	6.40E+01	5.39E+01
FE-55	1.07E+01	7.88E+00
H-3	2.44E-01	1.98E+01
MN-54	1.75E-01	
NI-63	8.10E+00	6.58E+00
SB-125		5.07E-01
SR-90	4.13E-01	3.48E-01
TE-125M		1.02E-01

B

AG-110M	1.87E+00	1.00E+00
C-14	1.60E+00	1.36E+00
CE-144	3.73E+00	1.57E+00
CO-58	1.75E-01	
CO-60	1.94E+01	1.81E+01
CS-134	1.91E+00	1.04E+00
CS-137	1.30E+01	7.13E+00
FE-55	1.75E+01	2.04E+01
H-3	1.71E+00	1.05E+01
MN-54	1.81E-01	9.24E-01
NI-63	3.63E+01	3.59E+01
RU-106	1.61E+00	6.80E-01
SB-125	6.71E-01	9.18E-01
TE-125		2.16E-01
TE-125M	1.57E-01	

C

C-14	3.41E-01	
CE-144	1.16E+01	
CM-242	7.96E-01	
CO-58	2.45E+00	
CO-60	2.63E+01	
CS-134	4.39E+00	
CS-137	1.50E+01	
FE-55	2.86E+01	
MN-54	1.59E-01	

Installation: Rancho Seco
Unit No.: 1

Location: 25 Mi SE Sacramento, CA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

C

NB-95	1.78E+00
NI-63	3.89E+00
PU-241	2.31E-01
RU-106	2.58E+00
SB-125	1.28E-01
SR-90	4.01E-01
TC-99	2.30E-01
ZR-95	9.32E-01

D

CO-60	1.49E+01	
CS-134	8.11E+00	
CS-137	7.70E+01	
RA-226		1.00E+02

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.65E+01 Ci 2.26E+02	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.28E+01 Ci 1.77E+01	burial volume
C. Irradiated Components, Control Rods, etc.	m3 5.20E-02 Ci 1.67E+00	burial volume
D. Other (describe) Moisture Separator Reheaters&Chevron	m3 1.53E-01 Ci 7.40E-04	burial volume
Radium Sources	m3 2.12E-01 Ci 1.05E-04	burial volume

Installation: River Bend
Unit No.: 1

Location: 24 Mi NNW Baton Rouge, LA

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-458
Thermal Power(MWH): 2.11E+07
Commercial Operation: 06/16/86
Cooling Water Source: Mississippi River

Licensee: Gulf States Utilities Co
Licensed Power(MWT): 2.89E+03
Net Electrical Power(MWH): 6.69E+06
Initial Criticality: 10/31/85

Airborne Effluents

Nuclide Released	Activity (Ci)
CR-51	1.25E-04
CO-58	1.48E-05
CO-60	5.82E-05
KR-85M	1.09E+01
KR-87	1.43E+01
KR-88	8.40E+00
SR-89	8.25E-04
SR-90	4.77E-06
I-131	3.92E-02
I-133	3.17E-01
XE-133	3.00E+02
XE-133M	8.16E-01
XE-135	5.34E+02
XE-135M	2.21E+02
XE-138	2.18E+01
xe-138	4.71E+00
BA-140	4.14E-03
CE-141	3.28E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	1.16E-01
MN-54	2.33E-02
FE-55	7.59E-02
CO-57	8.71E-06
CO-58	6.32E-03
FE-59	7.56E-03
CO-60	6.28E-02
ZN-65	2.06E-03
AS-76	9.41E-05
SR-89	2.74E-03
SR-90	2.67E-04
SR-91	4.18E-05
Y-91M	1.13E-04
SR-92	3.06E-05
Y-92	3.24E-03
NB-95	8.55E-04
ZR-95	4.80E-04
NB-97	5.32E-04
MO-99	3.03E-03
TC-99M	1.71E-03
RU-103	9.94E-04
RH-105	3.71E-04
RU-105	1.09E-03

Installation: River Bend
Unit No.: 1

Location: 24 Mi NNW Baton Rouge, LA

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
AG-110M	5.44E-04
SN-113	1.02E-04
SB-122	9.56E-05
SB-124	2.07E-03
I-131	2.33E-03
XE-131M	2.11E-04
TE-132	4.97E-05
I-133	1.11E-03
XE-133	1.78E-01
XE-133M	8.67E-03
I-135	2.54E-05
XE-135	2.97E-01
XE-135M	4.06E-05
CS-137	6.12E-05
BA-140	3.25E-03
LA-140	3.94E-02
CE-141	2.94E-03
W-187	3.08E-05
NP-239	4.46E-04

Total Airborne Tritium Released	1.37E+01 Ci
Total Liquid Tritium Released	3.06E+01 Ci
Volume of Waste Released (Prior to Dilution)	2.80E+09 liters
Volume of Dilution Water Used During Period	4.99E+09 liters

Installation: River Bend
Unit No.: 1

Location: 24 Mi NNW Baton Rouge, LA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-458
Thermal Power(MWH): 2.11E+07
Commercial Operation: 06/16/86
Cooling Water Source: Mississippi River

Licensee: Gulf States Utilities Co
Licensed Power(MWT): 2.89E+03
Net Electrical Power(MWH): 6.69E+06
Initial Criticality: 10/31/85

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
41	Truck	Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

B

	Jan-June	Jul-Dec
C-14	1.72E+00	1.72E+00
CO-58	3.60E-01	3.60E-01
CO-60	6.15E+01	6.15E+01
CR-51	6.90E+00	6.90E-01
CS-137	1.80E-01	1.80E-01
FE-55	2.23E+01	2.23E+01
MN-54	8.93E+00	8.93E+00
NI-63	1.28E+00	1.28E+00
PU-238	1.00E-02	1.00E-03
PU-239	1.00E-02	
PU-239/240		1.00E-03
PU-241	2.30E-01	2.30E-01
ZN-65	2.74E+00	2.74E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 Ci	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 3.30E+01 Ci 2.67E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: H. B. Robinson
Unit No.: 2

Location: 4.5 Mi WNW Hartsville, SC

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-261
Thermal Power(MWH): 1.53E+07
Commercial Operation: 03/07/71
Cooling Water Source: Robinson Impoundment

Licensee: Carolina Power & Light
Licensed Power(MWT): 2.30E+03
Net Electrical Power(MWH): 4.79E+06
Initial Criticality: 09/20/70

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	7.31E-01
MN-54	1.22E-06
CO-58	4.99E-07
CO-60	1.68E-04
KR-85	1.48E+00
XE-133	4.31E-02
XE-133M	3.23E-04
XE-135	6.60E-04
CS-137	2.95E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
F-18	9.76E-06
NA-24	2.00E-05
CR-51	2.87E-03
MN-54	1.55E-03
FE-55	6.70E-02
CO-57	1.31E-04
CO-58	4.43E-02
CO-60	5.83E-02
NB-95	4.10E-04
ZR-95	5.87E-05
ZR-97	4.74E-04
TC-99M	2.98E-06
RU-106	1.02E-04
AG-110M	1.14E-02
SN-113	8.76E-05
SB-124	4.50E-03
SB-125	4.18E-02
XE-133	2.26E-02
XE-133M	2.82E-04
CS-134	1.30E-04
XE-135	3.16E-05
CS-137	2.43E-03

Total Airborne Tritium Released	4.48E+00 Ci
Total Liquid Tritium Released	1.88E+02 Ci
Volume of Waste Released (Prior to Dilution)	3.06E+06 liters
Volume of Dilution Water Used During Period	9.01E+11 liters

Installation: H. B. Robinson
Unit No.: 2

Location: 4.5 Mi WNW Hartsville, SC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-261
Thermal Power(MWH): 1.53E+07
Commercial Operation: 03/07/71
Cooling Water Source: Robinson Impoundment

Licensee: Carolina Power & Light
Licensed Power(MWT): 2.30E+03
Net Electrical Power(MWH): 4.79E+06
Initial Criticality: 09/20/70

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
72	Sole Use Vehicle	Barnwell, SC

Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
7	Sole Use Rail	CP&L, Harris Nuclear Project

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

	Jan-June	Jul-Dec
C-14		3.35E-01
CO-58	3.04E+01	3.12E-01
CO-60	1.73E+01	3.24E+01
CR-51	4.93E+00	
CS-134		1.93E+00
CS-137		3.99E+00
FE-55	7.92E+00	1.80E+01
H-3, C-14, MN-54, CM-242	2.63E+00	
MN-54		1.74E+00
NB-95	1.14E+01	
NI-63		2.72E+01
Others		1.41E+01
PU-241	6.30E+00	
SB-125	7.84E+00	2.55E-01
ZN-65	5.40E+00	
ZR-95	5.93E+00	

B

C-14, TC-99		3.23E-02
CO-58	3.17E+00	5.83E+00
CO-60	1.34E+01	1.30E+01
CR-51	5.21E+00	4.14E+00
FE-55	6.80E+01	6.74E+01
H-3, C-14, TC-99, I-129, CS-137	7.20E-02	
I-129		3.23E-02
NB-95	1.75E+00	1.39E+00
NI-63	8.35E+00	8.26E+00

C

CO-58		4.41E-01
CO-60		1.41E+01
CR-51		1.94E-01
FE-55		7.73E+01
MN-54		1.26E+00
NI-63		6.64E+00

Installation: H. B. Robinson
Unit No.: 2

Location: 4.5 Mi WNW Hartsville, SC

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

C
Others 1.01E-01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.72E+01 Ci 6.96E+01	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 4.35E+02 m3 4.52E+01 Ci 4.69E+00	before compaction burial volume
C. Irradiated Components, Control Rods, etc.	m3 2.16E+00 Ci 2.11E+01	
D. Other (describe)	m3 Ci	

Installation: Salem
Unit No.: 1

Location: 20 Mi S Wilmington, DE

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-272
Thermal Power(MWH): 2.14E+07
Commercial Operation: 06/30/77
Cooling Water Source: Delaware River

Licensee: PSE&G
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.81E+06
Initial Criticality: 12/11/76

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.84E-02
MN-54	5.48E-07
CO-58	1.54E-05
CO-60	2.96E-05
KR-85	2.87E+00
KR-85M	1.30E-01
KR-87	5.66E-03
KR-88	8.26E-02
I-131	1.61E-03
XE-131M	1.90E+00
XE-133	3.54E+02
XE-133M	2.53E+00
XE-135	4.44E+00

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	2.65E-03
F-18	2.67E-04
NA-24	1.36E-03
CR-51	1.92E-02
MN-54	6.30E-02
FE-55	1.93E-01
CO-57	8.67E-03
CO-58	2.09E+00
FE-59	6.20E-04
CO-60	3.96E-01
ZN-65	3.76E-04
KR-85M	1.84E-05
SR-89	2.79E-03
SR-90	6.86E-04
SR-92	2.17E-05
NB-95	8.96E-03
ZR-95	4.17E-03
NB-97	1.11E-03
TC-99M	3.16E-04
RU-105	4.83E-05
AG-110M	1.93E-03
SN-113	6.73E-05
SB-122	2.75E-04
SB-124	1.65E-02
SB-125	7.79E-02
I-131	6.03E-02
XE-131	2.49E-04
I-132	1.51E-04

Installation: Salem
Unit No.: 1

Location: 20 Mi S Wilmington, DE

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
I-133	4.96E-03
XE-133	4.53E-01
XE-133M	4.70E-03
CS-134	1.79E-01
I-135	1.96E-04
XE-135	6.56E-03
CS-136	2.99E-03
CS-137	2.10E-01
LA-140	8.56E-04
CE-141	2.57E-05
CE-143	3.64E-05
CE-144	2.82E-04

Total Airborne Tritium Released	6.28E+01 Ci
Total Liquid Tritium Released	6.06E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.11E+07 liters
Volume of Dilution Water Used During Period	1.75E+12 liters

Installation: Salem
Unit No.: 2

Location: 20 Mi S Wilmington, DE

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-311
Thermal Power(MWH): 2.41E+07
Commercial Operation: 10/13/81
Cooling Water Source: Delaware River

Licensee: PSE&G
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 7.66E+06
Initial Criticality: 08/08/80

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	8.09E-03
CO-58	6.24E-06
CO-60	2.68E-05
KR-85	1.37E+00
KR-85M	2.18E-02
KR-88	1.02E-02
I-131	6.80E-04
XE-131M	1.21E+01
XE-133	1.77E+02
XE-133M	4.72E-01
XE-135	9.11E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	3.77E-04
F-18	9.18E-04
NA-24	1.67E-03
CR-51	1.31E-02
MN-54	4.98E-02
FE-55	1.54E-01
CO-57	6.48E-03
CO-58	1.43E+00
FE-59	2.62E-04
CO-60	2.41E-01
ZN-65	1.98E-04
BR-82	6.04E-05
SR-89	1.17E-03
SR-90	2.85E-03
NB-95	5.94E-03
ZR-95	2.62E-03
NB-97	9.37E-04
TC-99M	1.46E-04
RU-103	3.84E-05
RU-105	3.21E-05
AG-110M	1.23E-03
SB-122	9.87E-05
SB-124	1.16E-02
SB-125	6.11E-02
I-131	4.80E-02
I-132	1.69E-04
I-133	2.89E-03
XE-133	4.34E-01
XE-133M	4.25E-04
CS-134	1.28E-01

Installation: Salem
Unit No.: 2

Location: 20 Mi S Wilmington, DE

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
I-135	2.18E-04
XE-135	4.05E-03
CS-136	2.52E-03
CS-137	1.47E-01
CS-138	6.51E-06
BA-140	8.32E-05
LA-140	3.80E-04

Total Airborne Tritium Released	4.84E+01 Ci
Total Liquid Tritium Released	4.42E+02 Ci
Volume of Waste Released (Prior to Dilution)	7.62E+06 liters
Volume of Dilution Water Used During Period	1.68E+12 liters

Installation: Salem
Unit No.: 1&2

Location: 20 Mi S Wilmington, DE

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-272
Thermal Power(MWH): 2.14E+07
Commercial Operation: 06/30/77
Cooling Water Source: Delaware River

Licensee: PSE&G
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.81E+06
Initial Criticality: 12/11/76

Unit Number: 2 Type: PWR
Docket Number: 50-311
Thermal Power(MWH): 2.41E+07
Commercial Operation: 10/13/81
Cooling Water Source: Delaware River

Licensee: PSE&G
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 7.66E+06
Initial Criticality: 08/08/80

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
20	Truck	Barnwell, SC
1	Truck	Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A		
CO-58		1.77E+01
CO-60		2.04E+01
CS-134		1.04E+01
CS-137		1.09E+01
FE-55		1.70E+01
MN-54		2.20E+00
NI-63		1.93E+01
SB-125		1.10E+00
B		
CE-144	2.00E-01	
CO-58	5.64E+01	1.98E+01
CO-60	9.40E+00	1.20E+01
CS-134	2.10E+00	1.40E+00
CS-137	4.20E+00	1.90E+00
FE-55	1.57E+01	5.22E+01
H-3	1.00E-01	
MN-54	1.20E+00	1.70E+00
NI-63	9.10E+00	7.90E+00
PU-241	1.20E+00	
C		
CO-60		6.84E+01
FE-55		2.09E+01
NI-63		1.07E+01

Installation: Salem
Unit No.: 1&2

Location: 20 Mi S Wilmington, DE

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.26E+01 Ci 4.40E+02	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 7.93E+01 Ci 9.22E+00	compacted
C. Irradiated Components, Control Rods, etc.	m3 3.00E+00 Ci 2.30E+02	burial volume
D. Other (describe) Oil	m3 8.20E+00 Ci 1.00E-04	incinerated

Installation: San Onofre
Unit No.: 1

Location: 2.5 Mi S San Clemente, CA

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-206
Thermal Power(MWH): 6.74E+06
Commercial Operation: 01/01/68
Cooling Water Source: Pacific Ocean

Licensee: Southern California Edison Co.
Licensed Power(MWT): 1.35E+03
Net Electrical Power(MWH): 2.03E+06
Initial Criticality: 06/14/67

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.67E-01
CR-51	3.39E-07
MN-54	4.86E-07
CO-57	3.09E-05
CO-60	1.72E-04
BR-82	4.40E-05
KR-85	2.05E+01
KR-85M	1.41E+00
KR-87	5.19E-03
KR-88	2.95E-01
RB-88	1.47E-01
SN-113	6.54E-05
I-131	1.51E-03
XE-131M	7.92E+00
I-132	1.67E-03
I-133	1.40E-03
XE-133	2.41E+03
XE-133M	9.78E+00
CS-134	3.41E-07
I-135	4.85E-04
XE-135	4.05E+01
CS-137	1.61E-04
CS-138	2.64E-03
BA-139	2.48E-03
CE-141	7.83E-08
CE-144	5.40E-07

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	2.42E-03
MN-54	2.11E-03
FE-55	9.74E-03
CO-57	2.56E-04
CO-58	2.65E-02
FE-59	5.95E-05
CO-60	4.44E-02
ZN-65	1.13E-04
KR-85	1.04E-01
KR-85M	1.74E-03
SR-90	4.15E-04
SR-92	1.73E-05
NB-95	5.72E-04
NB-95M	1.14E-05
ZR-95	2.65E-04

Installation: San Onofre
Unit No.: 1

Location: 2.5 Mi S San Clemente, CA

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
NB-97	1.52E-04	
TC-99M	2.06E-05	
RU-103	2.99E-04	
RU-106	6.31E-03	
AG-110M	6.75E-04	
SN-113	5.43E-05	
SB-124	6.03E-04	
SB-125	7.68E-04	
I-131	3.12E-02	
XE-131M	7.61E-02	
I-132	2.98E-05	
I-133	7.91E-03	
XE-133	2.84E+00	
XE-133M	4.13E-03	
CS-134	1.02E-01	
XE-135	1.23E-02	
CS-136	2.10E-06	
CS-137	1.82E-01	
BA-140	2.44E-05	
LA-140	6.19E-04	
CE-141	9.50E-06	
CE-143	4.39E-05	
CE-144	1.97E-03	
Total Airborne Tritium Released		1.68E+01 Ci
Total Liquid Tritium Released		1.25E+03 Ci
Volume of Waste Released (Prior to Dilution)		3.69E+06 liters
Volume of Dilution Water Used During Period		2.55E+11 liters

Installation: San Onofre
 Unit No.: 1

Location: 2.5 Mi S San Clemente, CA

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Type: PWR
 Docket Number: 50-206
 Thermal Power(MWH): 6.74E+06
 Commercial Operation: 01/01/68
 Cooling Water Source: Pacific Ocean

Licensee: Southern California Edison Co.
 Licensed Power(MWT): 1.35E+03
 Net Electrical Power(MWH): 2.03E+06
 Initial Criticality: 06/14/67

Estimate of Major Nuclide Composition (%) % (by type of waste)	Jan-June	Jul-Dec
B		
C-14	5.96E-04	5.01E-04
CO-58	2.10E-01	3.98E-02
CO-60	1.51E+00	8.22E-01
CS-134	1.08E+01	1.68E+01
CS-137	2.07E+01	3.11E+01
EU-152	9.90E-06	
FE-55	6.78E+00	1.03E+01
H-3	5.77E+01	4.04E+01
I-129	2.81E-04	8.26E-05
MN-54		5.21E-02
NI-63	2.38E+00	5.16E-01
SR-90	2.85E-05	
TC-99	1.36E-03	2.37E-03
D		
C-14	1.17E-03	
CE-144	1.38E-01	
CM-242	2.92E-02	
CM-243/244	1.55E-02	
CO-60	4.20E+00	
CS-134	5.24E-01	
CS-137	9.99E-01	
EU-154	2.40E-02	
FE-55	6.08E+00	
H-3	8.55E+01	
I-129	2.81E-06	
MN-54	5.42E-02	
NI-63	2.47E+00	
TC-99	2.01E-05	

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 Ci	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 9.04E+01 Ci 4.43E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Filters	m3 2.50E+00 Ci 1.32E+00	

Installation: San Onofre
Unit No.: 2&3

Location: 2.5 Mi S San Clemente, CA

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 2 Type: PWR
Docket Number: 50-361
Thermal Power(MWH): 1.80E+07
Commercial Operation: 08/08/83
Cooling Water Source: Pacific Ocean
Unit Number: 3 Type: PWR
Docket Number: 50-362
Thermal Power(MWH): 2.70E+07
Commercial Operation: 04/01/84
Cooling Water Source: Pacific Ocean

Licensee: Southern California Edison Co.
Licensed Power(MWT): 1.35E+03
Net Electrical Power(MWH): 5.76E+06
Initial Criticality: 07/26/82
Licensee: Southern California Edison Co.
Licensed Power(MWT): 3.39E+03
Net Electrical Power(MWH): 8.69E+06
Initial Criticality: 08/29/83

Airborne Effluents

Nuclide Released	Activity (Ci)
NA-24	2.00E-05
AR-41	8.10E+00
CR-51	1.61E-05
MN-54	2.51E-06
CO-57	6.20E-11
CO-58	2.05E-04
CO-60	2.58E-05
BR-82	2.00E-04
KR-85	5.09E+00
KR-85M	7.33E-01
KR-87	6.38E-03
RB-88	1.28E-02
SR-89	3.72E-07
SR-90	7.42E-07
SR-91	9.00E-06
Y-91M	1.86E-07
SR-92	1.35E-05
NB-95	2.90E-06
MO-99	3.07E-06
TC-99M	3.15E-06
RU-103	1.69E-10
SN-113	1.35E-06
I-131	1.11E-02
XE-131M	1.10E+00
I-132	4.05E-03
TE-132	4.17E-11
I-133	6.84E-03
XE-133	1.27E+03
XE-133M	2.06E-01
CS-134	4.86E-06
I-134	1.04E-04
I-135	9.25E-04
XE-135	2.01E+01
XE-135M	9.45E-01
CS-136	2.25E-06
CS-137	5.31E-05
CS-138	1.25E-02
BA-139	5.29E-04
BA-140	4.15E-06

Installation: San Onofre
Unit No.: 2&3

Location: 2.5 Mi S San Clemente, CA

Effluent and Waste Disposal Annual Report for 1991

Airborne Effluents (continued)

Nuclide Released	Activity (Ci)
LA-140	9.01E-07
CE-143	2.75E-06
CE-144	1.64E-06
W-187	4.01E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	7.74E-03
MN-54	1.29E-03
FE-55	2.96E-04
CO-57	9.78E-05
CO-58	2.85E-02
FE-59	5.11E-04
CO-60	1.15E-02
KR-85	7.39E-03
SR-92	1.90E-05
NB-95	4.02E-03
NB-95M	1.94E-05
ZR-95	2.36E-03
NB-97	5.87E-05
MO-99	2.66E-05
TC-99M	2.70E-05
RU-103	4.76E-04
RU-106	5.52E-04
AG-110M	3.67E-04
SN-113	9.77E-04
SN-117M	4.81E-05
SB-124	7.24E-04
SB-125	2.20E-02
I-131	1.52E-03
XE-131M	1.71E-02
TE-132	2.35E-05
I-133	7.94E-05
XE-133	6.51E-01
XE-133M	3.52E-03
CS-134	3.80E-03
XE-135	2.51E-03
CS-136	9.11E-06
CS-137	1.18E-02
BA-139	6.80E-05
LA-140	9.65E-05
CE-141	5.66E-05
CE-144	4.61E-04

Total Airborne Tritium Released	2.78E+01 Ci
Total Liquid Tritium Released	1.08E+03 Ci
Volume of Waste Released (Prior to Dilution)	2.08E+07 liters
Volume of Dilution Water Used During Period	2.63E+12 liters

Installation: San Onofre
Unit No.: 2&3

Location: 2.5 Mi S San Clemente, CA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 2 Type: PWR
Docket Number: 50-361
Thermal Power(MWH): 1.80E+07
Commercial Operation: 08/08/83
Cooling Water Source: Pacific Ocean
Unit Number: 3 Type: PWR
Docket Number: 50-362
Thermal Power(MWH): 2.70E+07
Commercial Operation: 04/01/84
Cooling Water Source: Pacific Ocean

Licensee: Southern California Edison Co.
Licensed Power(MWT): 1.35E+03
Net Electrical Power(MWH): 5.76E+06
Initial Criticality: 07/26/82
Licensee: Southern California Edison Co.
Licensed Power(MWT): 3.39E+03
Net Electrical Power(MWH): 8.69E+06
Initial Criticality: 08/29/83

Estimate of Major Nuclide Composition (%) % Jan-June Jul-Dec
(by type of waste)

A

AG-110M	2.73E-02	1.17E-01
C-14	8.44E-06	4.27E-06
CE-141		1.91E-03
CE-144		3.58E-01
CO-57	1.34E-01	1.35E-01
CO-58	1.96E+00	7.86E+00
CO-60	5.30E+00	5.36E+00
CS-134	2.24E+01	1.81E+01
CS-137	4.33E+01	4.08E+01
FE-55	9.99E+00	9.22E+00
FE-59		2.44E-03
H-3	3.38E-02	4.64E-02
I-129	1.98E-04	1.95E-04
MN-54	1.69E+00	1.13E+00
NB-94		5.22E-02
NB-95	1.20E-03	2.69E-02
NI-63	1.47E+01	1.48E+01
PU-241	1.64E-02	1.93E-02
RU-103		3.22E-03
RU-106		7.44E-01
SB-124	1.01E-02	7.94E-02
SB-125	2.26E-01	4.08E-01
SN-113		5.55E-01
SR-90	1.28E-01	1.17E-01
TC-99	2.17E-04	2.51E-04
ZN-65		7.13E-02
ZR-95		1.49E-02

B

BA-133	3.75E-05	
C-14	4.42E-03	2.16E-03
CO-58	5.31E-01	6.11E-01
CO-60	2.37E+00	2.64E+00
CS-134	2.80E+00	2.87E+00
CS-137	1.07E+01	1.14E+01
FE-55	7.46E+00	7.66E+00
H-3	7.42E+01	7.24E+01
I-129	1.14E-03	1.16E-03
MN-54	2.53E-01	3.37E-01
NI-63	1.57E+00	1.80E+00
RU-106	2.03E-03	
SB-125	9.92E-02	2.13E-01
SR-89		6.45E-02
SR-90	1.86E-06	
TC-99	1.87E-03	1.93E-03

Installation: San Onofre
Unit No.: 2&3

Location: 2.5 Mi S San Clemente, CA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.36E+01 Ci 6.80E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.40E+02 Ci 6.70E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: San Onofre
Unit No.: 1&2&3

Location: 2.5 Mi S San Clemente, CA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-206
Thermal Power(MWH): 6.74E+06
Commercial Operation: 01/01/68
Cooling Water Source: Pacific Ocean

Licensee: Southern California Edison Co.
Licensed Power(MWT): 1.35E+03
Net Electrical Power(MWH): 2.03E+06
Initial Criticality: 06/14/67

Unit Number: 2 Type: PWR
Docket Number: 50-361
Thermal Power(MWH): 1.80E+07
Commercial Operation: 08/08/83
Cooling Water Source: Pacific Ocean

Licensee: Southern California Edison Co.
Licensed Power(MWT): 1.35E+03
Net Electrical Power(MWH): 5.76E+06
Initial Criticality: 07/26/82

Unit Number: 3 Type: PWR
Docket Number: 50-362
Thermal Power(MWH): 2.70E+07
Commercial Operation: 04/01/84
Cooling Water Source: Pacific Ocean

Licensee: Southern California Edison Co.
Licensed Power(MWT): 3.39E+03
Net Electrical Power(MWH): 8.69E+06
Initial Criticality: 08/29/83

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
1	Truck/Trailer	Barnwell, SC
7	Truck/Cask	Beatty, NV
11	Truck/Trailer	Beatty, NV

Installation: Seabrook
Unit No.: 1

Location: 13 Mi S Portsmouth, NH

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-443
Thermal Power(MWH): 2.05E+07
Commercial Operation: 08/19/90
Cooling Water Source: Atlantic Ocean

Licensee: North Atlantic
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 6.81E+06
Initial Criticality: 06/13/89

Airborne Effluents

Nuclide Released	Activity (Ci)
BE-7	3.98E-06
AR-41	4.91E+00
CR-51	3.32E-04
MN-54	6.48E-05
CO-58	5.42E-04
FE-59	3.03E-05
CO-60	6.80E-05
KR-85M	8.99E-01
KR-87	3.23E-02
KR-88	3.64E-03
NB-95	4.32E-05
ZR-95	2.08E-05
TC-99M	2.84E-07
I-131	1.79E-05
XE-133	9.69E+00
XE-135	1.36E+01
XE-135M	2.70E-03
XE-138	1.22E-02

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	9.40E-05
CR-51	1.95E-03
MN-54	4.19E-03
FE-55	2.79E-03
CO-57	6.64E-06
CO-58	1.02E-01
FE-59	9.64E-04
CO-60	3.32E-03
BR-82	5.87E-06
ZR/NB-95	3.22E-04
TC-99M	1.22E-05
SB-124	9.55E-04
SB-125	5.67E-03
I-131	8.48E-06
I-133	7.86E-06
CS-137	6.85E-05
CS-138	2.03E-05

Total Airborne Tritium Released	1.37E+01 Ci
Total Liquid Tritium Released	3.86E+02 Ci
Volume of Waste Released (Prior to Dilution)	2.28E+08 liters
Volume of Dilution Water Used During Period	7.04E+11 liters

Installation: Sequoyah
Unit No.: 1&2

Location: Daisy, TN

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-327
Thermal Power(MWH): 2.23E+07
Commercial Operation: 07/01/81
Cooling Water Source: Chickamauga Lake
Unit Number: 2 Type: PWR
Docket Number: 50-328
Thermal Power(MWH): 2.87E+07
Commercial Operation: 06/01/82
Cooling Water Source: Chickamauga Lake

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 7.27E+06
Initial Criticality: 07/05/80

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 9.32E+06
Initial Criticality: 11/05/81

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	4.96E+00
CR-51	5.48E-05
MN-54	1.21E-05
CO-58	2.62E-04
CO-60	1.65E-04
KR-85	3.73E+00
KR-85M	2.10E+00
KR-87	1.19E-02
KR-88	1.88E+00
SR-89	8.59E-06
NB-95	3.15E-05
ZR-95	7.44E-06
RU-103	2.72E-05
I-131	4.30E-06
XE-131M	5.37E+00
I-132	1.93E-06
I-133	1.27E-07
XE-133	1.34E+03
XE-133M	1.69E+01
I-135	3.30E-04
XE-135	4.00E+01
XE-135M	1.96E-02
CS-137	3.84E-06
CE-141	1.88E-06
CE-144	1.93E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	1.94E-04
AR-41	4.20E-06
CR-51	8.06E-02
MN-54	2.53E-02
FE-55	7.87E-02
CO-57	5.27E-03
CO-58	5.75E-01
FE-59	4.91E-03
CO-60	1.95E-01
CU-64	6.64E-04
NI-65	2.77E-05

Installation: Sequoyah
Unit No.: 1&2

Location: Daisy, TN

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
ZN-65	1.69E-04
ZN-69M	1.64E-05
KR-85	1.27E-03
KR-85M	1.02E-04
KR-87	1.81E-05
KR-88	6.34E-05
SR-89	2.93E-04
SR-90	2.96E-04
SR-91	2.13E-05
Y-91	2.44E-03
Y-91M	4.70E-05
SR-92	1.74E-04
NB-95	2.56E-02
ZR-95	1.53E-02
NB-97	3.20E-04
MO-99	1.41E-03
TC-99M	1.41E-03
RU-103	6.14E-03
RU-105	3.02E-05
AG-110M	2.98E-04
SB-124	1.17E-02
SB-125	2.08E-01
TE-129M	1.42E-02
I-131	1.69E-02
TE-131M	2.15E-04
XE-131M	2.41E-02
I-132	2.38E-03
TE-132	1.93E-03
I-133	2.23E-03
XE-133	2.51E+00
XE-133M	3.02E-02
CS-134	7.88E-02
I-135	3.62E-04
XE-135	4.26E-02
XE-135M	4.24E-04
CS-136	2.21E-03
CS-137	8.07E-02
BA-140	4.40E-04
LA-140	3.54E-03
CE-141	2.73E-03
CE-143	6.74E-06
CE-144	8.82E-03
W-187	1.29E-05
NP-239	2.47E-02

Total Airborne Tritium Released	2.90E+01 Ci
Total Liquid Tritium Released	1.65E+03 Ci
Volume of Waste Released (Prior to Dilution)	1.18E+08 liters
Volume of Dilution Water Used During Period	6.50E+09 liters

Installation: Sequoyah
Unit No.: 1&2

Location: Daisy, TN

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-327
Thermal Power(MWH): 2.23E+07
Commercial Operation: 07/01/81
Cooling Water Source: Chickamauga Lake

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 7.27E+06
Initial Criticality: 07/05/80

Unit Number: 2 Type: PWR
Docket Number: 50-328
Thermal Power(MWH): 2.87E+07
Commercial Operation: 06/01/82
Cooling Water Source: Chickamauga Lake

Licensee: Tennessee Valley Authority
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 9.32E+06
Initial Criticality: 11/05/81

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
145	Motor Freight	Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
CO-58	4.24E+01	1.11E+01
CO-60	1.09E+01	1.98E+01
CS-134	6.26E+00	1.46E+01
CS-137	7.13E+00	1.93E+01
FE-55	1.22E+01	1.18E+01
MN-54	1.34E+00	3.90E+00
NI-59	1.45E+00	
NI-63	1.76E+01	1.92E+01
B		
CO-58	4.64E+01	2.64E+01
CO-60	8.80E+00	1.29E+01
CR-51	1.14E+01	8.62E+00
FE-55	2.43E+01	4.21E+01
NB-95	2.92E+00	2.22E+00
NI-63	4.00E+00	5.81E+00
ZR-95	1.24E+00	
D		
CO-58	7.76E+00	
CO-60	2.75E+01	
FE-55	4.92E+01	
MN-54	2.00E+00	
NI-63	1.34E+01	

Installation: Sequoyah
Unit No.: 1&2

Location: Daisy, TN

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 6.78E+01 Ci 1.81E+03	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 7.04E+01 Ci 1.04E+01	compacted & non-compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Mechanical Filters	m3 3.41E+00 Ci 6.64E+00	non-compacted

Installation: Shoreham
Unit No.: 1

Location: Brookhaven, NY

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-322
Thermal Power (MWH):
Commercial Operation:
Cooling Water Source: Long Island Sound

Licensee: Long Island Power Authority
Licensed Power (MWT): 2.44E+03
Net Electrical Power (MWH):
Initial Criticality: 02/15/85

Liquid Effluents

Nuclide Released	Activity (Ci)
ZN-65	1.74E-04

Volume of Waste Released (Prior to Dilution)	8.71E+05 liters
Volume of Dilution Water Used During Period	1.08E+09 liters

Installation: Shoreham
Unit No.: 1

Location: Brookhaven, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-322
Thermal Power(MWH):
Commercial Operation:
Cooling Water Source: Long Island Sound

Licensee: Long Island Power Authority
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH):
Initial Criticality: 02/15/85

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
6	Truck	Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AG-110M	1.64E+00
CE-141	2.00E-02
CE-144	4.72E-01
CO-57	5.10E-02
CO-58	1.49E+01
CO-60	1.86E+01
CR-51	6.30E+00
CS-137	1.72E-01
FE-55	3.16E+01
FE-59	1.64E+00
H-3	5.65E-01
MN-54	1.18E+01
NB-95	1.83E-01
NI-59	1.00E-02
NI-63	3.67E+00
PU-241	9.96E-01
SB-124	3.70E-02
SR-90	8.00E-02
ZN-65	7.31E+00

B

AG-110M	3.04E+00
CE-141	3.00E-03
CO-57	9.30E-02
CO-58	1.08E+01
CO-60	2.26E+01
CR-51	1.52E+01
CS-137	3.80E-02
FE-55	1.85E+01
FE-59	1.30E+00
H-3	2.00E-03
MN-54	2.36E+01
NI-59	1.60E-02
NI-63	8.71E-01
PU-241	1.00E-03
SB-124	1.16E-01
SR-90	1.00E-03
ZN-65	3.74E+00

Installation: Shoreham
Unit No.: 1

Location: Brookhaven, NY

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

C		
C-14		4.00E-03
CO-60		3.20E+01
FE-55		6.42E+01
MN-54		1.19E+00
NI-59		1.80E-02
NI-63		2.67E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 5.36E+01 Ci 8.09E-03	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 8.00E+00 Ci 1.95E-01	burial volume
C. Irradiated Components, Control Rods, etc.	m3 8.30E+00 Ci 2.72E+00	burial volume
D. Other (describe)	m3 Ci	

Installation: South Texas
Unit No.: 1

Location: 12 Mi SSW Bay City, TX

Effluent and Waste Disposal Annual Report for 1991

Type: PWR

Docket Number: 50-498

Thermal Power(MWH): 2.25E+07

Commercial Operation: 08/25/88

Cooling Water Source: Main Cooling Reservoir

Licensee: Houston Lighting & Power

Licensed Power(MWT): 3.80E+03

Net Electrical Power(MWH): 7.20E+06

Initial Criticality: 03/08/88

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.25E+00
CR-51	1.44E-05
MN-54	2.01E-04
CO-57	4.62E-06
CO-58	5.25E-05
CO-60	1.40E-03
BR-82	2.42E-05
KR-85M	9.96E-03
NB-95	2.83E-06
SB-125	6.09E-06
I-131	1.67E-04
I-133	2.73E-04
XE-133	8.05E+01
XE-133M	1.09E-01
CS-134	1.54E-09
XE-135	2.64E+00
CS-137	3.80E-09

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	3.35E-04
NA-24	5.41E-04
SC-46	7.57E-04
CR-51	3.92E-01
MN-54	2.21E-01
FE-55	1.49E+00
CO-57	1.00E-02
CO-58	1.33E+00
FE-59	4.81E-02
CO-60	1.01E+00
ZN-65	1.39E-02
KR-85M	3.63E-05
SR-92	3.24E-06
NB-95	1.75E-01
ZR-95	8.34E-02
NB-97	1.99E-04
ZR-97	6.58E-04
AG-110M	4.41E-02
SN-113	6.29E-03
SB-124	3.13E-02
SB-125	4.83E-02
I-131	6.02E-04
XE-131M	2.44E-03
I-133	3.91E-05

Installation: South Texas
Unit No.: 1

Location: 12 Mi SSW Bay City, TX

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
XE-133	2.52E-01
XE-133M	8.60E-04
CS-134	6.66E-02
XE-135	2.09E-03
CS-137	9.54E-02
LA-140	2.79E-04
CE-144	3.39E-05
Other	1.01E-03

Total Airborne Tritium Released	2.04E+01 Ci
Total Liquid Tritium Released	6.21E+02 Ci
Volume of Waste Released (Prior to Dilution)	4.79E+07 liters
Volume of Dilution Water Used During Period	2.34E+10 liters

Installation: South Texas
Unit No.: 2

Location: 12 Mi SSW Bay City, TX

Effluent and Waste Disposal Annual Report for 1991

Type: PWR

Licensee: Houston Lighting & Power

Docket Number: 50-499

Licensed Power(MWT): 3.80E+03

Thermal Power(MWH): 2.27E+07

Net Electrical Power(MWH): 7.26E+06

Commercial Operation: 06/19/89

Initial Criticality: 03/12/89

Cooling Water Source: Main Cooling Reservoir

Airborne Effluents

Nuclide Released	Activity (Ci)
BE-7	3.85E-05
AR-41	2.33E+00
CR-51	2.55E-05
MN-54	2.85E-06
CO-57	4.02E-07
CO-58	1.63E-04
CO-60	2.47E-05
BR-82	2.92E-04
KR-85M	1.11E-04
NB-95	1.23E-06
I-131	1.70E-05
XE-131M	2.69E-02
TE-132	8.88E-10
I-133	3.71E-08
XE-133	4.39E+01
XE-133M	9.58E-02
XE-135	3.54E-01
CS-137	3.37E-09

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	8.71E-05
NA-24	1.73E-05
SC-46	8.32E-04
CR-51	3.05E-01
MN-54	9.98E-02
FE-55	9.31E-01
CO-57	5.35E-03
CO-58	1.36E+00
FE-59	1.23E-01
CO-60	4.21E-01
ZN-65	4.50E-03
KR-85	8.28E-03
KR-85M	5.51E-06
NB-95	1.05E-01
ZR-95	5.30E-02
NB-97	6.14E-04
ZR-97	6.72E-05
MO-99	5.31E-06
TC-99M	5.40E-06
AG-110M	5.50E-03
SN-113	5.87E-03
SB-124	9.06E-02
SB-125	3.82E-02

Installation: South Texas
Unit No.: 2

Location: 12 Mi SSW Bay City, TX

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
TE-129M	1.12E-03	
I-131	1.34E-03	
XE-131M	5.14E-03	
I-132	3.23E-05	
TE-132	3.07E-05	
I-133	6.47E-06	
XE-133	8.22E-01	
XE-133M	1.12E-02	
CS-134	4.35E-03	
XE-135	2.90E-03	
CS-137	9.59E-03	
LA-140	7.72E-05	
CE-144	4.50E-02	
Other	2.29E-03	
Total Airborne Tritium Released		2.49E+00 Ci
Total Liquid Tritium Released		4.69E+02 Ci
Volume of Waste Released (Prior to Dilution)		6.73E+07 liters
Volume of Dilution Water Used During Period		2.83E+10 liters

Installation: South Texas
Unit No.: 1&2

Location: 12 Mi SSW Bay City, TX

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR Licensee: Houston Lighting & Power
Docket Number: 50-498 Licensed Power(MWT): 3.80E+03
Thermal Power(MWH): 2.25E+07 Net Electrical Power(MWH): 7.20E+06
Commercial Operation: 08/25/88 Initial Criticality: 03/08/88
Cooling Water Source: Main Cooling Reservoir

Unit Number: 2 Type: PWR Licensee: Houston Lighting & Power
Docket Number: 50-499 Licensed Power(MWT): 3.80E+03
Thermal Power(MWH): 2.27E+07 Net Electrical Power(MWH): 7.26E+06
Commercial Operation: 06/19/89 Initial Criticality: 03/12/89
Cooling Water Source: Main Cooling Reservoir

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
10	Truck	CNSI, Barnwell, SC
14	Truck	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

CO-57		1.05E+00
CO-58	4.26E+00	3.89E+01
CO-60	1.09E+01	2.76E+01
CS-134		1.17E+00
CS-137	5.21E+00	2.51E+00
FE-55	1.39E+01	8.92E+00
MN-54		2.98E+00
NB-95	3.66E+01	
NI-63		1.10E+01
SB-125		2.31E+00
ZR-95	1.70E+01	

B

CO-58	1.40E+01	1.42E+01
CO-60	3.89E+00	3.99E+00
CR-51	3.17E+00	3.20E+00
FE-55	6.63E+01	6.80E+01
FE-59		1.36E+00
MN-54		1.55E+00
NB-95		1.76E+00
NI-63	3.30E+00	3.39E+00
ZR-95	1.81E+00	1.84E+00

Installation: South Texas
Unit No.: 1&2

Location: 12 Mi SSW Bay City, TX

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 5.11E+01 Ci 9.51E+01	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 7.67E+02 m3 4.88E+01 Ci 2.99E+00	non-compacted burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: St. Lucie
Unit No.: 1

Location: 8 Mi S Ft. Pierce, FL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-335
Thermal Power(MWH): 1.85E+07
Commercial Operation: 12/21/76
Cooling Water Source: Atlantic Ocean

Licensee: Florida Power & Light
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 5.79E+06
Initial Criticality: 04/22/76

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.43E-01
CO-57	2.77E-06
CO-58	4.38E-05
CO-60	1.39E-04
KR-85	3.95E+01
KR-85M	2.12E+01
KR-87	1.23E+00
KR-88	2.01E+01
I-131	2.50E-03
XE-131M	2.85E+00
I-132	2.34E-03
I-133	9.51E-03
XE-133	1.66E+03
XE-133M	1.80E+01
XE-135	2.91E+02
CS-137	9.76E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	1.26E-03
AR-41	4.13E-06
CR-51	9.88E-03
MN-54	1.47E-03
FE-55	9.74E-02
CO-57	5.70E-05
CO-58	3.91E-02
FE-59	1.04E-04
CO-60	5.62E-02
KR-85	2.36E-02
KR-85M	1.42E-04
RB-88	5.00E-04
SR-89	3.70E-05
Y-92	1.61E-05
NB-95	3.39E-03
ZR-95	1.14E-03
NB-97	7.99E-03
ZR-97	6.50E-05
TC-99M	2.23E-05
RU-103	4.84E-05
AG-110	6.76E-03
SN-113	2.95E-04
SB-122	3.63E-03
SB-124	4.35E-02
SB-125	4.34E-02

Installation: St. Lucie
Unit No.: 1

Location: 8 Mi S Ft. Pierce, FL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
TE-129	4.59E-03
TE-129M	3.02E-04
I-131	3.63E-03
XE-131M	3.12E-03
I-132	4.30E-04
TE-132	2.07E-04
I-133	5.12E-04
XE-133	2.68E-01
XE-133M	2.76E-03
CS-134	2.60E-02
I-135	8.72E-05
XE-135	2.06E-03
CS-136	1.58E-04
CS-137	3.41E-02
CS-138	1.35E-03
LA-140	6.26E-04
CE-144	1.36E-05
PR-144	9.49E-03

Total Airborne Tritium Released	3.26E+01 Ci
Total Liquid Tritium Released	4.06E+02 Ci
Volume of Waste Released (Prior to Dilution)	8.23E+07 liters
Volume of Dilution Water Used During Period	1.85E+12 liters

Installation: St. Lucie
Unit No.: 2

Location: 8 Mi S Ft. Pierce, FL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-389
Thermal Power(MWH): 2.33E+07
Commercial Operation: 08/08/83
Cooling Water Source: Atlantic Ocean

Licensee: Florida Power & Light
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 7.43E+06
Initial Criticality: 06/02/83

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	8.53E-01
KR-85	2.72E+00
KR-85M	4.15E-01
KR-87	1.18E-03
KR-88	2.56E-02
I-131	4.86E-03
XE-131M	2.02E+00
I-133	2.24E-02
XE-133	4.58E+02
XE-133M	1.77E+00
I-135	2.19E-03
XE-135	2.39E+01

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	1.26E-03
AR-41	4.13E-06
CR-51	9.88E-03
MN-54	1.47E-03
FE-55	1.11E-02
CO-57	5.70E-05
CO-58	3.91E-02
FE-59	1.04E-04
CO-60	5.62E-02
KR-85	2.36E-02
KR-85M	1.42E-04
RB-88	5.00E-04
SR-89	3.70E-05
Y-92	1.61E-05
NB-95	3.39E-03
ZR-95	1.14E-03
NB-97	7.99E-03
ZR-97	6.50E-05
TC-99M	2.23E-05
RU-103	4.84E-05
AG-110	6.76E-03
SN-113	2.94E-04
SB-122	3.63E-03
SB-124	4.35E-02
SB-125	4.34E-02
TE-129	4.59E-03
TE-129M	3.02E-04
I-131	3.41E-03
XE-131M	3.12E-03

Installation: St. Lucie
Unit No.: 2

Location: 8 Mi S Ft. Pierce, FL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
I-132	4.30E-04	
TE-132	2.07E-04	
I-133	5.12E-04	
XE-133	2.66E-01	
XE-133M	2.76E-03	
CS-134	2.51E-02	
I-135	8.72E-05	
XE-135	2.06E-03	
CS-136	1.58E-04	
CS-137	3.32E-02	
CS-138	1.35E-03	
LA-140	6.26E-04	
CE-144	1.36E-05	
PR-144	9.49E-03	
Total Airborne Tritium Released		7.98E+01 Ci
Total Liquid Tritium Released		4.06E+02 Ci
Volume of Waste Released (Prior to Dilution)		6.15E+06 liters
Volume of Dilution Water Used During Period		1.85E+12 liters

Installation: St. Lucie
Unit No.: 1&2

Location: 8 Mi S Ft. Pierce, FL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-335
Thermal Power(MWH): 1.85E+07
Commercial Operation: 12/21/76
Cooling Water Source: Atlantic Ocean

Licensee: Florida Power & Light
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 5.79E+06
Initial Criticality: 04/22/76

Unit Number: 2 Type: PWR
Docket Number: 50-389
Thermal Power(MWH): 2.33E+07
Commercial Operation: 08/08/83
Cooling Water Source: Atlantic Ocean

Licensee: Florida Power & Light
Licensed Power(MWT): 2.70E+03
Net Electrical Power(MWH): 7.43E+06
Initial Criticality: 06/02/83

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
9	Sole Use Truck	Barnwell, SC
1	Sole Use Truck	Quadrex, Oak Ridge, TN
13	Sole Use Truck	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

BE-7		1.50E+00
CO-58	2.44E+01	2.03E+00
CO-60	1.94E+01	1.02E+01
CS-134	8.24E+00	3.67E+01
CS-137	2.36E+01	3.90E+01
FE-55		5.20E+00
FE-59	6.09E+00	
MN-54	1.00E+00	6.90E-01
NI-63	1.05E+01	2.87E+00
SB-125	4.19E+00	

B

CO-58	1.04E+01	4.81E+00
CO-60	1.69E+01	1.99E+01
CS-134	7.13E+00	8.28E+00
CS-137	3.41E+01	3.31E+01
FE-55	2.65E+01	2.46E+01
H-3		2.37E+00
MN-54	9.59E-01	
NI-63	1.87E+00	2.26E+00
SB-125	1.09E+00	1.59E+00

D

CO-58		1.06E+01
CO-60	1.10E+01	2.87E+01
CS-134	5.18E+00	
CS-137	2.52E+01	3.23E+00
FE-55	5.45E+01	3.83E+01
H-3	2.89E+00	3.91E+00
I-131		4.92E+00
MN-54		2.33E+00

Installation: St. Lucie
Unit No.: 1&2

Location: 8 Mi S Ft. Pierce, FL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

D

NB-95		1.92E+00
NI-63	1.16E+00	3.20E+00
SN-113		1.51E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 8.38E+01 Ci 8.18E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 9.13E+01 Ci 7.37E+00	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) non-compressible metal	m3 7.10E+00 Ci 2.07E-01	

Installation: Summer
Unit No.: 1

Location: 26 Mi NW Columbia, SC

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-395
Thermal Power(MWH): 1.69E+07
Commercial Operation: 01/01/84
Cooling Water Source: Monticello Reservoir

Licensee: South Carolina Electric & Gas Co.
Licensed Power(MWT): 2.77E+03
Net Electrical Power(MWH): 5.34E+06
Initial Criticality: 10/22/82

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	2.20E-01
CR-51	1.20E-05
MN-54	6.68E-07
CO-57	8.39E-08
CO-58	2.76E-05
CO-60	6.66E-06
KR-85	7.95E-01
KR-85M	9.13E-02
KR-87	2.31E-03
KR-88	7.73E-02
RB-88	3.03E-02
NB-95	1.14E-06
TC-99M	2.19E-06
I-131	2.36E-04
XE-131M	1.13E+00
I-132	1.21E-04
I-133	3.21E-04
XE-133	4.15E+02
XE-133M	8.22E-01
CS-134	1.10E-06
XE-135	1.55E+01
CS-137	3.62E-07
CS-138	3.49E-02

Liquid Effluents

Nuclide Released	Activity (Ci)
F-18	3.84E-02
NA-24	9.36E-04
AR-41	2.57E-06
CR-51	2.05E-02
MN-54	9.51E-03
FE-55	2.21E-02
NI-56	4.88E-06
CO-57	2.35E-04
CO-58	5.06E-02
FE-59	1.29E-03
CO-60	5.65E-02
ZN-65	3.23E-04
KR-85M	1.22E-05
KR-87	3.30E-06
KR-88	5.09E-06
RB-88	5.61E-05
SR-89	1.29E-03

Installation: Summer
Unit No.: 1

Location: 26 Mi NW Columbia, SC

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
SR-90	2.27E-03
ZR/NB-95	4.84E-03
MO-99	7.66E-04
TC-99M	2.29E-04
RU-103	2.38E-04
RU-106	1.69E-03
AG-110M	1.98E-04
SN-113	1.10E-04
SB-122	3.05E-04
SB-124	9.34E-04
SB-125	1.59E-02
SB-126	8.66E-05
SB-127	2.16E-05
I-131	2.87E-02
XE-131M	5.10E-03
I-132	6.79E-02
TE-132	6.37E-05
I-133	9.17E-02
XE-133	3.99E-01
XE-133M	2.86E-03
CS-134	9.84E-03
I-134	4.62E-02
I-135	1.11E-01
XE-135	6.61E-03
CS-136	8.01E-04
CS-137	6.47E-03
CS-138	1.32E-02
BA/LA-140	1.57E-03
CE-141	4.88E-05
CE-144	1.10E-03

Total Airborne Tritium Released	8.32E+00 Ci
Total Liquid Tritium Released	8.13E+02 Ci
Volume of Waste Released (Prior to Dilution)	2.36E+08 liters
Volume of Dilution Water Used During Period	2.14E+12 liters

Installation: Summer
 Unit No.: 1

Location: 26 Mi NW Columbia, SC

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Type: PWR
 Docket Number: 50-395
 Thermal Power(MWH): 1.69E+07
 Commercial Operation: 01/01/84
 Cooling Water Source: Monticello Reservoir

Licensee: South Carolina Electric & Gas Co.
 Licensed Power(MWT): 2.77E+03
 Net Electrical Power(MWH): 5.34E+06
 Initial Criticality: 10/22/82

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
59*	Truck	Barnwell, SC

Estimate of Major Nuclide Composition (%)
 (by type of waste)

Jan-June Jul-Dec

A

CO-58	1.77E+00	1.11E+01
CO-60	1.66E+01	5.50E+00
CS-134	1.04E+01	2.09E+01
CS-137	1.82E+01	1.80E+01
FE-55	2.95E+01	6.18E+00
MN-54	2.16E+00	
NB-95, CR-51, H-3		4.74E+00
NI-63	1.94E+01	5.64E+00
RU-106		1.55E+01
SR-90		1.05E+01

B

CO-58	1.57E+00	
CO-60	1.99E+01	1.99E+01
CS-134	8.29E+00	8.32E+00
CS-137	1.39E+01	1.39E+01
FE-55	4.12E+01	4.11E+01
H-3	1.60E+00	
MN-54	2.69E+00	
MN-54, H-3, CO-58		5.86E+00
NI-63	6.90E+00	6.92E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.88E+01 Ci 1.20E+02	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 5.66E+02 m3 3.94E+01 Ci 4.45E+01	before compaction burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

*The total shipments included 48 partial shipments of DAW from the waste processor to Barnwell, SC.

Installation: Surry
Unit No.: 1&2

Location: 19 Mi NW Newport News, VA

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1	Type: PWR	Licensee: Virginia Electric & Power
Docket Number: 50-280		Licensed Power(MWT): 2.44E+03
Thermal Power(MWH): 2.09E+07		Net Electrical Power(MWH): 6.59E+06
Commercial Operation: 12/22/72		Initial Criticality: 07/01/72
Cooling Water Source: James River		
Unit Number: 2	Type: PWR	Licensee: Virginia Electric & Power
Docket Number: 50-281		Licensed Power(MWT): 2.44E+03
Thermal Power(MWH): 1.27E+07		Net Electrical Power(MWH): 3.99E+06
Commercial Operation: 05/01/73		Initial Criticality: 03/07/73
Cooling Water Source: James River		

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	6.93E+00
CO-58	5.91E-05
CO-60	2.33E-04
SE-75	8.59E-09
KR-85M	3.63E-02
KR-87	3.34E-02
KR-88	3.97E-02
RB-88	1.42E-04
I-131	5.15E-04
XE-131M	4.79E-02
I-132	1.24E-08
I-133	7.54E-04
XE-133	2.44E+01
XE-133M	1.12E-01
CS-134	1.04E-05
I-135	2.14E-05
XE-135	3.71E+00
XE-135M	3.56E-02
CS-137	2.79E-04
CS-138	2.42E-04
XE-138	4.85E-02

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	1.00E-03
AR-41	2.01E-04
CR-51	9.70E-02
MN-54	1.02E-02
FE-55	7.26E-01
CO-57	7.77E-04
CO-58	3.00E-01
FE-59	1.04E-02
CO-60	3.12E-01
ZN-65	3.24E-05
SR-92	7.79E-06
NB-95	2.11E-02
ZR-95	8.18E-03
TC-99M	4.66E-05
RU-103	8.96E-04

Installation: Surry
Unit No.: 1&2

Location: 19 Mi NW Newport News, VA

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
AG-110M	3.72E-02
SB-124	1.32E-02
SB-125	2.48E-01
I-131	2.48E-03
I-133	2.30E-04
XE-131M	1.33E-04
I-132	1.77E-05
TE-132	4.77E-05
I-133	3.53E-05
XE-133	1.02E-01
XE-133M	7.66E-05
CS-134	1.52E-01
I-135	5.80E-04
XE-135	7.07E-02
XE-135M	1.88E-03
CS-137	8.98E-01
BA-140	1.30E-04
LA-140	4.69E-03
CE-144	1.79E-05
ND-147	6.85E-06

Total Airborne Tritium Released	2.55E+01 Ci
Total Liquid Tritium Released	9.13E+02 Ci
Volume of Waste Released (Prior to Dilution)	3.91E+08 liters
Volume of Dilution Water Used During Period	2.22E+12 liters

Installation: Surry
Unit No.: 1&2

Location: 19 Mi NW Newport News, VA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-280
Thermal Power(MWH): 2.09E+07
Commercial Operation: 12/22/72
Cooling Water Source: James River

Licensee: Virginia Electric & Power
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 6.59E+06
Initial Criticality: 07/01/72

Unit Number: 2 Type: PWR
Docket Number: 50-281
Thermal Power(MWH): 1.27E+07
Commercial Operation: 05/01/73
Cooling Water Source: James River

Licensee: Virginia Electric & Power
Licensed Power(MWT): 2.44E+03
Net Electrical Power(MWH): 3.99E+06
Initial Criticality: 03/07/73

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
13	Truck	Barnwell, SC
27	Truck	Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A			
	CO-58	1.32E+01	6.18E+00
	CO-60	5.23E+01	6.20E+01
	CS-134		1.26E+00
	CS-137	2.20E+00	4.27E+00
	FE-55	6.42E+00	1.75E+01
	MN-54	2.00E+00	
	NI-63	2.27E+01	7.64E+00
B			
	CO-60	2.87E+01	3.04E+01
	CS-134		1.39E+00
	CS-137	2.22E+00	1.05E+01
	FE-55	2.55E+01	2.86E+01
	NI-63	4.27E+01	2.90E+01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 3.09E+01 Ci 7.75E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.30E+03 m3 1.42E+02 Ci 4.31E+01	before offsite processing actual burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Susquehanna
Unit No.: 1&2

Location: 7 Mi NE Berwick, PA

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: BWR

Licensesee: Pennsylvania Power & Light
Company

Docket Number: 50-387

Licensed Power(MWT): 3.29E+03

Thermal Power(MWH): 2.78E+07

Net Electrical Power(MWH): 8.82E+06

Commercial Operation: 06/08/83

Initial Criticality: 09/10/82

Cooling Water Source: Susquehanna River

Unit Number: 2 Type: BWR

Licensesee: Pennsylvania Power & Light
Company

Docket Number: 50-388

Licensed Power(MWT): 3.29E+03

Thermal Power(MWH): 2.23E+07

Net Electrical Power(MWH): 7.04E+06

Commercial Operation: 02/12/85

Initial Criticality: 05/08/84

Cooling Water Source: Susquehanna River

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.49E+01
MN-54	1.35E-04
CO-58	1.45E-05
CO-60	7.98E-05
KR-85M	1.22E+00
KR-88	1.12E+00
I-131	1.38E-05
XE-133	4.04E+01

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	7.44E-05
MN-54	2.47E-03
FE-55	5.78E-02
CO-58	4.01E-05
FE-59	1.29E-04
CO-60	1.57E-03
ZN-65	3.79E-05
AG-110M	2.45E-06
XE-133	1.84E-04
CS-134	2.84E-06
XE-135	4.17E-04
CS-137	4.12E-06

Total Airborne Tritium Released	4.62E+01 Ci
Total Liquid Tritium Released	4.62E+01 Ci
Volume of Waste Released (Prior to Dilution)	7.79E+06 liters
Volume of Dilution Water Used During Period	1.54E+10 liters

Installation: Susquehanna
Unit No.: 1&2

Location: 7 Mi NE Berwick, PA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: BWR Licensee: Pennsylvania Power & Light Company
Docket Number: 50-387 Licensed Power(MWT): 3.29E+03
Thermal Power(MWH): 2.78E+07 Net Electrical Power(MWH): 8.82E+06
Commercial Operation: 06/08/83 Initial Criticality: 09/10/82
Cooling Water Source: Susquehanna River

Unit Number: 2 Type: BWR Licensee: Pennsylvania Power & Light Company
Docket Number: 50-388 Licensed Power(MWT): 3.29E+03
Thermal Power(MWH): 2.23E+07 Net Electrical Power(MWH): 7.04E+06
Commercial Operation: 02/12/85 Initial Criticality: 05/08/84
Cooling Water Source: Susquehanna River

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
86	Truck	Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

	Jan-June	Jul-Dec
AG-110M	2.29E-02	1.18E-02
C-14	2.43E-02	7.27E-04
CO-58	2.68E-01	2.28E-01
CO-60	8.04E+00	6.70E+00
CR-51	4.93E-01	6.05E-01
CS-134	3.40E-02	4.21E-02
CS-137	6.67E-02	5.24E-02
FE-55	7.95E+01	8.09E+01
FE-59	3.26E-01	5.69E-01
H-3	2.59E-02	2.46E-03
I-129	3.65E-04	1.76E-05
I-131	2.14E-03	1.67E-05
MN-54	9.01E+00	9.31E+00
NI-63	2.31E-01	2.18E-01
PU-241	6.51E-04	2.62E-05
SB-124	8.79E-03	8.49E-03
SR-89		8.03E-03
SR-90	1.61E-04	1.36E-06
TC-99	2.48E-04	1.09E-05
ZN-65	1.43E+00	9.68E-01

B

AM-241		1.13E-02
C-14		5.64E-03
CM-242		1.44E-02
CM-244		6.83E-03
CO-58	1.80E-01	2.20E-01
CO-60	7.10E+00	1.46E+01
CR-51	1.10E-01	3.31E-01
FE-55	8.30E+01	7.67E+01

Installation: Susquehanna
 Unit No.: 1&2

Location: 7 Mi NE Berwick, PA

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) (by type of waste)	Jan-June	July-Dec
B		
FE-59	5.40E-01	6.20E-01
I-129	1.00E-02	6.16E-03
MN-54	7.74E+00	6.16E+00
NI-63	2.20E-01	2.93E-01
PU-241	2.00E-02	1.88E-02
TC-99	2.00E-02	1.46E-02
ZN-65	1.06E+00	1.11E+00
C		
CO-60		3.58E+01
CR-51		7.70E-01
FE-55		5.69E+01
H-3		4.60E-01
MN-54		4.08E+00
NI-59		1.00E-02
NI-63		2.01E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 3.66E+02 Ci 1.81E+04	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 8.51E+01 Ci 9.35E+00	compacted & non-compacted
C. Irradiated Components, Control Rods, etc.	m3 2.16E+01 Ci 2.43E+05	
D. Other (describe)	m3 Ci	

Installation: Three Mile Island
Unit No.: 1

Location: 10 Mi SE Harrisburg, PA

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-289
Thermal Power(MWH): 1.74E+07
Commercial Operation: 09/02/74
Cooling Water Source: Susquehanna River

Licensee: GPU Nuclear Group
Licensed Power(MWT): 2.57E+03
Net Electrical Power(MWH): 5.67E+06
Initial Criticality: 06/05/74

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.06E+00
KR-85	3.56E+00
KR-85M	9.02E-01
KR-87	1.22E+00
KR-88	1.98E+00
I-131	9.89E-04
XE-131M	3.32E-01
I-132	7.91E-07
I-133	3.65E-03
XE-133	9.10E+01
XE-133M	7.71E-01
I-135	7.91E-05
XE-135	1.23E+01
XE-135M	6.66E+00
CS-137	3.65E-09
XE-138	2.38E+00

Liquid Effluents

Nuclide Released	Activity (Ci)
MN-54	4.35E-06
FE-55	4.67E-03
CO-58	8.06E-03
CO-60	3.43E-04
KR-87	1.49E-06
SR-89	1.85E-05
SR-90	2.43E-05
AG-110M	1.66E-04
SB-125	1.12E-05
I-131	5.59E-03
XE-131M	3.79E-05
I-133	7.92E-07
XE-133	7.48E-03
CS-134	5.83E-03
XE-135	3.20E-05
CS-137	1.03E-02
LA-140	2.21E-06

Total Airborne Tritium Released	3.44E+01 Ci
Total Liquid Tritium Released	3.59E+02 Ci
Volume of Waste Released (Prior to Dilution)	4.16E+07 liters
Volume of Dilution Water Used During Period	2.29E+10 liters

Installation: Three Mile Island
Unit No.: 1

Location: 10 Mi SE Harrisburg, PA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-289
Thermal Power(MWH): 1.74E+07
Commercial Operation: 09/02/74
Cooling Water Source: Susquehanna River

Licensee: GPU Nuclear Group
Licensed Power(MWT): 2.57E+03
Net Electrical Power(MWH): 5.67E+06
Initial Criticality: 06/05/74

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
1	Tractor-flatbed	Alaron
18	Tractor-flatbed	SEG, Oak Ridge, TN
6	Tractor-cask	US Ecology, Hanford, WA
5	Tractor-flatbed	US Ecology, Hanford, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
CE-144		9.87E+00
CO-58	2.42E+01	5.04E+01
CR-51		2.55E+01
CS-134	1.49E+01	
CS-137	1.80E+01	
H-3	3.42E+01	
NB-95		6.29E+00
B		
CE-144		3.89E+00
CO-58	2.02E+01	2.14E+01
CR-51	9.87E+00	
CS-137	1.78E+01	1.70E+01
PE-55	1.49E+01	1.48E+01
NI-63	2.03E+01	2.03E+01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.23E+02	shipped for disposal
	Ci 3.84E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 4.96E+02	shipped for disposal
	Ci 7.82E-01	
C. Irradiated Components, Control Rods, etc.	m3	
	Ci	
D. Other (describe)	m3	
	Ci	

Installation: Three Mile Island
Unit No.: 2

Location: 10 Mi SE Harrisburg, PA

Effluent and Waste Disposal Annual Report for 1991

Type: PWR

Licensee: Metro. Ed & Jersey Central
Power & Light

Docket Number: 50-320

Licensed Power(MWT): 2.57E+03

Thermal Power(MWH): 0.00E+00

Net Electrical Power(MWH): 0.00E+00

Commercial Operation: 12/30/78

Initial Criticality: 03/28/78

Cooling Water Source: Susquehanna River

Airborne Effluents

Nuclide Released	Activity (Ci)
SR-90	5.94E-05
CS-137	1.87E-05
PU-239/240	4.97E-10
CM-242	6.38E-09
CM-243	3.40E-09

Liquid Effluents

Nuclide Released	Activity (Ci)
SR-90	1.58E-05
CS-137	7.24E-05

Total Airborne Tritium Released	4.55E+02 Ci
Total Liquid Tritium Released	6.19E-03 Ci
Volume of Waste Released (Prior to Dilution)	3.87E+05 liters
Volume of Dilution Water Used During Period	4.36E+10 liters

Installation: Three Mile Island
 Unit No.: 2

Location: 10 Mi SE Harrisburg, PA

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Type: PWR

Licensee: Metro. Ed & Jersey Central
 Power & Light

Docket Number: 50-320

Licensed Power(MWT): 2.57E+03

Thermal Power(MWH): 0.00E+00

Net Electrical Power(MWH): 0.00E+00

Commercial Operation: 12/30/78

Initial Criticality: 03/28/78

Cooling Water Source: Susquehanna River

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
10	Tractor-cask	CNSI, Barnwell, SC
5	Tractor-flatbed	SEG, Oak Ridge, TN
8	Tractor-cask	US Ecology, Hanford, WA
3	Tractor-closed van	US Ecology, Hanford, WA
2	Tractor-flatbed	US Ecology, Hanford, WA

Estimate of Major Nuclide Composition (%)
 (by type of waste)

	Jan-June	Jul-Dec
A		
CS-137	1.68E+01	1.91E+01
PM-147	1.16E+00	
SB-125	3.69E+00	3.81E+00
SR-90	7.55E+01	7.32E+01
TE-125M		8.73E-01
B		
CS-137	6.83E-01	1.55E+01
FE-55	2.50E-02	
H-3	9.77E+01	2.53E+01
PM-147	4.90E-02	5.85E+00
PU-241		3.46E+00
SR-90	1.37E+00	4.48E+01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 7.30E+01	shipped for disposal
	Ci 2.10E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 3.15E+02	shipped for disposal
	Ci 1.10E+01	
C. Irradiated Components, Control Rods, etc.	m3	
	Ci	
D. Other (describe)	m3	
	Ci	

Installation: Trojan
Unit No.: 1

Location: 43 Mi NW Portland, OR

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-344
Thermal Power(MWH): 4.72E+06
Commercial Operation: 05/20/76
Cooling Water Source: Columbia River

Licensee: Portland General Electric
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 1.46E+06
Initial Criticality: 12/15/75

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	9.99E-02
MN-54	1.93E-06
CO-57	1.70E-07
CO-58	1.60E-05
CC-60	5.86E-05
KR-85	1.22E+00
KR-85M	1.91E-02
KR-87	1.15E-02
KR-88	6.49E-03
SR-89	3.60E-05
SR-90	2.91E-05
NB-95	5.97E-07
I-131	4.36E-04
XE-131M	4.32E-01
I-132	9.42E-08
I-133	6.26E-07
XE-133	1.63E+02
XE-133M	6.43E-01
XE-135	9.76E-02
XE-135M	6.31E-01
CS-137	2.33E-08
XE-137	8.43E-03
XE-138	7.75E-03
CE-144	3.34E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	3.44E-03
MN-54	7.74E-04
FE-55	9.67E-03
CO-57	8.18E-05
CO-58	1.69E-02
FE-59	1.38E-04
CO-60	9.41E-03
SR-89	3.09E-04
SR-90	2.93E-04
NB-95	2.40E-03
ZR-95	1.10E-03
RU-103	3.79E-04
RU-106	5.29E-03
AG-110M	2.50E-03
SN-113	2.05E-04
SB-124	1.84E-05
SB-125	2.36E-03

Installation: Trojan
Unit No.: 1

Location: 43 Mi NW Portland, OR

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
I-131	9.94E-05	
I-133	3.18E-06	
XE-133	1.07E-03	
CS-134	1.33E-04	
XE-135	1.29E-05	
CS-137	4.99E-04	
BA-140	2.72E-05	
LA-140	3.40E-04	
CE-141	8.74E-06	
CE-144	1.63E-03	
Unidentified	3.93E-05	
Total Airborne Tritium Released		1.98E+02 Ci
Total Liquid Tritium Released		1.69E+02 Ci
Volume of Waste Released (Prior to Dilution)		3.10E+07 liters
Volume of Dilution Water Used During Period		7.01E+10 liters

Installation: Trojan
Unit No.: 1

Location: 43 Mi NW Portland, OR

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-344
Thermal Power(MWH): 4.72E+06
Commercial Operation: 05/20/76
Cooling Water Source: Columbia River

Licensee: Portland General Electric
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 1.46E+06
Initial Criticality: 12/15/75

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
1	Exclusive Use Truck	Allied Nuclear, Richland, WA
7	Exclusive Use Truck	SEG, Oak Ridge, TN
12	Exclusive Use Truck	US Ecology, Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

AG-110M	1.58E-01	1.83E-01
C-14	1.18E+00	4.66E-01
CE-144	1.09E+00	8.80E-01
CM-242		8.72E-03
CO-58	3.69E+00	2.00E+00
CO-60	1.48E+01	1.20E+01
CS-134	9.21E-01	
CS-137	3.40E+00	4.36E-02
FE-55	4.04E+01	7.59E+01
H-3	1.38E+01	3.10E+00
MN-54	1.03E+00	3.70E-01
NB-95	8.77E-03	3.92E-02
NI-63	1.24E+01	2.62E+00
PU-238	3.51E-02	8.72E-03
PU-239	6.14E-02	8.72E-03
PU-241	3.31E+00	8.02E-01
RU-106	2.38E+00	9.37E-01
SB-125	1.28E+00	3.79E-01
SR-89		2.14E-01
SR-90	6.14E-02	2.61E-02
ZR-95		6.10E-02

B

AG-110M	2.41E-01	
C-14	1.02E+01	1.14E+00
CE-144	1.17E+00	4.08E-01
CM-242		4.08E-02
CO-58	1.17E+01	4.65E+00
CO-60	1.06E+01	1.15E+01
CR-51	1.41E+00	8.16E-02
CS-134	2.41E-01	
CS-137	1.34E+00	2.86E-01
FE-55	2.58E+01	6.64E+01
H-3	1.85E+01	3.18E+00
MN-54	1.34E+00	5.30E-01
NB-95	9.62E-01	1.22E-01

Installation: Trojan
Unit No.: 1

Location: 43 Mi NW Portland, OR

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

B

NI-63	6.91E+00	9.59E+00
PU-238	6.87E-02	4.08E-02
PU-239	1.03E-01	4.08E-02
PU-241	4.98E+00	7.75E-01
RU-103	1.72E-01	
RU-106	3.51E+00	9.79E-01
SB-125	1.37E-01	8.16E-02
SR-89		4.08E-02
SR-90	3.44E-02	8.16E-02
ZR-95	5.15E-01	

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 7.26E+01 Ci 3.43E+01	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 3.62E+01 Ci 5.36E+00	burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Turkey Point
Unit No.: 3

Location: 10 Mi E Florida City, FL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-250
Thermal Power(MWH): 4.34E+07
Commercial Operation: 12/14/72
Cooling Water Source: Closed Cycle Canal

Licenses: Florida Power & Light
Licensed Power(MWT): 2.20E+03
Net Electrical Power(MWH): 1.31E+06
Initial Criticality: 10/20/72

Airborne Effluents

Nuclide Released	Activity (Ci)
CO-58	7.10E-06
CO-60	6.87E-06
KR-85	2.69E-02
KR-85M	1.94E-04
I-131	6.36E-04
XE-131M	2.91E-02
I-133	2.95E-05
XE-133	8.67E+00
XE-133M	2.63E-02
XE-135	1.95E-01
CS-137	3.40E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	8.79E-03
MN-54	5.66E-02
FE-55	1.89E-01
CO-57	4.28E-05
CO-58	5.22E-02
FE-59	2.86E-06
CO-60	4.95E-02
ZN-65	4.21E-06
KR-85	5.60E-04
SR-89	6.09E-04
SR-90	8.88E-04
NB-95	2.43E-05
ZR-97	1.93E-05
TC-99	2.02E-06
AG-110	1.91E-03
SN-113	5.25E-06
SB-124	6.16E-03
SB-125	1.79E-02
I-131	3.31E-04
I-133	3.29E-04
XE-133	1.06E-02
CS-134	4.47E-03
I-135	1.97E-05
XE-135	5.40E-06
CS-137	1.72E-02
W-187	3.93E-05

Total Airborne Tritium Released	1.55E-01 Ci
Total Liquid Tritium Released	1.02E+02 Ci
Volume of Waste Released (Prior to Dilution)	7.85E+06 liters
Volume of Dilution Water Used During Period	2.89E+11 liters

Installation: Turkey Point
Unit No.: 4

Location: 10 Mi E Florida City, FL

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-251
Thermal Power(MWH): 2.68E+07
Commercial Operation: 09/07/73
Cooling Water Source: Closed Cycle Canal

Licensee: Florida Power & Light
Licensed Power(MWT): 2.20E+03
Net Electrical Power(MWH): 7.98E+05
Initial Criticality: 06/11/73

Airborne Effluents

Nuclide Released	Activity (Ci)
CO-58	7.10E-06
CO-60	6.87E-06
KR-85	2.69E-02
KR-85M	1.94E-04
I-131	6.34E-04
XE-131M	2.91E-02
I-133	2.95E-05
XE-133	9.21E+00
XE-133M	2.63E-02
XE-135	1.95E-01
CS-137	3.40E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	2.63E-04
MN-54	5.66E-02
FE-55	1.89E-01
CO-57	4.28E-05
CO-58	7.38E-03
FE-59	2.86E-06
CO-60	2.76E-02
ZN-65	4.21E-06
KR-85	5.60E-04
SR-89	6.09E-04
SR-90	8.88E-04
NB-95	2.43E-05
ZR-97	1.93E-05
TC-99	2.02E-06
AG-110	1.91E-03
SN-113	5.25E-06
SB-124	4.69E-03
SB-125	1.79E-02
I-131	3.31E-04
I-133	3.29E-04
XE-133	1.06E-02
CS-134	4.47E-03
I-135	1.97E-05
XE-135	5.40E-06
CS-137	1.65E-02
W-187	3.93E-05

Total Airborne Tritium Released	1.36E-01 Ci
Total Liquid Tritium Released	1.02E+02 Ci
Volume of Waste Released (Prior to Dilution)	7.84E+06 liters
Volume of Dilution Water Used During Period	8.50E+10 liters

Installation: Turkey Point
Unit No.: 3&4

Location: 10 Mi E Florida City, FL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 3 Type: PWR
Docket Number: 50-250
Thermal Power(MWH): 4.34E+07
Commercial Operation: 12/14/72
Cooling Water Source: Closed Cycle Canal

Licensee: Florida Power & Light
Licensed Power(MWT): 2.20E+03
Net Electrical Power(MWH): 1.31E+06
Initial Criticality: 10/20/72

Unit Number: 4 Type: PWR
Docket Number: 50-251
Thermal Power(MWH): 2.68E+07
Commercial Operation: 09/07/73
Cooling Water Source: Closed Cycle Canal

Licensee: Florida Power & Light
Licensed Power(MWT): 2.20E+03
Net Electrical Power(MWH): 7.98E+05
Initial Criticality: 06/11/73

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
5	Truck	Barnwell, SC
2	Truck	Kingston, TN
31	Truck	Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
CO-58		7.00E+00
CO-60		1.80E+01
CS-134		1.10E+01
CS-137		4.40E+01
FE-55		9.00E+00
MN-54		2.00E+00
NI-63		7.00E+00
SB-125		2.00E+00
B		
AG-110M	1.00E+00	1.00E+00
CO-58	2.00E+00	2.00E+00
CO-60	3.10E+01	3.10E+01
CR-51	2.00E+00	2.00E+00
CS-134	2.00E+00	2.00E+00
CS-137	9.00E+00	9.00E+00
FE-55	3.70E+01	3.70E+01
NI-63	1.50E+01	1.50E+01
SB-125	1.00E+00	1.00E+00
D		
C-14		3.00E+00
CO-58	1.40E+01	
CO-60	2.00E+01	2.00E+00
CR-51	1.00E+01	
CS-134		1.00E+00
CS-137	1.00E+00	2.00E+00
FE-55	3.10E+01	5.20E+01
FE-59	1.00E+00	
H-3	7.00E+00	3.90E+01
NB-95	3.00E+00	

Installation: Turkey Point
Unit No.: 3&4

Location: 10 Mi E Florida City, FL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Estimate of Major Nuclide Composition (%) (continued) Jan-June July-Dec
(by type of waste)

D	Jan-June	July-Dec
NI-63	8.00E+00	
RU-103	2.00E+00	
RU-106	1.00E+00	
SB-125		1.00E+00
ZR-95	2.00E+00	

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 5.52E+00 Ci 1.27E+00	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 9.42E+02 m3 1.50E+02 Ci 1.61E+00	before volume reduction after volume reduction
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Non-compressible waste	m3 2.36E+01 m3 9.98E+00 Ci 8.69E+00	burial volume shipped for incineration

Installation: Vermont Yankee
Unit No.: 1

Location: 5 Mi S Brattleboro, VT

Effluent and Waste Disposal Annual Report for 1991

Type: BWR
Docket Number: 50-271
Thermal Power(MWH): 1.29E+07
Commercial Operation: 11/30/72
Cooling Water Source: Connecticut River

Licensee: Vermont Yankee Nuclear Power
Licensed Power(MWT): 1.59E+03
Net Electrical Power(MWH): 4.11E+06
Initial Criticality: 03/24/72

Airborne Effluents

Nuclide Released	Activity (Ci)
CR-51	1.15E-04
MN-54	1.97E-05
CO-60	6.03E-05
KR-85M	1.70E+01
KR-87	9.19E+01
KR-88	5.94E+01
SR-89	5.71E-03
SR-90	6.25E-05
I-131	6.23E-02
I-133	2.42E-01
XE-133	1.75E+01
CS-134	2.12E-05
I-135	4.39E-01
XE-135	8.13E+01
XE-135M	4.78E+02
CS-137	8.90E-05
XE-138	2.25E+03
BA/LA-140	1.40E-02
CE-141	3.11E-04
Unidentified	2.59E+01

Total Airborne Tritium Released

8.45E+01 Ci

Installation: Vermont Yankee
Unit No.: 1

Location: 5 Mi S Brattleboro, VT

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR
Docket Number: 50-271
Thermal Power(MWH): 1.29E+07
Commercial Operation: 11/30/72
Cooling Water Source: Connecticut River

Licensee: Vermont Yankee Nuclear Power
Licensed Power(MWT): 1.59E+03
Net Electrical Power(MWH): 4.11E+06
Initial Criticality: 03/24/72

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
63	Truck	Barnwell, SC
1	Truck	Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

A

	Jan-June	Jul-Dec
AG-110M	6.04E-01	
AM-241	2.00E-03	
BA-140	8.20E-02	5.20E+00
C-14	4.30E-01	
CE-141	8.00E-03	
CE-144	8.00E-03	
CM-242	1.80E-02	
CM-244	1.00E-03	
CO-58	2.09E-01	
CO-60	1.26E+01	1.76E+01
CR-51	2.40E+00	
CS-134	9.93E+00	6.70E+00
CS-137	1.79E+01	1.54E+01
FE-55	2.39E+01	1.20E+01
FE-59	2.60E-02	
H-3	8.40E-02	
I-129	1.00E-03	
I-131	1.12E-01	1.03E+01
LA-140	8.70E-02	5.20E+00
MN-54	3.40E+00	
NB-95	4.40E-02	
NB-97	2.40E-02	
NI-63	3.88E+00	2.30E+00
PU-238	1.00E-03	
PU-239	1.00E-03	
PU-241	1.14E-01	
SB-125	4.00E-03	
SR-90	2.59E-01	
SR-92	1.00E-02	
TC-99	1.60E-02	
XE-131M	3.45E-01	8.30E+00
XE-133	2.00E-03	
ZN-65	2.35E+01	1.70E+01

B

AG-110M	1.55E-01
AM-241	4.00E-03
C-14	6.50E-02

Effluent and Waste Disposal Annual Report for 1991
 Solid Effluents

Estimate of Major Nuclide Composition (%) (continued)	Jan-June	July-Dec
(by type of waste)		
B		
CM-242	1.00E-03	
CM-244	1.00E-03	
CO-58	2.24E-01	
CO-60	2.05E+01	1.76E+01
CR-51	6.50E-02	
CS-134	4.92E-01	2.40E+00
CS-137	2.41E+00	4.00E+00
FE-55	6.68E+01	5.76E+01
FE-59	3.83E-01	
H-3	1.48E-01	
I-129	1.30E-02	
MN-54	4.34E+00	4.80E+00
NB-95	1.05E-01	
NI-63	5.27E-01	8.00E-01
PU-238	2.00E-03	
PU-239	2.00E-03	
PU-241	5.46E-01	
SR-90	1.03E-01	
TC-99	5.70E-02	
ZN-65	3.02E+00	6.40E+00
ZR-95	7.60E-02	
C		
CO-60		9.32E+01
FE-55		6.20E+00
NI-63		4.00E-01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.24E+02 Ci 1.51E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 2.38E+02 Ci 6.32E+01	
C. Irradiated Components, Control Rods, etc.	m3 8.13E+00 Ci 1.80E+05	
D. Other (describe)	m3 Ci	

Installation: Vogtle
Unit No.: 1&2

Location 25 Mi SSE Augusta, GA

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-424
Thermal Power(MWH): 2.33E+07
Commercial Operation: 05/31/87
Cooling Water Source: Savannah River
Unit Number: 2 Type: PWR
Docket Number: 50-425
Thermal Power(MWH): 2.75E+07
Commercial Operation: 05/20/89
Cooling Water Source: Savannah River

Licensee: Georgia Power
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 7.50E+06
Initial Criticality: 03/09/87

Licensee: Georgia Power
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 8.90E+06
Initial Criticality: 03/28/89

Airborne Effluents

Nuclide Released	Activity (Ci)
BE-7	1.21E-05
NA-24	2.18E-09
AR-41	1.71E+00
CR-51	8.41E-06
MN-54	6.74E-07
CO-57	1.06E-10
CO-58	3.71E-05
CO-60	1.29E-05
KR-85	1.45E-01
KR-85M	4.78E-02
KR-87	4.00E-05
KR-88	1.90E-03
NB-95	5.60E-10
ZR-95	2.80E-10
TE-125M	9.20E-06
I-131	1.99E-03
XE-131M	1.25E+00
I-132	4.17E-04
I-133	8.52E-04
XE-133	3.49E+02
XE-133M	1.78E+00
CS-134	5.01E-06
I-135	2.98E-04
XE-135	3.47E+00
CS-137	5.27E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	2.76E-05
NA-24	1.67E-04
CR-51	1.34E-02
MN-54	9.67E-03
FE-55	1.08E-01
CO-57	7.21E-04
CO-58	9.08E-02
FE-59	2.22E-03
CO-60	3.17E-02
ZN-65	7.83E-05
KR-85M	7.49E-07

Installation: Vogtle
Unit No.: 1&2

Location: 25 Mi SSE Augusta, GA

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
SR-92	2.45E-06	
Y-92	1.49E-04	
NB-95	3.51E-03	
ZR-95	1.62E-03	
NB-97	5.29E-05	
ZR-97	6.73E-06	
TC-99M	5.37E-05	
SN-113	1.49E-04	
SB-122	7.18E-05	
SB-124	6.01E-04	
SB-125	5.62E-03	
TE-125M	7.42E-04	
I-131	2.75E-03	
XE-131M	5.25E-05	
I-132	1.42E-04	
TE-132	1.58E-04	
I-133	8.54E-05	
XE-133	2.68E-02	
XE-133M	6.79E-05	
CS-134	1.66E-03	
XE-135	1.10E-04	
CS-137	1.59E-03	
LA-140	2.94E-05	
CE-144	1.75E-04	
HF-181	7.13E-05	
Total Airborne Tritium Released		1.95E+02 Ci
Total Liquid Tritium Released		1.09E+03 Ci
Volume of Waste Released (Prior to Dilution)		7.56E+06 liters
Volume of Dilution Water Used During Period		4.05E+09 liters

Installation: Vogtle
Unit No.: 1&2

Location: 25 Mi SSE Augusta, GA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-424
Thermal Power(MWH): 2.33E+07
Commercial Operation: 05/31/87
Cooling Water Source: Savannah River

Licensee: Georgia Power
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 7.50E+06
Initial Criticality: 03/09/87

Unit Number: 2 Type: PWR
Docket Number: 50-425
Thermal Power(MWH): 2.75E+07
Commercial Operation: 05/20/89
Cooling Water Source: Savannah River

Licensee: Georgia Power
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 8.90E+06
Initial Criticality: 03/28/89

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
11	Tractor and Shielded Cask	CNSI, Barnwell, SC
9	Tractor-Trailer	SEG, Oak Ridge, TN

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

	Jan-June	Jul-Dec
A		
CO-58	4.53E+01	
CO-60	2.81E+01	
FE-55		3.25E+01
NI-63		3.38E+01
Others	2.66E+01	3.37E+01
B		
CO-58		2.50E+01
CO-60	3.58E+01	
FE-55	2.46E+01	3.22E+01
Others	3.96E+01	4.28E+01

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 3.37E+01 Ci 5.86E+02	non-compacted
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 3.50E+01 Ci 1.01E+01	partially compacted
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Waterford
Unit No.: 3

Location: 20 Mi W New Orleans, LA

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-382
Thermal Power(MWH): 2.29E+07
Commercial Operation: 09/24/85
Cooling Water Source: Mississippi River

Licensee: Louisiana Power & Light
Licensed Power(MWT): 3.39E+03
Net Electrical Power(MWH): 7.27E+06
Initial Criticality: 03/04/85

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	1.46E+00
CR-51	8.95E-06
MN-54	5.64E-07
CO-58	5.16E-05
CO-60	2.69E-06
BR-82	3.56E-04
KR-85	3.32E-01
KR-85M	1.18E+00
KR-87	1.28E-01
KR-88	1.82E-01
NB-95	3.96E-06
ZR-95	1.39E-06
RU-103	6.98E-07
I-131	2.29E-03
XE-131M	1.69E+01
I-133	4.16E-05
XE-133	2.09E+03
XE-133M	2.11E+01
CS-134	2.83E-06
XE-135	1.88E+01
XE-135M	4.11E-01
CS-137	3.94E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	7.52E-04
AR-41	1.05E-04
CR-51	5.15E-02
MN-54	1.46E-02
FE-55	4.51E-02
CO-57	9.86E-04
CO-58	2.60E-01
FE-59	4.65E-03
CO-60	8.57E-02
ZN-65	2.18E-04
KR-85	3.89E-02
SR-89	2.89E-04
SR-90	4.70E-05
SR-92	4.86E-04
NB-95	3.39E-02
ZR-95	1.87E-02
NB-97	3.20E-03
ZR-97	6.76E-04
MO-99	1.98E-03

Installation: Waterford
Unit No.: 3

Location: 20 Mi W New Orleans, LA

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
TC-99M	3.56E-04
RU-103	1.12E-03
RU-106	7.16E-03
AG-110M	1.55E-02
SN-113	5.84E-03
SB-122	3.05E-04
SB-124	2.44E-02
SB-125	1.44E-01
SB-126	5.82E-04
I-131	1.50E-02
XE-131M	1.16E-01
I-132	8.94E-03
TE-132	4.96E-03
I-133	1.01E-04
XE-133	1.32E+01
XE-133M	7.54E-02
CS-134	6.29E-02
XE-135	5.42E-03
CS-136	1.66E-03
CS-137	8.18E-02
BA-139	4.30E-03
BA-140	1.25E-04
LA-140	3.96E-03
CE-141	2.45E-04
LA-142	3.18E-05
CE-144	1.16E-03
W-187	1.98E-03

Total Airborne Tritium Released	4.38E+02 Ci
Total Liquid Tritium Released	3.44E+02 Ci
Volume of Waste Released (Prior to Dilution)	8.94E+06 liters
Volume of Dilution Water Used During Period	1.24E+11 liters

Installation: Waterford
Unit No.: 3

Location: 20 Mi W New Orleans, LA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-382
Thermal Power(MWH): 2.29E+07
Commercial Operation: 09/24/85
Cooling Water Source: Mississippi River

Licensee: Louisiana Power & Light
Licensed Power(MWT): 3.39E+03
Net Electrical Power(MWH): 7.27E+06
Initial Criticality: 03/04/85

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
6	Truck	Barnwell, SC
12	Truck	Oak Ridge, TN
4	Truck	Richland, WA
2	Truck	Wampum, PA

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
CO-58	3.36E+01	3.01E+01
CO-60	4.42E+00	4.46E+00
CR-51		5.32E+00
CS-134	1.39E+01	1.06E+01
CS-137	2.51E+01	1.55E+01
FE-55	3.50E+00	1.57E+01
H-3		1.00E-02
MN-54	2.22E+00	2.58E+00
NB-95		3.95E+00
NI-63	1.67E+01	9.91E+00
SB-125		1.29E+00
ZR-95		6.50E-01
B		
CO-58	3.79E+01	7.15E+01
CO-60	5.85E+00	3.78E+00
CS-134	9.37E+00	4.48E+00
CS-137	1.47E+01	7.09E+00
FE-55	1.92E+01	2.24E+00
MN-54	4.41E+00	1.88E+00
NI-63	8.63E+00	9.06E+00
D		
CO-58	4.62E+01	7.18E+01
CO-60	6.80E+00	3.77E+00
CS-134	1.13E+01	4.45E+00
CS-137	1.74E+00	7.07E+00
FE-55	8.60E+00	2.24E+00
MN-54	5.29E+00	1.88E+00
NI-63	2.74E+00	8.99E+00

Installation: Waterford
Unit No.: 3

Location: 20 Mi W New Orleans, LA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.94E+01 Ci 6.97E+02	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.06E+03 m3 1.10E+02 Ci 2.14E+00	before volume reduction burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe) Dewatered mechanical filters	m3 2.05E+00 m3 3.19E+00 Ci 1.63E+00	before volume reduction burial volume
Waste Oil	m3 2.97E+00 Ci 1.78E-03	Incinerated

Installation: WNP-2
Unit No.: 2

Location: 12 Mi NW Richland, WA

Effluent and Waste Disposal Annual Report for 1991

Type: BWR

Licensee: Washington Public Power Supply
System

Docket Number: 50-397

Licensed Power(MWT): 3.32E+03

Thermal Power(MWH): 1.33E+07

Net Electrical Power(MWH): 4.23E+06

Commercial Operation: 12/13/84

Initial Criticality: 01/19/84

Cooling Water Source: Columbia River

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	5.79E+00
CR-51	8.64E-04
CO-58	1.90E-05
CO-60	2.86E-03
ZN-65	1.31E-03
KR-85	2.70E-01
KR-85M	8.11E-01
KR-87	1.54E+00
KR-88	7.70E+00
SR-89	1.16E-02
SR-90	5.60E-04
AG-110M	4.80E-05
I-131	2.14E-02
I-132	1.66E-02
I-133	1.00E-01
XE-133	1.05E+02
XE-133M	4.41E+01
CS-134	1.40E-05
I-134	2.51E-02
I-135	4.02E-02
XE-135	3.85E+02
XE-135M	1.17E+02
CS-137	7.10E-05
XE-137	1.63E+01
XE-138	3.89E+01
BA/LA-140	2.39E-02

Liquid Effluents

Nuclide Released	Activity (Ci)
CR-51	1.01E-02
MN-54	8.04E-04
FE-55	3.54E-03
CO-58	6.91E-04
FE-59	2.90E-04
CO-60	1.10E-02
ZN-65	6.90E-03
SR-89	5.48E-05
SR-90	1.29E-05
ZR/NB-95	2.00E-04
AG-110M	2.10E-04
I-131	2.70E-05
CS-134	2.50E-04
CS-137	4.20E-04

Installation: WNP-2
Unit No.: 2

Location: 12 Mi NW Richland, WA

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
CE-141	1.20E-04	
Total Airborne Tritium Released		1.21E+01 Ci
Total Liquid Tritium Released		1.81E+00 Ci
Volume of Waste Released (Prior to Dilution)		2.99E+06 liters
Volume of Dilution Water Used During Period		1.74E+09 liters

Installation: WNP-2
Unit No.: 2

Location: 12 Mi NW Richland, WA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: BWR

Licensee: Washington Public Power Supply
System

Docket Number: 50-397

Licensed Power (MWT): 3.32E+03

Thermal Power (MWH): 1.33E+07

Net Electrical Power (MWH): 4.23E+06

Commercial Operation: 12/13/84

Initial Criticality: 01/19/84

Cooling Water Source: Columbia River

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
28	Cask	US Ecology, Richland, WA
8	Flatbed	US Ecology, Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

C-14	1.00E-01	
CE-144		1.50E+00
CO-58	3.40E+00	
CO-60	2.85E+01	3.05E+01
CR-51	1.72E+01	3.20E+00
CS-134	4.00E+00	6.70E+00
CS-137	4.20E+00	7.70E+00
FE-55	2.90E+00	4.90E+00
MN-54	2.40E+00	1.80E+00
NI-63	3.00E-01	2.40E+00
SR-89		1.70E+00
ZN-65	3.59E+01	3.65E+01

B

CO-60	7.34E+01	7.26E+01
FE-55	1.70E+01	1.71E+01
MN-54	1.10E+00	1.20E+00
SB-125	2.30E+00	2.30E+00
ZN-65	6.20E+00	6.80E+00

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 1.45E+02 Ci 1.42E+03	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 1.56E+02 Ci 6.29E+00	burial volume (compacted)
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Wolf Creek
Unit No.: 1

Location: 3.5 Mi NE Burlington, KS

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-482
Thermal Power(MWH): 1.80E+07
Commercial Operation: 09/03/85
Cooling Water Source: Cooling Lake

Licensee: Wolf Creek Nuclear Oper.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 5.86E+06
Initial Criticality: 05/22/85

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-41	3.98E+00
CO-58	2.01E-06
KR-85	8.83E+01
KR-85M	6.05E-01
KR-87	4.93E-06
KR-88	7.18E-01
SR-89	1.86E-06
I-131	2.40E-03
XE-131M	5.78E+01
I-133	1.27E-04
XE-133	2.82E+03
XE-133M	1.45E+01
XE-135	1.21E+01
XE-135M	5.00E-04
CS-137	1.26E-06

Liquid Effluents

Nuclide Released	Activity (Ci)
BE-7	2.75E-03
NA-24	5.50E-04
CR-51	4.44E-02
MN-54	1.79E-02
FE-55	1.44E+00
CO-57	2.97E-03
CO-58	1.03E-01
FE-59	4.03E-03
CO-60	3.19E-01
ZN-65	1.18E-04
KR-85	1.57E+00
KR-85M	8.29E-05
SR-89	9.12E-05
SR-92	2.24E-04
NB-95	3.21E-03
ZR-95	1.20E-03
NB-97	2.02E-06
ZR-97	1.90E-05
TC-99M	1.74E-04
RU-103	9.82E-04
AG-110M	1.09E-02
SN-113	1.12E-03
SN-117M	4.60E-04
SB-124	1.01E-02
SB-125	5.41E-02
SB-126	1.15E-04

Installation: Wolf Creek
Unit No.: 1

Location: 3.5 Mi NE Burlington, KS

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)	
I-131	3.02E-03	
XE-131M	4.40E-01	
XE-133	1.95E+01	
XE-133M	5.87E-02	
CS-134	4.88E-02	
XE-135	6.93E-03	
CS-136	1.91E-04	
CS-137	5.42E-02	
BA-139	3.33E-03	
LA-140	4.55E-04	
CE-141	3.75E-04	
CE-144	5.11E-04	
HF-181	1.65E-05	
NP-239	2.32E-05	
Total Airborne Tritium Released		1.50E+01 Ci
Total Liquid Tritium Released		7.17E+02 Ci
Volume of Waste Released (Prior to Dilution)		1.13E+08 liters
Volume of Dilution Water Used During Period		3.88E+11 liters

Installation: Wolf Creek
Unit No.: 1

Location: 3.5 Mi NE Burlington, KS

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-482
Thermal Power(MWH): 1.80E+07
Commercial Operation: 09/03/85
Cooling Water Source: Cooling Lake

Licensee: Wolf Creek Nuclear Oper.
Licensed Power(MWT): 3.41E+03
Net Electrical Power(MWH): 5.86E+06
Initial Criticality: 05/22/85

Solid Waste Disposition

Number of Shipments	Mode of Transportation
11	Truck
8	Truck

Destination
Barnwell, SC
Richland, WA

Estimate of Major Nuclide Composition (%)
(by type of waste)

Jan-June Jul-Dec

A

C-14	7.89E-01	7.17E-01
CO-58	7.89E+00	9.23E+00
CO-60	1.73E+01	1.76E+01
CS-134	6.95E+00	3.39E+00
CS-137	8.31E+00	4.23E+00
FE-55	3.20E+01	3.83E+01
H-3	9.00E-03	8.64E-01
MN-54	1.96E+00	1.31E+00
NB-95	3.10E-02	
NI-63	2.39E+01	2.31E+01
SB-125	7.58E-01	1.23E+00
SR-90	4.00E-03	
ZN-65	2.80E-02	
ZR-95	8.90E-02	

B

C-14		7.00E-03
CO-58		1.55E+00
CO-60		2.41E+01
CS-134		9.17E-01
CS-137		1.48E+00
FE-55		6.14E+01
H-3		5.30E-02
MN-54		1.36E+00
NB-95		1.56E+00
NI-63		7.60E+00

Installation: Wolf Creek
Unit No.: 1

Location: 3.5 Mi NE Burlington, KS

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 2.72E+01 Ci 4.09E+02	burial volume
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 5.67E+01 Ci 4.30E+00	burial volume
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

Installation: Yankee Rowe
Unit No.: 1

Location: 20 Mi NW Greenfield, MA

Effluent and Waste Disposal Annual Report for 1991

Type: PWR
Docket Number: 50-029
Thermal Power(MWH): 3.53E+06
Commercial Operation: 07/01/61
Cooling Water Source: Deerfield River

Licensee: Yankee Atomic Electric
Licensed Power(MWT): 6.00E+02
Net Electrical Power(MWH): 9.92E+05
Initial Criticality: 08/19/60

Airborne Effluents

Nuclide Released	Activity (Ci)
AR-37	3.40E-01
AR-41	5.41E-01
MN-54	2.09E-08
CO-60	8.81E-06
KR-85	7.48E+00
KR-85M	1.84E+00
KR-87	1.64E+00
KR-88	3.37E+00
I-131	2.03E-05
XE-131M	9.85E-01
I-133	2.45E-05
XE-133	1.20E+02
XE-133M	2.14E+00
I-135	1.49E-06
XE-135	3.37E+01
XE-135M	4.08E+01
CS-137	5.32E-07
XE-138	7.23E-01

Liquid Effluents

Nuclide Released	Activity (Ci)
MN-54	7.99E-06
FE-55	7.07E-04
CO-60	1.48E-04
KR-85	2.11E-02
SB-124	5.04E-05
I-131	4.98E-04
XE-131M	4.57E-03
I-133	6.25E-05
XE-133	2.30E-01
XE-133M	1.02E-03
CS-134	1.18E-04
XE-135	3.27E-04
CS-136	1.10E-06
CS-137	4.40E-04

Total Airborne Tritium Released	6.25E+00 Ci
Total Liquid Tritium Released	2.03E+02 Ci
Volume of Waste Released (Prior to Dilution)	2.33E+07 liters
Volume of Dilution Water Used During Period	1.98E+11 liters

Installation: Yankee Rowe
Unit No.: 1

Location: 20 Mi NW Greenfield, MA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type: PWR
Docket Number: 50-029
Thermal Power(MWH): 3.53E+06
Commercial Operation: 07/01/61
Cooling Water Source: Deerfield River

Licensee: Yankee Atomic Electric
Licensed Power(MWT): 6.00E+02
Net Electrical Power(MWH): 9.92E+05
Initial Criticality: 08/19/60

Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
13	Truck	Barnwell, SC

Estimate of Major Nuclide Composition (%)
(by type of waste)

	Jan-June	Jul-Dec
A		
C-14	1.56E-01	2.78E-01
CO-60	2.81E+00	3.06E+00
CS-134	1.57E+01	1.28E+01
CS-137	2.07E+01	1.77E+01
FE-55	2.43E+01	2.83E+01
H-3	3.45E+01	3.47E+01
NB-95		1.21E+00
NI-63	1.75E+00	1.93E+00
B		
C-14	2.34E-01	3.15E-01
CO-60	4.23E+00	4.58E+00
CS-134	2.39E+01	2.15E+01
CS-137	3.10E+01	2.90E+01
FE-55	3.69E+01	3.91E+01
NB-95	1.07E+00	1.91E+00
NI-63	2.63E+00	2.74E+00
C		
CE-144		7.10E-01
CO-60		8.45E+00
CS-134		1.36E+01
CS-137		4.75E+01
FE-55		2.23E+01
NI-63		4.40E+00
SR-90		9.70E-01

Installation: Yankee Rowe
Unit No.: 1

Location: 20 Mi NW Greenfield, MA

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 6.96E+01 Ci 2.14E+00	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 8.50E+01 Ci 1.41E+00	
C. Irradiated Components, Control Rods, etc.	m3 6.81E+00 Ci 8.13E+01	
D. Other (describe)	m3 Ci	

Installation: Zion
Unit No.: 1&2

Location: 6 Mi N Waukegan, IL

Effluent and Waste Disposal Annual Report for 1991

Unit Number: 1 Type: PWR
Docket Number: 50-295
Thermal Power(MWH): 1.34E+07
Commercial Operation: 12/31/73
Cooling Water Source: Lake Michigan
Unit Number: 2 Type: PWR
Docket Number: 50-304
Thermal Power(MWH): 1.61E+07
Commercial Operation: 09/17/74
Cooling Water Source: Lake Michigan

Licensee: Commonwealth Edison
Licensed Power(MWT): 3.25E+03
Net Electrical Power(MWH): 4.26E+06
Initial Criticality: 06/19/73

Licensee: Commonwealth Edison
Licensed Power(MWT): 3.25E+03
Net Electrical Power(MWH): 5.13E+06
Initial Criticality: 12/24/73

Airborne Effluents

Nuclide Released	Activity (Ci)
NA-24	3.80E-07
AR-41	3.40E-01
CO-58	5.90E-06
CO-60	4.80E-05
SE-75	2.50E-10
BR-82	9.23E-05
KR-85	2.88E+00
KR-85M	2.90E-04
KR-87	6.90E-01
KR-88	2.00E-02
RB-88	1.13E-03
SR-89	5.60E-08
SR-90	3.04E-06
RU-103	7.10E-11
SN-113	1.10E-10
SB-124	1.90E-06
I-131	7.46E-03
XE-131M	6.10E-02
I-132	8.63E-04
I-133	3.92E-03
XE-133	2.71E+02
XE-133M	7.62E-02
CS-134	5.52E-05
I-134	2.40E-06
I-135	1.93E-03
XE-135	2.26E-01
CS-136	1.10E-05
CS-137	6.53E-05
CS-138	5.50E-05

Liquid Effluents

Nuclide Released	Activity (Ci)
NA-24	2.94E-04
CR-51	3.25E-02
MN-54	8.33E-03
FE-55	1.35E-01
CO-57	4.00E-04
CO-58	6.65E-01
FE-59	1.54E-02

Installation: Zion
Unit No.: 1&2

Location: 6 Mi N Waukegan, IL

Effluent and Waste Disposal Annual Report for 1991

Liquid Effluents (continued)

Nuclide Released	Activity (Ci)
CO-60	4.23E-01
CU-64	4.10E-04
NI-65	8.70E-06
AS-76	2.40E-04
KR-85M	1.42E-03
KR-87	1.50E-04
KR-88	6.90E-05
RB-88	1.06E-03
SR-89	1.04E-04
SR-90	4.78E-04
NB-95	2.12E-03
ZR-95	1.57E-03
ZR/NB-95	1.73E-02
MO-99	2.28E-04
TC-99M	1.20E-05
RU-103	1.80E-05
AG-110M	1.97E-02
SN-113	6.17E-04
SN-117M	1.05E-04
SB-124	3.86E-02
SB-125	8.88E-02
I-131	1.20E-02
XE-131M	5.64E-02
TE-132	1.60E-05
I-133	5.64E-03
XE-133	4.48E+00
XE-133M	6.35E-02
CS-134	9.00E-02
XE-135	9.85E-02
CS-136	6.40E-04
CS-137	1.18E-01
CS-138	2.90E-04
BA-140	1.66E-04
BA/LA-140	1.09E-03
LA-140	9.20E-04
BA-141	7.70E-05
TA-182	3.60E-04
W-187	3.60E-04
AU-196	1.30E-04
NP-239	8.50E-05

Total Airborne Tritium Released	7.11E+01 Ci
Total Liquid Tritium Released	9.30E+02 Ci
Volume of Waste Released (Prior to Dilution)	1.15E+08 liters
Volume of Dilution Water Used During Period	2.06E+12 liters

Installation: Zion
Unit No.: 1&2

Location: 6 Mi N Waukegan, IL

Effluent and Waste Disposal Annual Report for 1991
Solid Effluents

Unit Number: 1 Type: PWR
Docket Number: 50-295
Thermal Power(MWH): 1.34E+07
Commercial Operation: 12/31/73
Cooling Water Source: Lake Michigan

Licensee: Commonwealth Edison
Licensed Power(MWT): 3.25E+03
Net Electrical Power(MWH): 4.26E+06
Initial Criticality: 06/19/73

Unit Number: 2 Type: PWR
Docket Number: 50-304
Thermal Power(MWH): 1.61E+07
Commercial Operation: 09/17/74
Cooling Water Source: Lake Michigan

Licensee: Commonwealth Edison
Licensed Power(MWT): 3.25E+03
Net Electrical Power(MWH): 5.13E+06
Initial Criticality: 12/24/73

Solid Waste Disposition

Number of Shipments Mode of Transportation
19

Destination
Barnwell, SC

Type of Waste	Unit	Description
A. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m3 8.91E+01 Ci 1.87E+03	
B. Dry Compressible Waste, Contaminated Equipment, etc.	m3 6.82E+00 Ci 7.30E+01	
C. Irradiated Components, Control Rods, etc.	m3 Ci	
D. Other (describe)	m3 Ci	

BIBLIOGRAPHIC DATA SHEET

(See instructions on the reverse)

1. REPORT NUMBER
(Assigned by NRC. Add Vol., Supp., Rev.,
and Addendum Numbers, if any.)

NUREG/CR-2907
BNL-NUREG-51581
Vol. 12

2. TITLE AND SUBTITLE

Radioactive Materials Released from Nuclear Power Plants
Annual Report 1991

3. DATE REPORT PUBLISHED

MONTH YEAR

May 1994

4. FIN OR GRANT NUMBER

B2234

5. AUTHOR(S)

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6. TYPE OF REPORT

Annual Technical

7. PERIOD COVERED (Inclusive Dates)

1991

8. PERFORMING ORGANIZATION - NAME AND ADDRESS (If NRC, provide Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address; if contractor, provide name and mailing address.)

Brookhaven National Laboratory
Upton, NY 11973

9. SPONSORING ORGANIZATION - NAME AND ADDRESS (If NRC, type "Same as above"; if contractor, provide NRC Division, Office or Region, U.S. Nuclear Regulatory Commission, and mailing address.)

Office of Information Resources Management
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

10. SUPPLEMENTARY NOTES

11. ABSTRACT (200 words or less)

Releases of radioactive materials in airborne and liquid effluents from commercial light water reactors during 1991 have been compiled and reported. Data on solid waste shipments as well as selected operating information have been included. This report supplements earlier annual reports issued by the former Atomic Energy Commission and the Nuclear Regulatory Commission. The 1991 release data are summarized in tabular form. Data covering specific radionuclides are summarized.

12. KEY WORDS/DESCRIPTORS (List words or phrases that will assist researchers in locating the report.)

radioactive materials
airborne effluents
solid waste disposal
nuclear power plants
liquid effluents

13. AVAILABILITY STATEMENT

unlimited

14. SECURITY CLASSIFICATION

(This Page)

unclassified

(This Report)

unclassified

15. NUMBER OF PAGES

16. PRICE



Federal Recycling Program

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NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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1985-1986-VOL 08
WASHINGTON DC 20555