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Radioactive Materials Released from Nuclear Power Plants

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

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Prepared for
U.S. Nuclear Regulatory Commission

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Radioactive Materials Released from Nuclear Power Plants

Annual Report 1988

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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.

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ABSTRACT

Releases of radioactive materials in airborne and liquid effluents from commercial light water reactors during 1988 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 1988 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 1988. 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, 1988. Data are included for several licensed facilities which are permanently or indefinitely shut down (Browns Ferry 1,2,3, Dresden 1, Humboldt Bay, Indian Point 1, LaCrosse, Pilgrim and Three Mile Island 2), as well as some plants which were not yet in commercial operation in 1988 (Shoreham).

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 sixteen previous annual summaries.

2.0 Tabulated Data

2.1 Airborne and Liquid Effluents

Table 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 1970 through 1988. 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.

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¹ Previous reports in this series are listed on page ii.

2.2 Solid Waste

The total volumes, activity and the number of shipments of solid waste for each plant during 1988 are summarized in Tables 9 and 10. A comparison for the years 1977 through 1988 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 1978-1988. Tables 15 and 16 present a summary of the thermal energy generated by each plant during 1988 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, 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 1978-1988 are stored in a computerized data base.

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 Information Resources Management of the Nuclear Regulatory Commission.

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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:

$$1.86\text{E}+06 = 1.86 \times 10^6$$

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

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	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Big Rock Point 1	2.80E+05	2.84E+05	2.58E+05	2.30E+05	1.88E+05	5.06E+04	1.52E+04	1.34E+04	1.89E+04	6.67E+03
Browns Ferry 1,2,& 3					6.40E+04	9.24E+04	<8.05E+04	<1.66E+05	1.57E+05	<2.71E+05
Brunswick 1&2						1.90E+02	1.90E+04	2.46E+05	9.14E+04	1.16E+05
Clinton 1										
Cooper					2.00E+03	1.98E+04	3.80E+04	1.27E+03	4.09E+03	3.04E+04
Dresden 1	9.00E+05	7.53E+05	8.77E+05	8.40E+05	9.80E+04	5.20E+05	4.52E+05	5.20E+05	8.50E+05	1.83E+02
Dresden 2-3		5.80E+05	4.29E+05	8.80E+05	6.27E+05	3.69E+05	3.23E+04	3.13E+05	4.06E+04	6.91E+04
Duane Arnold						1.58E+03	5.26E+03	3.87E+03	1.56E+03	8.71E+03
Edwin I. Hatch 1						2.70E+02	2.80E+03	1.90E+03	1.62E+03	1.71E+03
Edwin I. Hatch 2										
Fermi 2										
Grand Gulf 1										
Hope Creek 1										
Humboldt Bay 3	5.40E+05	5.14E+05	4.30E+05	3.50E+05	5.72E+05	2.97E+05	9.30E+04	4.40E-05	4.40E-05	<4.40E-05
James A. Fitzpatrick						4.08E+03	4.41E+04	2.33E+04	5.88E+03	3.38E+03
Lacrosse	1.00E+03	1.00E+03	3.10E+04	9.10E+04	4.90E+04	5.71E+04	1.24E+05	4.25E+04	8.45E+03	1.04E+04
Lasalle 1&2										
Limerick 1										
Millstone 1		2.76E+05	7.26E+05	7.90E+04	9.12E+05	2.97E+06	5.07E+05	6.20E+05	5.66E+05	2.06E+04
Monticello		7.60E+04	7.51E+05	8.70E+05	1.57E+06	1.55E+05	1.14E+04	6.87E+03	6.42E+03	4.03E+03
Nine Mile Point 1	1.00E+04	2.53E+05	5.17E+05	8.72E+05	5.58E+05	1.30E+06	1.76E+05	3.53E+03	3.02E+03	*1.04E+03
Nine Mile Point 2										
Oyster Creek 1	1.10E+05	5.16E+05	8.66E+05	8.10E+05	2.79E+05	2.06E+05	1.67E+05	1.77E+05	9.98E+05	1.01E+06
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
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
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
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
WNP-2										

Fort St. Vrain*

9.30E+01

* High temperature gas cooled reactor

Table 1

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Boiling Water Reactors

Facility	1980	1981	1982	1983	1984	1985	1986	1987	1988
Big Rock Point 1	2.15E+04	1.97E+04	1.29E+04	1.10E+04	1.41E+05	6.26E+04	6.79E+04	8.35E+03	7.77E+03
Browns Ferry 1,2,& 3	<1.66E+05	4.52E+04	2.76E+05	4.79E+05	<6.64E+05	<2.64E+04	<2.26E+03	3.22E-01	<1.44E+03
Brunswick 1&2	6.93E+04	5.22E+05	4.65E+05	4.87E+05	1.67E+05	1.75E+04	4.51E+04	2.64E+04	1.58E+03
Clinton 1								6.83E+00	4.34E+00
Cooper	5.03E+03	2.48E+03	1.42E+04	1.54E+03	<1.44E+03	<1.39E+03	1.72E+03	1.20E+03	1.81E+03
Dresden 1	7.03E+01	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Dresden 2-3	4.30E+04	3.74E+04	1.04E+04	8.43E+03	1.81E+03	2.94E+03	4.38E+02	2.77E+02	1.68E+02
Duane Arnold	2.70E+03	<4.87E+02	9.99E+01	4.81E+02	4.16E+02	2.51E+02	3.10E+02	2.19E+02	7.06E+02
Edwin I. Hatch 1	3.82E+04	2.77E+04	4.23E+03	1.96E+04	1.02E+04	9.86E+03	8.95E+03	7.40E+03	**
Edwin I. Hatch 2	2.95E+02	2.06E+02	1.04E+03	1.28E+04	2.36E+03	2.76E+03	1.09E+04	1.37E+04	3.46E+03
Fermi 2							N/D	N/D	1.11E+00
Grand Gulf 1				4.51E+01	1.14E+02	1.51E+02	1.34E+02	2.08E+02	9.44E+01
Hope Creek 1							3.80E+01	1.19E+03	1.76E+02
Humboldt Bay 3	<4.40E-05	<4.40E-05	N/D	N/D	N/D	N/D	N/D	N/D	<6.48E+01
James A. Fitzpatrick	7.68E+04	2.00E+05	2.11E+05	8.57E+04	3.41E+04	1.46E+04	2.65E+03	4.72E+03	3.89E+03
Lacrosse	4.71E+03	5.03E+03	4.26E+03	7.08E+03	1.09E+04	8.58E+03	3.53E+03	2.33E+03	N/D
Lasalle 1&2			3.46E+00	1.17E+01	5.66E+02	1.95E+02	2.98E+03	6.51E+03	3.79E+03
Limerick 1					N/D	N/D	3.70E-01	2.41E+01	1.69E+02
Millstone 1	1.19E+04	1.43E+04	8.33E+03	6.34E+03	2.80E+03	1.11E+03	3.31E+03	5.84E+03	8.76E+02
Monticello	3.83E+03	3.74E+03	7.22E+03	3.21E+03	5.15E+02	2.72E+03	2.53E+03	3.95E+03	5.88E+03
Nine Mile Point 1	5.87E+02	6.10E+02	5.11E+01	2.68E+02	1.02E+03	9.84E+02	4.92E+02	1.97E+02	1.80E+01
Nine Mile Point 2								6.00E+00	4.03E+01
Oyster Creek 1	3.12E+04	5.28E+04	2.29E+04	2.14E+03	3.93E+03	4.15E+04	7.67E+04	3.39E+03	5.05E+03
Peach Bottom 2&3	1.53E+04	1.58E+04	1.31E+04	3.48E+04	8.09E+04	1.29E+05	2.78E+04	1.15E+04	1.19E+03
Perry 1							1.23E+00	1.06E+01	1.25E+03
Pilgrim 1	2.62E+04	<5.30E+03	<1.94E+04	2.01E+04	<1.84E+01	3.26E+03	1.26E+02	N/D	N/D
Quad-Cities 1&2	2.15E+04	3.20E+04	1.17E+04	1.20E+04	6.02E+03	2.95E+03	1.48E+03	3.73E+02	3.77E+00
River Bend 1							1.70E+03	1.39E+00	2.05E+00
Shoreham 1							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
Vermont Yankee 1	1.63E+03	<3.17E+03	<3.07E+03	<3.13E+03	<3.18E+03	<3.44E+03	<1.56E+03	N/D	N/D
WNP-2					2.28E+02	2.12E+02	1.66E+02	5.35E+02	9.03E+02
Fort St. Vrain*	9.13E+01	4.34E+01	2.96E+02	1.51E+02	1.17E+02	2.03E+00	5.57E+01	2.03E+02	2.60E+02

* 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	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Arkansas One 1					1.96E+02	1.03E+03	5.69E+03	1.39E+04	7.50E+03	8.51E+03
Arkansas One 2										4.53E+03
Beaver Valley 1&2							1.07E+00	4.73E+01	3.90E+02	1.75E+03
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	
Catawba 1										
Catawba 2										
Crystal River 3								3.35E+03	6.86E+03	7.26E+04
Davis-Besse 1								1.27E+03	2.10E+03	<1.68E+03
Diablo Canyon 1&2										
Donald C. Cook 1&2						2.64E+00	9.75E+02	3.80E+03	4.85E+04	1.09E+04
Fort Calhoun 1				6.70E+01	3.03E+02	4.29E+02	1.94E+03	3.81E+03	1.36E+03	7.06E+02
H. B. Robinson 2		1.00E+00	<1.00E+00	3.10E+03	2.31E+03	1.17E+03	6.40E+02	4.76E+02	8.84E+02	1.52E+03
Haddam Neck	1.00E+00	3.00E+00	1.00E+00	3.20E+01	7.00E+00	4.80E+02	4.52E+02	3.12E+03	2.14E+03	5.53E+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
Indian Point 3							SHOWN W/OTHER UNIT		8.09E+02	2.47E+02
Joseph M. Farley 1									3.53E+03	3.18E+03
Joseph M. Farley 2										
Kewaunee					3.35E+03	2.45E+03	1.40E+03	2.43E+03	4.44E+02	1.52E+02
Maine Yankee			<1.00E+00	1.61E+02	6.36E+03	4.09E+03	1.30E+03	2.86E+02	1.43E+03	1.98E+03
McGuire 1										
McGuire 2										
Millstone 2							1.57E+03	2.28E+03	7.64E+02	3.59E+02
Millstone 3										
North Anna 1&2									1.51E+04	6.28E+03
Oconee 1,2,& 3				8.30E+03	1.94E+04	1.51E+04	4.39E+04	3.56E+04	4.33E+04	4.79E+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
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2		<1.00E+00	3.00E+00	5.75E+03	9.74E+03	4.45E+04	1.91E+03	1.13E+03	5.16E+02	9.68E+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
R. E. Ginna	1.00E+01	3.20E+01	1.20E+01	5.76E+02	7.57E+02	1.04E+04	5.52E+03	3.20E+03	9.72E+02	7.62E+02
Rancho Seco 1						1.18E+02	1.27E+02	2.00E+03	7.10E+03	8.81E+03
Salem 1							<1.00E-02	1.96E+01	1.02E+01	2.49E+02
Salem 2										
San Onofre 1	<1.00E+00	8.00E+00	1.90E+01	1.10E+04	1.78E+03	1.11E+03	4.16E+02	1.54E+02	1.81E+03	6.37E+02
San Onofre 2-3										
Sequoyah 1&2										
South Texas 1										
St. Lucie 1							1.72E+03	2.54E+04	2.93E+04	1.54E+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
Three Mile Island 1					9.16E+02	3.63E+03	2.76E+03	1.66E+04	1.57E+04	2.24E+03
Three Mile Island 2									8.73E+00	9.97E+06
TMI 2/Epicor										
Trojan							6.66E+02	3.07E+03	3.05E+02	9.27E+02
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
Turkey Point 3										
Turkey Point 4										
Vogtle 1										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	<1.00E+00	<1.00E+00	<1.00E+00	3.50E+01	4.00E+01	2.24E+01	2.57E+01	1.25E+02	6.56E+02	1.82E+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

Table 2

Airborne Effluents Comparison By Year

Fission and Activation Gases (Total Curies)

Pressurized Water Reactors

Facility	1980	1981	1982	1983	1984	1985	1986	1987	1988
Arkansas One 1	3.80E+04	3.73E+03	2.10E+03	9.83E+02	2.90E+03	8.10E+03	1.71E+03	3.26E+02	1.24E+03
Arkansas One 2	9.37E+03	4.35E+03	9.78E+03	1.34E+03	3.26E+03	8.91E+03	3.46E+03	2.06E+02	2.16E+03
Beaver Valley 1&2	8.64E+01	8.06E+02	1.31E+02	1.98E+02	1.16E+03	3.92E+01	7.57E+01	2.25E+02	9.41E+01
Braidwood 1								2.81E-01	4.19E+01
Braidwood 2									3.82E+01
Byron 1&2						2.79E+02	6.36E+02	1.30E+03	1.78E+03
Callaway 1					2.00E+02	1.67E+03	5.19E+03	2.90E+03	6.89E+02
Calvert Cliffs 1&2	2.96E+03	2.18E+03	8.00E+03	9.75E+03	3.83E+03	3.98E+03	7.65E+03	4.55E+03	5.70E+03
Catawba 1						2.77E+02	1.36E+03	2.41E+03	1.56E+03
Catawba 2							1.36E+03	2.41E+03	1.56E+03
Crystal River 3	3.65E+04	3.96E+04	6.85E+03	3.38E+03	1.96E+03	1.05E+03	2.76E+03	1.10E+03	3.41E+03
Davis-Besse 1	<3.35E+03	1.01E+03	5.35E+02	9.15E+02	5.02E+02	1.18E+02	5.09E-04	3.80E+02	1.09E+02
Diablo Canyon 1&2					5.86E-02	5.72E+02	2.32E+03	7.14E+02	3.27E+02
Donald C. Cook 1&2	3.76E+03	5.42E+03	3.88E+03	3.28E+02	3.50E+03	4.94E+03	3.29E+02	8.75E+02	2.58E+02
Fort Calhoun 1	2.97E+02	1.22E+03	3.46E+02	8.79E+02	1.52E+03	1.48E+03	5.68E+02	4.23E+02	7.85E+02
H. B. Robinson 2	5.82E+02	5.13E+02	1.75E+02	2.93E+02	4.90E+01	2.14E+03	6.59E+02	7.70E+02	1.04E+03
Haddam Neck	2.68E+03	1.83E+03	7.54E+02	2.76E+03	7.52E+03	2.76E+03	2.33E+03	3.58E+03	2.55E+03
Harris 1								1.71E+03	2.25E+03
Indian Point 1-2	9.38E+03	9.13E+03	7.27E+03	9.58E+03	3.78E+03	1.88E+03	2.05E+03	4.68E+03	2.27E+02
Indian Point 3	1.11E+03	6.57E+03	2.58E+03	5.60E+02	1.88E+03	1.54E+03	1.93E+03	1.82E+03	3.10E+02
Joseph M. Farley 1	1.92E+04	2.21E+02	3.81E+04	2.20E+04	3.73E+03	1.70E+03	1.28E+03	1.30E+03	9.60E+02
Joseph M. Farley 2		2.60E+00	3.54E+03	8.47E+02	3.99E+03	6.63E+02	1.84E+03	7.22E+02	5.92E+02
Kewaunee	1.22E+02	1.18E+02	1.66E+02	<2.25E+02	<4.04E+01	<4.97E+01	<6.55E+01	<3.19E+01	<2.91E+01
Maine Yankee	3.87E+03	3.28E+02	1.53E+02	3.92E+01	1.23E+02	4.41E+02	1.07E+03	7.80E+02	7.19E+01
McGuire 1		1.58E-01	1.65E-03	1.60E+03	2.28E+03	1.93E+03	1.05E+03	2.04E+03	1.95E+03
McGuire 2				1.60E+03	2.28E+03	1.93E+03	1.05E+03	2.04E+03	1.95E+03
Millstone 2	1.33E+03	2.24E+03	9.09E+03	9.06E+03	4.19E+03	4.00E+02	1.02E+02	3.97E+02	6.34E+02
Millstone 3							2.39E+01	1.05E+02	8.44E+01
North Anna 1&2	3.50E+03	5.30E+03	4.34E+03	2.22E+04	1.76E+04	8.05E+03	5.71E+03	1.05E+03	4.83E+02
Oconee 1,2,& 3	1.92E+04	1.63E+04	2.41E+04	2.40E+04	2.28E+04	2.35E+04	2.43E+04	1.05E+04	2.59E+04
Palisades	1.40E+02	3.00E+03	7.38E+03	3.00E+03	2.84E+01	3.68E+03	1.73E+02	1.75E+03	2.43E+03
Palo Verde 1						2.53E+02	2.67E+03	1.27E+03	1.84E+03
Palo Verde 2							1.97E+03	5.47E+03	2.97E+03
Palo Verde 3								2.52E-02	1.36E+02
Point Beach 1&2	6.41E+02	6.11E+02	9.93E+02	7.68E+02	9.30E+01	1.16E+02	2.78E+01	4.82E+01	8.08E+01
Prairie Island 1&2	2.60E+02	4.65E+01	5.47E+02	2.76E+02	7.58E+01	4.59E+01	3.03E+01	8.76E-01	1.42E-01
R. E. Ginna	8.61E+02	5.46E+02	1.95E+03	7.12E+02	2.96E+02	4.06E+02	2.09E+02	1.77E+02	5.17E+01
Rancho Seco 1	1.58E+03	1.37E+03	1.48E+03	6.89E+02	3.83E+03	4.67E+03	9.30E+01	2.16E-02	1.52E+03
Salem 1	7.82E+01	1.06E+03	2.34E+02	1.25E+02	1.95E+02	1.68E+03	1.39E+03	3.64E+03	5.29E+02
Salem 2	7.74E+00	6.09E+02	1.11E+03	7.44E+02	1.81E+03	1.15E+03	8.56E+02	1.06E+03	1.18E+03
San Onofre 1	1.05E+03	4.17E+02	8.61E+01	1.06E+01	8.62E+01	3.83E+03	4.11E+02	9.81E+02	2.99E+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
Sequoyah 1&2	3.01E+03	9.03E+03	5.74E+03	3.92E+03	6.68E+03	4.57E+03	1.21E+00	N/D	2.25E+02
South Texas 1									8.57E+02
St. Lucie 1	8.97E+03	2.30E+04	2.33E+04	2.16E+04	3.53E+04	5.08E+04	3.33E+04	6.21E+03	1.42E+03
St. Lucie 2				1.25E+03	7.68E+03	9.55E+03	9.98E+03	8.60E+03	9.16E+03
Summer 1			1.40E+02	3.88E+02	1.64E+01	1.40E+02	1.39E+01	6.34E+02	3.32E+02
Surry 1&2	6.17E+03	1.41E+04	2.11E+04	5.49E+03	6.95E+03	2.07E+03	1.99E+03	3.08E+02	3.66E+02
Three Mile Island 1	4.64E-03	5.81E-02	7.56E-03	2.01E+01	3.62E-01	1.08E+02	3.80E+03	7.89E+02	1.87E+03
Three Mile Island 2	4.72E+04	2.88E+02	4.89E+02	1.73E+02	2.07E+02	N/D	2.80E-01	N/D	4.40E-01
TMI 2/Epicor	2.16E+00	1.84E+02	4.26E+02	3.61E+01	3.99E+01	**	**	**	**
Trojan	3.91E+02	1.16E+03	8.64E+02	2.29E+02	8.37E+02	1.06E+03	9.13E+02	2.49E+02	4.00E+02
Turkey Point 3&4	4.24E+03	4.33E+03	2.00E+04	1.61E+04	1.16E+04				
Turkey Point 3						1.32E+03	3.64E+03	9.38E+02	1.25E+03
Turkey Point 4						1.80E+03	1.01E+03	7.86E+02	1.31E+03
Vogtle 1								1.07E+02	1.15E+02
Waterford 3						8.21E+03	1.12E+04	5.63E+03	5.30E+03
Wolf Creek 1						1.72E+02	3.15E+01	1.73E+02	7.92E+02
Yankee Rowe 1	7.07E+01	1.72E+02	1.55E+02	7.51E+02	1.74E+03	1.47E+03	5.11E+02	3.84E+02	2.06E+02
Zion 1&2	5.78E+03	6.91E+03	1.61E+04	6.34E+03	3.61E+03	3.88E+03	3.18E+03	1.18E+02	1.39E+03

** Included with Three Mile Island 2 total

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	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Big Rock Point 1	1.30E-01	6.10E-01	1.50E-01	4.60E+00	1.60E-01	1.20E-01	5.00E-02	1.00E-02	8.91E-03	1.90E-03
Browns Ferry 1,2,& 3					1.20E-01	2.70E-01	<7.00E-02	1.04E-01	2.27E-01	5.03E-02
Brunswick 1&2						<1.00E-02	4.60E-01	9.32E-01	4.07E-01	9.52E-01
Clinton 1										
Cooper					2.40E-01	5.00E-02	<4.00E-02	<1.91E-02	5.41E-03	<1.79E-01
Dresden 1	3.30E+00	6.70E-01	2.75E+00	4.00E-02	6.80E-01	9.60E-01	8.40E-01	4.93E+00	2.28E+00	2.38E-02
Dresden 2-3	1.60E+00	8.68E+00	5.89E+00	6.70E+00	6.50E+00	4.31E+00	5.49E+00	6.86E+00	3.13E+00	6.97E+00
Duane Arnold						1.10E-03	8.18E-02	2.29E-02	3.65E-02	3.35E-02
Edwin I. Hatch 1						<1.00E-02	<1.00E-02	5.67E-03	4.13E-03	2.59E-02
Edwin I. Hatch 2										
Fermi 2										
Grand Gulf 1										
Hope Creek 1										
Humboldt Bay 3	3.50E-01	3.00E-01	4.80E-01	2.90E-01	8.40E-01	1.06E+00	8.36E-02	4.04E-03	7.26E-04	1.07E-04
James A. Fitzpatrick						<4.00E-02	6.80E-01	1.73E-01	2.79E-01	1.42E-02
Lacrosse	<6.00E-02	<1.00E-02	7.10E-01	2.00E-01	4.00E-02	1.00E-01	<7.06E-02	1.67E-01	2.79E-02	2.53E-02
Lasalle 1&2										
Limerick 1										
Millstone 1		4.00E+00	1.32E+00	2.00E-01	3.26E+00	9.98E+00	2.33E+00	4.86E+00	4.55E+00	5.90E-01
Monticello		3.60E-02	5.78E-01	1.20E+00	5.70E+00	3.71E+00	1.71E-01	8.51E-02	5.49E-02	3.39E-02
Nine Mile Point 1	<1.00E-02	6.00E-02	9.70E-01	1.98E+00	8.90E-01	2.78E+00	2.20E+00	1.99E-01	1.35E-01	4.71E-02
Nine Mile Point 2										
Oyster Creek 1	3.20E-01	2.14E+00	6.48E+00	7.02E+00	3.51E+00	5.64E+00	6.39E+00	9.05E+00	1.81E+01	9.32E+00
Peach Bottom 2&3				<1.00E-02	1.00E-02	4.00E-02	9.75E-01	2.73E-01	9.62E-02	2.58E-01
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
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
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
WNP-2										
Fort St. Vrain*										6.89E-07

* High temperature gas cooled reactor

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	1980	1981	1982	1983	1984	1985	1986	1987	1988 ***
Big Rock Point 1	2.94E-02	6.10E-03	4.71E-03	3.35E-03	1.32E-01	8.25E-02	7.56E-02	2.94E-02	5.07E-02
Browns Ferry 1,2,& 3	1.05E-01	N/D	1.89E-01	2.83E-01	<1.72E-01	<2.49E-02	<2.73E-03	1.78E-03	<5.88E-03
Brunswick 1&2	2.12E+00	8.89E-01	1.99E+00	6.25E+00	3.49E-01	6.32E-02	4.69E-02	1.82E-01	1.77E-01
Clinton 1								2.58E-04	5.94E-02
Cooper	<1.52E-01	<1.09E-02	<1.55E-01	<2.30E-02	<1.15E-02	<2.29E-02	<1.16E-02	2.67E-02	2.04E-02
Dresden 1	1.46E-02	9.94E-03	3.36E-04	7.56E-04	1.69E-03	9.23E-05	+	+	+
Dresden 2-3	1.10E+01	9.87E+00	9.50E-01	6.32E-01	1.30E-01	1.56E-01	7.11E-02	1.45E-01	2.35E-01
Duane Arnold	8.50E-02	3.25E-02	1.03E-02	1.50E-02	1.53E-02	8.89E-03	7.32E-02	1.37E-01	1.55E-02
Edwin I. Hatch 1	4.29E-01	2.12E-01	1.84E-01	6.96E-02	6.57E-02	3.98E-02	1.50E-02	2.54E-01	**
Edwin I. Hatch 2	1.33E-02	9.42E-03	6.83E-02	1.95E-02	1.15E-02	3.47E-02	1.79E-02	1.16E-01	4.29E-02
Fermi 2							2.68E-07	8.56E-03	2.78E-03
Grand Gulf 1				4.50E-05	1.86E-04	7.53E-04	4.85E-04	4.28E-03	4.90E-04
Hope Creek 1							N/D	N/D	N/D
Humboldt Bay 3	5.11E-04	<3.82E-04	1.09E-04	2.68E-04	2.68E-04	7.62E-05	1.64E-04	6.78E-05	1.49E-04
James A. Fitzpatrick	1.25E-01	2.80E-01	7.71E-01	3.80E-01	2.10E-01	1.67E-01	8.66E-02	1.36E-01	7.00E-02
Lacrosse	1.32E-02	1.69E-02	8.35E-03	1.08E-02	6.90E-03	7.53E-03	5.91E-03	2.31E-03	1.11E-05
Lasalle 1&2			4.16E-03	1.80E-02	2.92E+00	2.32E-02	7.09E-02	4.97E-02	1.34E-02
Limerick 1					N/D	N/D	7.45E-03	1.17E-03	6.67E-03
Millstone 1	3.32E-01	1.48E-01	2.09E-01	6.25E-02	6.24E-02	5.20E-02	4.71E-02	2.50E-02	7.60E-03
Monticello	2.83E-02	3.45E-02	8.85E-02	4.10E-02	2.93E-02	9.95E-02	6.86E-02	1.73E-01	7.90E-02
Nine Mile Point 1	2.55E-02	1.49E-02	2.71E-02	1.07E-02	1.75E-02	3.46E-02	1.75E-02	1.61E-02	1.89E-03
Nine Mile Point 2								5.17E+00	6.90E-04
Oyster Creek 1	1.25E+00	2.24E+00	1.04E+00	1.90E-02	4.37E-01	3.04E+00	7.00E-01	1.04E-01	6.35E-02
Peach Bottom 2&3	2.94E-02	<4.19E-02	3.90E-02	4.60E-02	1.02E-01	6.88E-02	5.20E-02	2.00E-02	1.50E-03
Perry 1							1.13E-06	4.87E-05	4.62E-02
Pilgrim 1	1.04E-01	<6.87E-02	<4.44E-02	<4.69E-02	<5.17E-03	<5.68E-02	<1.24E-02	<8.43E-04	3.70E-04
Quad-Cities 1&2	5.90E-01	1.27E+00	4.12E-01	4.36E-01	8.86E-02	6.06E-01	1.11E-01	9.40E-02	2.46E-02
River Bend 1							4.62E-05	4.03E-04	9.66E-04
Shoreham 1							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
Vermont Yankee 1	1.70E-02	4.53E-03	1.45E-03	4.14E-03	6.87E-03	<5.87E-03	<1.29E-02	1.27E-02	6.58E-03
WNP-2					3.77E-01	2.43E-01	7.00E-02	7.71E-02	4.96E-01
Fort St. Vrain*	1.25E-06	1.40E-06	2.61E-01	7.40E-07	2.78E-06	6.31E-07	N/D	N/D	<1.79E-05

+ Included with Dresden 2-3 total

* High temperature gas cooled reactor

** Included with Edwin I. Hatch 2 total

*** C-14 is not included in this 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	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Arkansas One 1					5.00E-02	7.40E-01	5.73E-02	9.04E-03	3.19E-03	4.47E-03
Arkansas One 2										4.65E-03
Beaver Valley 1&2							<1.00E-02*	1.52E-04	7.21E-02	4.07E-04
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
Catawba 1										
Catawba 2										
Crystal River 3								2.53E-03	1.05E-03	1.88E-02
Davis-Besse 1								2.57E-04	4.30E-04	5.69E-03
Diablo Canyon 1&2										
Donald C. Cook 1&2						<1.00E-02	<1.00E-02	7.45E-02	1.10E-01	7.36E-02
Fort Calhoun 1				<1.00E-02	<1.00E-02	<1.00E-02	<2.04E-02	1.34E-02	8.30E-03	1.58E-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
Haddam Neck	<1.00E-02		2.00E-02	5.00E-02	<1.00E-02	<1.00E-02	<1.00E-02	1.74E-03	5.21E-03	4.77E-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
Indian Point 3							SHOWN W/OTHER UNIT		1.29E-02	3.89E-03
Joseph M. Farley 1									4.11E-02	2.20E-02
Joseph M. Farley 2										
Kewaunee					2.00E-02	6.60E-01	<1.00E-02	2.40E-02	5.48E-03	6.18E-04
Maine Yankee		<1.00E-02	9.40E-01	5.00E-02	<1.00E-02	<1.00E-02	5.05E-03	2.07E-03	5.52E-02	
McGuire 1										
McGuire 2										
Millstone 2						1.00E-02	1.25E-02	4.47E-03	2.97E-03	9.79E-03
Millstone 3										
North Anna 1&2									3.19E-02	5.71E-02
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
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	
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2	<1.00E-02	3.00E-02	5.50E-01	1.60E-01	7.00E-02	1.85E-02	5.02E-03	2.88E-02	1.35E-02	
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	
R. E. Ginna	5.00E-02	1.70E-01	4.00E-02	<1.00E-02	<1.00E-02	2.00E-02	3.17E-02	2.55E-02	1.04E-02	1.88E-02
Rancho Seco 1						<1.00E-02	<1.00E-02	5.02E-03	3.21E-02	5.75E-03
Salem 1							N/D	2.34E-07	4.01E-02	7.68E-03
Salem 2										
San Onofre 1	<1.00E-02	<1.00E-02	<1.00E-02	1.61E+00	<1.00E-02	4.00E-02	<1.00E-02	1.86E-04	2.71E-03	1.43E-04
San Onofre 2-3										
Sequoyah 1&2										
South Texas 1										
St. Lucie 1							<1.00E-02	1.48E-01	5.17E-01	2.02E-01
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	
Three Mile Island 1				<1.00E-02	<1.00E-02	1.07E-02	3.39E-02	1.35E-01	1.24E-02	
Three Mile Island 2								2.30E-03	1.42E+01	
TMI 2/Epicor										
Trojan							1.64E-02	5.05E-02	1.03E-02	3.39E-02
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
Turkey Point 3										
Turkey Point 4										
Vogtle 1										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	<1.00E-02	<1.00E-02	<1.00E-02	1.90E-01	5.30E-01	1.00E-02	<1.00E-02	8.70E-05	2.25E-04	2.49E-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

* I-131 not included
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	1980	1981	1982	1983	1984	1985	1986	1987	1988 *
Arkansas One 1	1.66E-01	5.58E-03	9.07E-04	1.15E-03	1.14E-03	3.50E-03	4.01E-03	3.05E-04	1.03E-03
Arkansas One 2	6.90E-03	1.41E-02	4.92E-03	5.78E-03	2.54E-04	3.27E-03	2.36E-04	5.12E-05	4.21E-04
Beaver Valley 1&2	1.91E-03	6.85E-03	4.56E-03	5.25E-02	6.21E-03	1.58E-03	7.83E-03	1.36E-02	3.54E-03
Braidwood 1								1.34E-05	2.44E-02
Braidwood 2									9.52E-05
Byron 1&2						2.18E-03	5.45E-02	9.45E-03	1.28E-02
Callaway 1					9.41E-07	3.23E-04	1.18E-03	4.46E-04	3.36E-04
Calvert Cliffs 1&2	7.44E-02	4.69E-02	1.84E-01	1.02E-01	6.02E-02	5.36E-02	8.73E-02	9.18E-02	1.36E-01
Catawba 1						5.71E-04	6.69E-03	7.42E-03	4.05E-03
Catawba 2							6.69E-03	7.42E-03	4.05E-03
Crystal River 3	6.77E-03	1.78E-02	3.22E-03	1.58E-03	2.07E-04	7.31E-04	1.02E-03	3.49E-03	1.25E-03
Davis-Besse 1	2.01E-03	5.79E-02	5.28E-03	7.37E-03	1.66E-03	5.13E-04	N/D	1.24E-03	4.76E-04
Diablo Canyon 1&2					1.20E-05	2.40E-04	1.44E-03	2.36E-03	1.29E-03
Donald C. Cook 1&2	6.88E-02	3.55E-01	1.28E-01	5.75E-02	2.09E-02	1.78E-01	2.29E-02	6.44E-02	8.92E-03
Fort Calhoun 1	2.42E-03	3.63E-03	1.59E-03	9.32E-04	1.25E-02	7.29E-03	1.48E-03	5.11E-03	3.10E-04
H. B. Robinson 2	1.13E-03	3.32E-04	5.70E-04	1.31E-02	2.47E-04	1.37E-02	9.92E-03	2.08E-02	1.10E-03
Haddam Neck	8.01E-03	<1.28E-02	<5.41E-04	<1.02E-02	5.72E-02	1.13E-03	9.36E-03	1.35E-03	3.69E-02
Harris 1								4.43E-06	4.59E-05
Indian Point 1-2	6.42E-02	4.42E-02	4.17E-02	2.06E-02	<1.51E-01	5.67E+00	8.36E+00	1.57E-02	9.18E-03
Indian Point 3	2.53E-02	3.63E-03	<4.28E-03	<1.53E-04	2.04E-02	1.90E-03	4.01E-03	2.07E-03	3.42E-03
Joseph M. Farley 1	2.37E-03	6.24E-01	9.09E-02	4.60E-02	5.87E-03	5.60E-03	7.96E-04	3.81E-04	1.60E-03
Joseph M. Farley 2		3.22E-03	6.51E-05	5.06E-05	1.54E-03	2.97E-04	1.35E-03	1.49E-04	2.51E-06
Kewaunee	2.61E-04	1.21E-04	5.97E-05	<2.16E-04	<4.05E-03	2.77E-04	<5.58E-03	<1.23E-02	<1.05E-02
Maine Yankee	1.88E-03	6.13E-04	1.26E-04	7.22E-05	2.44E-02	4.15E-04	2.71E-03	2.50E-03	4.70E-04
McGuire 1		1.21E-11	9.51E-04	1.89E-03	1.25E-02	1.29E-02	3.03E-02	6.08E-02	6.14E-03
McGuire 2				1.89E-03	1.25E-02	1.29E-02	3.03E-02	6.08E-02	6.14E-03
Millstone 2	1.94E-02	1.06E-01	3.19E-01	5.73E-02	3.71E-02	6.48E-03	5.37E-03	6.51E-03	5.13E-02
Millstone 3							<3.69E-04	5.09E-03	9.89E-03
North Anna 1&2	1.26E-02	4.81E-01	3.49E-02	3.28E-01	8.65E-02	8.57E-02	2.27E-02	1.73E-02	2.30E-03
Oconee 1,2,& 3	1.33E-01	3.24E-01	2.55E-01	1.13E-01	1.07E-01	4.92E-03	4.34E-02	1.46E-01	1.63E-01
Palisades	2.76E-02	4.15E-02	2.30E-02	3.44E-02	9.92E-04	4.92E-02	3.03E-03	2.77E-02	2.65E-02
Palo Verde 1						1.43E-03	7.78E-03	5.81E-02	1.82E-03
Palo Verde 2							3.49E-03	1.34E-02	4.67E-02
Palo Verde 3								N/D	1.24E-04
Point Beach 1&2	1.28E-03	2.03E-01	8.46E-03	1.82E-02	1.25E-03	9.05E-03	1.69E-03	3.08E-03	2.23E-03
Prairie Island 1&2	1.83E-03	4.49E-04	3.74E-03	1.40E-02	1.44E-03	7.35E-03	2.22E-03	1.54E-03	7.74E-05
R. E. Ginna	9.00E-03	5.88E-03	1.36E-02	1.53E-02	1.62E-03	9.74E-04	4.04E-04	8.71E-03	5.69E-05
Rancho Seco 1	9.96E-03	4.65E-03	2.62E-02	2.26E-03	2.37E-02	7.84E-03	1.49E-03	1.54E-06	4.74E-04
Salem 1	2.17E-01	4.84E-01	7.85E-03	6.25E-02	5.16E-04	4.45E-02	1.17E-03	1.66E-03	2.13E-03
Salem 2	5.44E-05	6.31E-03	4.54E-03	3.53E-02	5.41E-03	8.95E-02	3.23E-03	1.52E-03	9.91E-04
San Onofre 1	8.41E-01	1.18E-02	4.66E-07	5.44E-06	9.49E-06	1.17E-03	2.09E-04	4.17E-04	1.08E-02
San Onofre 2-3			3.35E-05	1.56E-01	4.12E-01	4.47E-01	1.62E-01	4.20E-01	7.75E-02
Sequoyah 1&2	2.57E-03	1.30E-02	1.23E-01	2.22E-03	2.12E-02	3.17E-03	1.56E-03	5.04E-04	1.90E-04
South Texas 1									8.18E-04
St. Lucie 1	6.20E-02	7.69E-02	4.15E-01	2.13E-01	2.60E-01	7.91E-01	2.69E-01	3.95E-02	6.40E-03
St. Lucie 2				1.27E-02	2.84E-01	1.92E-01	4.20E-02	5.51E-02	2.86E-02
Summer 1			N/D	4.74E-05	9.00E-06	2.55E-05	2.99E-05	7.04E-04	2.33E-03
Surry 1&2	1.85E-02	6.53E-02	5.96E-02	8.34E-02	5.87E-02	2.67E-02	2.09E-02	2.03E-02	2.02E-02
Three Mile Island 1	2.93E-04	5.05E-04	1.65E-04	6.55E-05	1.27E-09	2.86E-05	3.97E-04	1.28E-04	1.26E-03
Three Mile Island 2	5.67E-04	3.69E-05	6.46E-05	2.79E-05	1.61E-05	4.59E-05	1.67E-04	7.27E-05	6.78E-05
TMI 2/Epicor	6.83E-06	2.63E-06	3.71E-06	1.80E-06	7.93E-07	**	**	**	**
Trojan	2.51E-02	7.67E-02	1.45E-02	6.12E-03	9.31E-03	5.49E-03	6.84E-03	2.19E-03	3.13E-03
Turkey Point 3&4	7.05E-02	2.94E-02	2.20E-01	1.44E-01	2.77E-02				
Turkey Point 3						7.98E-03	1.93E-02	1.24E-02	4.83E-03
Turkey Point 4						7.88E-03	2.45E-03	1.38E-02	4.78E-03
Vogtle 1								1.99E-05	1.75E-05
Waterford 3						3.48E-03	5.30E-03	1.02E-03	1.24E-03
Wolf Creek 1						1.67E-06	2.11E-04	2.14E-04	8.36E-05
Yankee Rowe 1	9.56E-05	2.13E-04	<5.75E-04	3.11E-03	<6.49E-03	<7.61E-04	2.02E-04	4.10E-05	5.89E-05
Zion 1&2	3.00E-03	1.25E-02	8.57E-02	2.28E-02	4.27E-02	2.55E-02	4.48E-02	4.07E-03	1.40E-02

* C-14 is not included in this total

** Included with Three Mile Island 2 total

N/D = Not Detectable

Table 5
Liquid Effluents Comparison By Year
Tritium (Curies)

Boiling Water Reactors

Facility	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Big Rock Point 1	5.40E+01	1.03E+01	1.04E+01	1.97E+01	5.10E+00	5.73E+00	2.41E+00	8.83E+00	4.05E+00	5.45E+00
Browns Ferry 1,2,& 3					2.80E+00	1.04E+01	<4.02E+00	2.40E+01	3.08E+01	1.32E+01
Brunswick 1&2						3.20E+00	5.90E+00	8.93E+00	1.41E+01	3.09E+01
Clinton 1										
Cooper					1.70E+00	8.25E+00	8.43E+00	9.04E+00	7.51E+00	6.63E+00
Dresden 1	5.00E+00	8.70E+00	4.33E+01	1.85E+01	1.88E+01	2.70E-01	2.00E-02	8.90E-02	1.31E+01	1.50E+00
Dresden 2-3	3.10E+01	3.85E+01	2.59E+01	2.58E+01	2.26E+01	5.40E+01	1.97E+01	5.00E+00	1.92E+01	1.93E+01
Duane Arnold						3.30E-01	3.40E-01	2.13E-01	1.19E+02	2.90E-01
Edwin I. Hatch 1						6.12E+00	8.98E+00	1.20E+01	9.00E+00	1.23E+01
Edwin I. Hatch 2										
Fermi 2										
Grand Gulf 1										
Hope Creek 1										
Humboldt Bay 3	7.00E+00	7.50E+00	1.30E+01	5.13E+01	3.17E+01	2.01E+01	1.30E+01	5.26E-01	3.63E-02	3.91E-02
James A. Fitzpatrick						5.03E+00	4.20E+00	3.35E+00	1.90E+00	1.52E+00
Lacrosse	2.00E+01	9.14E+01	1.20E+02	1.03E+02	1.15E+02	1.27E+02	4.10E+01	4.86E+01	4.72E+01	3.54E+01
LaSalle 1&2										
Limerick 1										
Millstone 1		1.27E+01	2.09E+01	3.70E+00	2.41E+01	8.03E+01	2.01E+01	4.41E+00	3.20E+00	7.92E+00
Monticello		5.92E-01	<1.00E-01	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Nine Mile Point 1	2.00E+01	1.24E+01	2.78E+01	4.65E+01	1.87E+01	2.81E+01	2.46E+00	2.49E+00	N/D	6.78E+00
Nine Mile Point 2										
Oyster Creek 1	2.20E+01	2.15E+01	6.16E+01	3.59E+01	1.41E+01	1.79E+01	3.86E+01	1.88E+01	1.96E+01	1.40E+00
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
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
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
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
WNP-2										
Fort St. Vrain*										1.23E+02

* High temperature gas cooled reactor

N/D = Not Detectable

Table 5
Liquid Effluents Comparison By Year
Tritium (Curies)

Boiling Water Reactors

Facility	1980	1981	1982	1983	1984	1985	1986	1987	1988
Big Rock Point 1	6.18E+00	3.13E+00	2.98E+00	2.22E+01	1.11E+00	1.27E+00	3.51E-01	5.85E-01	3.47E-01
Browns Ferry 1,2,& 3	2.18E+01	2.42E+01	2.39E+01	3.20E+01	3.18E+01	3.31E+01	7.93E+00	2.03E+00	1.46E+00
Brunswick 1&2	1.28E+01	2.26E+01	4.88E+01	1.04E+02	3.37E+01	9.88E+00	5.78E+00	1.93E+01	3.10E+01
Clinton 1								1.87E+00	2.90E+00
Cooper	8.77E+00	<8.37E+00	<9.08E+00	<7.60E+00	<7.20E+00	<5.05E+00	<5.56E+00	5.02E+00	4.17E+00
Dresden 1	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	**
Dresden 2-3	6.20E+01	6.05E+00	1.36E+00	1.45E-03	3.93E+01	7.45E+00	1.27E+01	2.23E+01	1.72E+01
Duane Arnold	N/D	N/D	2.25E-05	N/D	1.41E-06	3.57E-02	N/D	N/D	N/D
Edwin I. Hatch 1	1.42E+01	1.16E+01	1.03E+02	9.47E+01	8.02E+01	3.93E+01	1.85E+01	2.01E+01	+
Edwin I. Hatch 2	1.07E+01	9.28E+00	3.68E+01	3.40E+01	2.13E+01	1.81E+01	1.01E+01	8.10E+00	4.40E+01
Fermi 2							3.00E-01	1.05E+00	9.33E-01
Grand Gulf 1				3.89E-03	7.27E-01	5.17E+00	1.47E+01	1.83E+01	1.34E+01
Hope Creek 1							6.91E-03	9.53E+00	9.36E+00
Humboldt Bay 3	9.70E-02	<1.62E-01	5.99E-02	5.38E-02	2.93E-02	1.08E+00	6.67E-02	6.98E-04	9.44E-04
James A. Fitzpatrick	2.81E+00	4.11E+00	6.55E-01	2.72E+00	4.77E+00	4.20E+00	4.99E+00	2.48E+00	8.87E+00
Lacrosse	7.20E+01	7.74E+01	5.92E+01	1.24E+02	1.25E+02	1.28E+02	5.75E+01	4.66E+01	4.60E+00
Lasalle 1&2			9.26E-01	4.25E+00	1.10E+00	3.89E-01	1.37E-01	1.10E+00	1.76E+00
Limerick 1					N/D	1.15E+00	2.06E+00	6.02E+00	N/D
Millstone 1	2.73E+01	2.62E+00	6.21E+00	8.38E+00	8.58E+00	1.79E+01	5.33E+00	1.78E+01	3.78E+01
Monticello	N/D	4.17E-03	2.70E-05	N/D	N/D	N/D	N/D	N/D	N/D
Nine Mile Point 1	N/D	5.05E+00	5.82E+00	7.89E+00	N/D	N/D	2.19E+00	N/D	N/D
Nine Mile Point 2								4.63E-01	7.92E+00
Oyster Creek 1	1.54E+02	2.67E+01	4.95E+00	8.76E+00	1.03E+01	N/D	1.07E+00	1.96E+00	1.62E+01
Peach Bottom 2&3	3.73E+01	3.68E+01	2.37E+01	2.02E+01	3.58E+01	5.04E+01	4.46E+01	4.64E+01	9.69E+00
Perry 1							2.67E-03	2.93E+00	6.12E+00
Pilgrim 1	4.00E+01	3.41E+01	5.91E+00	1.56E+01	1.47E+01	7.81E+00	1.00E+01	3.21E+00	5.73E-01
Quad-Cities 1&2	1.03E+01	1.19E+01	7.80E+00	3.88E+00	5.42E+00	3.41E+00	6.43E+00	6.92E+00	7.28E+00
River Bend 1							4.56E+00	6.92E+00	9.65E+00
Shoreham 1							3.80E-03	6.04E-03	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
Vermont Yankee 1	N/D	3.70E-01	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
Fort St. Vrain*	2.06E+02	2.19E+02	2.62E+02	3.69E+02	1.24E+02	1.53E+01	1.27E+02	5.61E+01	1.61E+02

* High temperature gas cooled reactor

** Included with Dresden 2-3 total

+ Included with Edwin I. Hatch 2 total

N/D = Not Detectable

Table 6

Liquid Effluents Comparison By Year

Tritium (Curies)										
Pressurized Water Reactors										
Facility	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Arkansas One 1					2.56E+01	4.60E+02	2.12E+02	2.45E+02	2.94E+02	1.68E+02
Arkansas One 2										5.27E+01
Beaver Valley 1&2							8.60E+00	1.08E+02	3.49E+02	9.59E+01
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1										
Calvert Cliffs 1&2						2.63E+02	2.74E+02	5.75E+02	4.56E+02	5.14E+02
Catawba 1										
Catawba 2										
Crystal River 3								1.66E+02	1.54E+02	1.66E+02
Davis-Besse 1								9.01E+00	2.15E+02	2.45E+02
Diablo Canyon 1&2										
Donald C. Cook 1&2						5.64E+01	1.92E+02	2.86E+02	6.24E+02	1.22E+03
Fort Calhoun 1				1.58E+01	1.24E+02	1.11E+02	1.22E+02	1.57E+02	1.50E+02	2.58E+02
H. B. Robinson 2		1.18E+02	4.05E+02	4.32E+02	4.49E+02	6.24E+02	9.80E+02	6.85E+02	4.73E+02	4.29E+02
Haddam Neck	7.40E+03	5.83E+03	5.89E+03	3.90E+03	2.24E+03	5.67E+03	4.85E+03	6.67E+03	3.94E+03	3.55E+03
Harris 1										
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
Indian Point 3							SHOWN W/OTHER UNIT		2.56E+02	1.15E+02
Joseph M. Farley 1									5.91E+01	9.40E+01
Joseph M. Farley 2										
Kewaunee					9.24E+01	2.77E+02	1.80E+02	2.95E+02	2.96E+02	2.49E+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
McGuire 1										
McGuire 2										
Millstone 2						7.60E+00	2.77E+02	2.11E+02	2.01E+02	2.54E+02
Millstone 3										
North Anna 1&2									2.82E+02	3.13E+02
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
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
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2		2.66E+02	5.63E+02	5.56E+02	8.33E+02	8.85E+02	6.94E+02	9.99E+02	1.29E+03	8.92E+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
R. E. Ginna	1.10E+02	1.54E+02	1.19E+02	2.86E+02	1.95E+02	2.60E+02	2.42E+02	1.19E+02	2.42E+02	2.40E+02
Rancho Seco 1						1.32E+02	N/D	8.55E-02	N/D	N/D
Salem 1							4.00E-02	2.96E+02	4.46E+02	7.26E+02
Salem 2										
San Onofre 1	4.80E+03	4.57E+03	3.48E+03	4.07E+03	3.81E+03	4.00E+03	3.39E+03	1.79E+03	2.50E+03	2.32E+03
San Onofre 2-3										
Sequoyah 1&2										
South Texas 1										
St. Lucie 1							1.33E+01	2.42E+02	1.28E+02	1.28E+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
Three Mile Island 1					1.30E+02	4.63E+02	1.89E+02	1.92E+02	1.55E+02	5.59E+01
Three Mile Island 2									3.83E+01	7.81E+01
TMI 2/Epicor										
Trojan							3.60E+01	3.11E+02	1.59E+02	6.80E+01
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
Turkey Point 3										
Turkey Point 4										
Vogtle 1										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	1.50E+03	1.68E+03	8.03E+02	6.94E+02	3.14E+02	2.47E+02	1.56E+02	1.39E+02	1.96E+02	1.75E+02
Zion 1				1.00E-01	2.74E+02	1.03E+03	7.47E+02	7.24E+02	7.25E+02	6.01E+02
Zion 2										

N/D = Not Detectable

Table 6
Liquid Effluents Comparison By Year

Pressurized Water Reactors		Tritium (Curies)							
Facility	1980	1981	1982	1983	1984	1985	1986	1987	1988
Arkansas One 1	2.12E+02	4.42E+02	2.06E+02	1.09E+02	3.05E+02	3.27E+02	2.12E+02	1.50E+02	2.50E+02
Arkansas One 2	2.89E+02	2.44E+02	1.39E+02	2.38E+02	3.09E+02	2.41E+02	2.30E+02	3.52E+02	2.44E+02
Beaver Valley 1&2	3.98E+01	1.40E+02	1.84E+02	4.60E+02	4.12E+02	1.50E+02	2.06E+02	5.72E+02	4.09E+02
Braidwood 1								4.12E+01	2.74E+02
Braidwood 2									2.44E+02
Byron 1&2						2.61E+02	6.70E+01	4.10E+02	1.01E+03
Callaway 1					2.90E+01	5.88E+02	4.35E+02	4.48E+02	8.93E+02
Calvert Cliffs 1&2	4.91E+02	1.00E+03	4.35E+02	7.56E+02	7.87E+02	4.83E+02	7.35E+02	7.38E+02	6.24E+02
Catawba 1						1.75E+02	1.18E+02	3.64E+02	3.53E+02
Catawba 2							1.18E+02	3.64E+02	3.53E+02
Crystal River 3	1.95E+02	2.71E+02	1.82E+02	1.99E+02	4.20E+02	1.76E+02	1.73E+02	3.56E+02	5.11E+02
Davis-Besse 1	1.08E+02	1.57E+02	5.68E+01	1.14E+02	1.22E+02	6.74E+01	2.09E+01	2.46E+02	3.50E+01
Diablo Canyon 1&2					1.07E+00	4.28E+02	6.98E+02	6.91E+02	4.29E+02
Donald C. Cook 1&2	7.82E+02	9.15E+02	1.23E+03	8.85E+02	1.37E+03	1.14E+03	6.95E+02	1.97E+03	1.10E+03
Fort Calhoun 1	5.44E+01	2.42E+02	3.08E+02	1.53E+02	2.35E+02	1.67E+02	1.84E+02	2.28E+02	2.32E+02
H. B. Robinson 2	1.89E+02	1.86E+02	9.51E+01	2.40E+02	1.34E+01	3.09E+02	3.42E+02	2.74E+02	5.36E+02
Haddam Neck	3.29E+03	5.29E+03	4.05E+03	3.90E+03	3.66E+03	5.76E+03	2.58E+03	3.17E+03	1.18E+03
Harris 1								2.48E+02	4.01E+02
Indian Point 1-2	2.76E+02	2.41E+02	1.72E+02	3.43E+02	2.22E+02	3.51E+02	3.36E+02	5.63E+02	4.39E+02
Indian Point 3	4.27E+02	6.42E+02	1.94E+02	3.19E+01	5.87E+02	3.40E+02	5.67E+02	3.40E+02	5.73E+02
Joseph M. Farley 1	5.70E+02	1.65E+02	3.37E+02	4.12E+02	4.23E+02	6.03E+02	7.14E+02	6.37E+02	5.16E+02
Joseph M. Farley 2		6.34E+02	3.59E+02	3.17E+02	3.56E+02	5.02E+02	6.22E+02	5.05E+02	7.53E+02
Kewaunee	2.33E+02	2.51E+02	3.18E+02	2.92E+02	4.40E+02	3.79E+02	2.94E+02	3.51E+02	3.32E+02
Maine Yankee	2.18E+02	2.16E+02	1.85E+02	2.87E+02	1.72E+02	1.84E+02	3.50E+02	1.18E+02	2.91E+02
McGuire 1		6.25E+00	1.60E+02	1.49E+02	3.23E+02	4.02E+02	4.58E+02	4.92E+02	5.29E+02
McGuire 2				1.49E+02	3.23E+02	4.02E+02	4.58E+02	4.92E+02	5.29E+02
Millstone 2	2.68E+02	3.71E+02	2.91E+02	1.21E+02	3.97E+02	1.66E+02	2.80E+02	2.86E+02	2.59E+02
Millstone 3							5.41E+02	5.90E+02	5.47E+02
North Anna 1&2	4.03E+02	1.28E+03	5.71E+02	1.61E+03	6.20E+02	1.48E+03	1.56E+03	8.36E+02	1.94E+03
Oconee 1,2,& 3	7.12E+02	5.07E+02	3.54E+02	1.28E+03	1.28E+03	1.24E+03	1.34E+03	9.49E+02	7.10E+02
Palisades	7.47E+01	2.78E+02	1.79E+02	2.35E+02	6.95E+01	4.29E+02	6.32E+01	1.19E+02	2.83E+02
Palo Verde 1						N/D	N/D	N/D	N/D
Palo Verde 2							N/D	N/D	N/D
Palo Verde 3							N/D	N/D	N/D
Point Beach 1&2	7.61E+02	6.52E+02	5.03E+02	5.39E+02	2.10E+03	8.05E+02	8.11E+02	7.09E+02	3.57E+02
Prairie Island 1&2	5.43E+02	5.62E+02	6.00E+02	5.20E+02	6.41E+02	6.96E+02	6.70E+02	4.46E+02	4.05E+02
R. E. Ginna	1.60E+02	2.40E+02	3.08E+02	3.50E+02	4.59E+02	5.01E+02	3.57E+02	5.64E+02	3.47E+02
Rancho Seco 1	1.47E+02	8.35E+01	6.46E+01	7.43E+01	2.97E+02	9.00E+01	6.50E+01	1.83E+01	1.01E+02
Salem 1	N/D	4.93E+02	7.22E+02	2.08E+02	3.30E+02	9.23E+02	4.10E+02	3.79E+02	6.33E+02
Salem 2	N/R	8.42E+02	5.25E+02	2.23E+02	3.08E+02	5.77E+02	4.38E+02	6.61E+02	3.68E+02
San Onofre 1	1.03E+03	2.97E+02	5.45E+02	1.57E+01	3.39E+01	2.38E+03	4.53E+02	2.27E+03	1.53E+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
Sequoyah 1&2	3.23E-01	7.65E+01	9.34E+02	7.35E+02	1.82E+03	6.33E+02	2.46E+02	1.19E+02	2.01E+02
South Texas 1									1.99E+02
St. Lucie 1	2.72E+02	3.25E+02	3.21E+02	3.46E+02	2.21E+02	2.86E+02	2.78E+02	3.38E+02	2.75E+02
St. Lucie 2				3.77E+01	2.21E+02	3.64E+02	2.78E+02	3.38E+02	2.75E+02
Summer 1			3.19E-01	2.27E+02	2.25E+02	3.11E+02	3.75E+02	7.36E+02	7.55E+02
Surry 1&2	3.85E+02	5.31E+02	9.10E+02	7.17E+02	8.12E+02	7.50E+02	8.73E+02	8.15E+02	4.94E+02
Three Mile Island 1	3.26E+01	7.11E+00	3.91E+00	3.09E+00	1.72E+00	9.06E+00	1.69E+02	1.97E+02	3.02E+02
Three Mile Island 2	6.10E-04	5.06E-02	7.20E-02	3.75E-04	1.56E-04	2.22E-03	1.60E-03	1.48E-03	5.49E-03
TMI 2/Epicor	N/D	N/D	N/D	N/D	N/D	**	**	**	**
Trojan	1.24E+02	1.03E+02	2.00E+02	2.34E+02	1.87E+02	2.65E+02	2.43E+02	1.75E+02	3.75E+02
Turkey Point 3&4	7.49E+02	1.95E+02	6.27E+02	7.12E+02	8.91E+02				
Turkey Point 3						4.33E+02	3.64E+02	2.69E+02	2.99E+02
Turkey Point 4						4.33E+02	3.64E+02	2.69E+02	2.99E+02
Vogtle 1								3.21E+02	3.90E+02
Waterford 3						2.54E+01	4.31E+02	5.25E+02	5.03E+02
Wolf Creek 1						1.83E+02	3.77E+02	3.17E+02	4.06E+02
Yankee Rowe 1	5.84E+01	1.03E+02	1.86E+02	1.68E+02	1.64E+02	2.28E+02	1.76E+02	2.19E+02	1.96E+02
Zion 1	7.45E+02	6.04E+02	6.76E+02	1.74E+02	1.74E+02	1.35E+02	2.67E+02	2.16E+02	4.11E+02
Zion 2		2.66E+02	3.77E+02	2.56E+02	5.11E+02	5.21E+02	4.46E+02	4.40E+02	5.58E+02

** Included with Three Mile Island 2 total

N/R = Not Reported

N/D = Not Detectable

Table 7

Liquid Effluents Comparison By Year

Mixed Fission and Activation Products (Curies)

Boiling Water Reactors

Facility	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Big Rock Point 1	4.70E+00	3.50E+00	1.10E+00	2.70E+00	1.10E+00	2.02E+00	7.70E-01	3.92E-01	2.74E-01	9.03E-01
Browns Ferry 1,2,& 3					8.00E-01	2.70E+00	<3.95E+00	1.19E+00	1.32E+01	1.02E+01
Brunswick 1&2						1.89E+00	3.29E+00	6.22E+00	3.48E+00	5.10E+00
Clinton 1										
Cooper					1.40E+00	1.74E+00	7.00E-02	7.50E-01	3.05E+00	<2.48E+00
Dresden 1	8.20E+00	6.20E+00	6.80E+00	9.20E+00	6.90E+00	8.40E-01	3.60E-01	6.00E-01	3.26E-01	2.65E-02
Dresden 2-3		2.30E+01	2.20E+01	2.59E+01	3.31E+01	8.10E-01	1.21E+00	4.40E-01	3.99E-01	2.65E-01
Duane Arnold						<1.00E-02	<1.00E-02	2.32E-03	2.73E-01	5.10E-04
Edwin I. Hatch 1						6.00E-02	4.00E-02	2.50E+01	4.03E-02	4.82E-02
Edwin I. Hatch 2										
Fermi 2										
Grand Gulf 1										
Hope Creek 1										
Humboldt Bay 3	2.40E+00	1.80E+00	1.40E+00	2.40E+00	4.40E+00	3.79E+00	9.90E-01	9.17E-01	1.95E-01	9.55E-02
James A. Fitzpatrick						5.32E+00	6.01E+00	8.85E-01	1.58E+00	6.46E-01
Lacrosse	6.40E+00	1.71E+01	4.85E+01	3.59E+01	1.31E+01	1.42E+01	<5.78E+00	2.13E+01	8.80E+00	1.67E+00
Lasalle 1&2										
Limerick 1										
Millstone 1		1.97E+01	5.15E+01	3.34E+01	1.98E+02	1.99E+02	9.65E+00	5.27E-01	1.75E-01	2.10E-01
Monticello		<1.00E-01	<1.00E-01	N/D	N/D	N/D	N/D	N/D	N/D	N/D
Nine Mile Point 1	2.80E+01	3.22E+01	3.46E+01	4.08E+01	2.56E+01	2.10E+01	2.14E+00	3.03E-01	N/D	1.89E+00
Nine Mile Point 2										
Oyster Creek 1	1.85E+01	1.20E+01	1.00E+01	4.20E+00	7.00E-01	4.10E-01	2.20E-01	9.81E-02	1.53E-02	6.59E-03
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
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
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
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
WNP-2										

Fort St. Vrain*

1.89E-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	1980	1981	1982	1983	1984	1985	1986	1987	1988
Big Rock Point 1	7.82E-01	3.91E-01	2.60E-01	7.82E-02	1.48E-01	1.53E-01	7.09E-02	2.73E-01	2.18E-01
Browns Ferry 1,2,& 3	9.38E+00	2.24E+00	5.36E+01	1.28E+01	6.30E+00	1.34E+00	5.39E-01	3.25E-01	2.42E-01
Brunswick 1&2	1.26E+00	2.20E+00	2.32E+00	1.08E+00	5.65E-01	1.15E-01	1.26E-01	7.15E-01	8.32E-01
Clinton 1								1.54E-02	1.10E-01
Cooper	<1.10E+01	<3.61E+00	<5.44E+00	<1.23E+01	<6.30E+00	<1.30E+01	<7.40E+00	2.25E+00	2.33E+00
Dresden 1	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	+
Dresden 2-3	7.16E-01	6.12E-02	1.91E-02	1.24E-02	1.15E-01	2.03E+00	2.14E-01	3.78E-01	1.16E-01
Duane Arnold	N/D	N/D	4.16E-06	N/D	1.90E-09	8.24E-04	N/D	N/D	N/D
Edwin I. Hatch 1	6.83E-02	3.73E-01	7.00E-01	9.09E-01	1.05E+00	4.80E-01	4.88E-01	6.85E-01	**
Edwin I. Hatch 2	4.57E-02	1.63E-01	1.83E-01	3.29E-01	2.67E-01	2.63E-01	3.02E-01	1.30E-01	9.83E-01
Fermi 2							3.67E-03	2.10E-02	7.41E-02
Grand Gulf 1				4.42E-03	3.16E-02	2.13E-01	3.01E-01	3.64E-01	3.96E-01
Hope Creek 1							7.56E-01	1.62E+00	7.24E-01
Humboldt Bay 3	1.39E-01	1.55E-01	3.46E-01	9.89E-02	1.64E-01	1.25E-01	4.69E-02	1.19E-02	7.60E-03
James A. Fitzpatrick	1.51E+00	2.51E+00	6.50E-01	7.71E-01	9.79E-02	1.80E-01	1.92E-02	7.84E-02	4.86E-02
Lacrosse	2.13E+00	2.26E-01	5.83E+00	3.75E+00	3.26E+00	1.83E+00	5.00E+00	1.16E+00	4.47E-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
Limerick 1					6.45E-04	2.18E-02	5.74E-03	7.45E-02	N/D
Millstone 1	7.24E-01	3.94E-01	1.15E+00	8.08E-01	3.78E-02	4.66E-01	7.73E-01	1.14E+00	1.08E+00
Monticello	N/D	3.11E-06	5.80E-07	N/D	N/D	N/D	N/D	N/D	N/D
Nine Mile Point 1	N/D	5.35E+00	2.51E-03	1.11E-02	N/D	N/D	<6.70E-04	N/D	N/D
Nine Mile Point 2								1.30E+00	3.08E+00
Oyster Creek 1	5.06E-01	2.48E-01	8.10E-02	3.63E-03	6.84E-03	N/D	N/D	6.63E-03	2.68E-02
Peach Bottom 2&3	1.90E+00	1.97E+00	9.33E+00	2.24E+00	6.15E+00	2.16E+00	4.59E-01	3.31E-01	2.02E-01
Perry 1							3.67E-03	1.24E-02	2.08E-01
Pilgrim 1	2.73E+00	1.94E+00	8.72E-01	9.35E-01	4.75E+00	1.06E+00	<2.11E-01	<1.47E+00	3.56E-02
Quad-Cities 1&2	1.31E+01	3.27E+00	4.03E-01	1.37E-01	7.23E-02	1.46E+00	2.36E-01	7.10E-02	5.60E-02
River Bend 1							1.06E-01	7.96E-02	5.58E-01
Shoreham 1							7.17E-03	3.41E-03	1.98E-05
Susquehanna 1&2			<1.99E-01	2.49E+00	1.45E-01	6.35E-01	7.92E-01	3.12E-01	9.48E-02
Vermont Yankee 1	N/D	1.02E-02	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
Fort St. Vrain*	6.37E-05	3.64E-04	4.34E-04	1.73E-02	1.27E-03	1.84E-03	2.30E-05	1.18E-06	1.69E-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	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Arkansas One 1					6.50E+00	3.11E+00	1.31E+01	4.50E+00	6.05E+00	3.09E+00
Arkansas One 2										1.30E+00
Beaver Valley 1&2							1.70E-01	6.52E-01	2.63E-01	1.21E-01
Braidwood 1										
Braidwood 2										
Byron 1&2										
Callaway 1										
Calvert Cliffs 1&2					1.44E+00	1.18E+00	3.48E+00	6.13E+00	7.90E+00	
Catawba 1										
Catawba 2										
Crystal River 3								1.54E-02	2.96E-02	4.16E-01
Davis-Besse 1								2.60E-02	9.01E-02	4.28E-02
Diablo Canyon 1&2										
Donald C. Cook 1&2						2.60E-01	1.87E+00	1.52E+00	1.48E+00	2.58E+00
Fort Calhoun 1				<1.00E-01	2.30E+00	3.60E-01	5.50E-01	3.63E-01	5.95E-01	2.45E-01
H. B. Robinson 2		7.00E-01	8.00E-01	6.00E-01	2.50E+00	4.50E-01	3.80E-01	3.29E-01	1.78E-01	2.99E-01
Haddam Neck	6.70E+00	5.90E+00	4.80E+00	3.00E+00	2.20E+00	1.20E+00	1.30E-01	1.71E+00	9.50E-01	8.67E-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
Indian Point 3							SHOWN W/OTHER UNIT		1.03E+00	4.02E-01
Joseph M. Farley 1									1.03E-01	5.86E-02
Joseph M. Farley 2										
Kewaunee					4.00E-01	7.20E-01	2.83E+00	1.26E+00	6.99E-01	8.94E-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
McGuire 1										
McGuire 2										
Millstone 2						2.00E-02	2.60E-01	1.56E+00	2.79E+00	4.87E+00
Millstone 3										
North Anna 1&2									2.68E-01	5.89E-01
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
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
Palo Verde 1										
Palo Verde 2										
Palo Verde 3										
Point Beach 1&2		1.00E-01	1.50E+00	8.00E-01	2.00E-01	2.34E+00	3.24E+00	1.50E+00	6.86E-01	7.25E-01
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
R. E. Ginna	1.00E+01	9.00E-01	3.00E-01	1.00E-01	1.00E-01	4.20E-01	6.90E-01	6.47E-02	6.07E-02	8.63E-02
Rancho Seco 1						<1.00E-02	N/D	N/D	N/D	N/D
Salem 1							<1.00E-02	2.88E+00	4.02E+00	3.98E+00
Salem 2										
San Onofre 1	7.60E+00	1.50E+00	3.03E+01	1.60E+01	5.00E+00	1.22E+00	7.43E+00	9.84E+00	1.18E+01	1.10E+01
San Onofre 2-3										
Sequoyah 1&2										
South Texas 1										
St. Lucie 1							8.00E-02	5.80E+00	2.80E+00	2.67E+00
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
Three Mile Island 1					1.30E+00	7.00E-02	1.00E-01	1.94E-01	6.14E-01	4.91E-01
Three Mile Island 2									3.92E-01	3.31E-01
TMI 2/Epicor										
Trojan							2.77E+00	4.19E+00	7.07E-01	5.55E-01
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
Turkey Point 3										
Turkey Point 4										
Vogtle 1										
Waterford 3										
Wolf Creek 1										
Yankee Rowe 1	<1.00E-01	<1.00E-01	<1.00E-01	<1.00E-01	<1.00E-01	2.00E-02	<1.00E-02	1.80E-02	8.14E-02	1.17E-02
Zion 1				<1.00E-01	<1.00E-01	<1.00E-02	1.60E-01	9.50E-01	9.51E-01	7.00E-01
Zion 2										

N/D = Not Detectable

Table 8

Liquid Effluents Comparison By Year

Pressurized Water Reactors		Mixed Fission and Activation Products (Curies)							
Facility	1980	1981	1982	1983	1984	1985	1986	1987	1988
Arkansas One 1	3.42E+00	7.50E+00	5.80E+00	4.30E+00	4.10E+00	3.53E+00	5.09E+00	2.45E+00	3.73E+00
Arkansas One 2	4.13E+00	2.95E+00	5.90E+00	3.70E+00	2.48E+00	4.36E+00	3.43E+00	1.85E+00	4.46E+00
Beaver Valley 1&2	1.04E-01	1.44E-01	1.47E-01	6.09E-02	2.03E-01	1.13E-01	1.19E-01	6.69E-01	1.02E-01
Braidwood 1								5.00E-02	8.57E+00
Braidwood 2									3.04E+00
Byron 1&2						1.63E+01	4.05E+00	2.48E+00	1.40E+00
Callaway 1					1.07E-03	4.97E-03	3.83E-02	4.92E-01	7.74E-02
Calvert Cliffs 1&2	4.53E+00	2.68E+00	5.26E+00	2.24E+00	1.64E+00	2.38E+00	1.79E+00	5.19E+00	2.64E+00
Catawba 1						1.26E+00	3.82E-01	6.53E-01	5.42E-01
Catawba 2							3.82E-01	6.53E-01	5.42E-01
Crystal River 3	1.46E-01	1.29E-01	1.07E-01	1.50E-01	2.34E-01	1.51E+00	8.12E-01	9.55E-01	2.31E-01
Davis-Besse 1	2.07E-01	7.92E-01	2.19E-01	5.39E-01	1.89E-01	1.85E-01	6.15E-02	6.51E-02	1.68E-01
Diablo Canyon 1&2					1.16E-02	3.20E+00	1.11E+01	2.86E+00	2.00E+00
Donald C. Cook 1&2	1.37E+00	1.86E+00	1.90E+00	6.83E-01	1.19E+00	2.26E+00	3.34E-01	2.00E+00	4.44E-01
Fort Calhoun 1	5.33E-01	1.75E-01	2.03E-01	1.44E-01	2.91E+00	2.88E-01	8.37E-02	2.03E-01	3.08E-01
H. B. Robinson 2	3.58E-01	1.84E+00	1.20E+00	8.23E-01	3.90E-01	9.41E-02	2.61E-01	7.36E-01	9.64E-01
Haddam Neck	2.76E-01	7.12E-01	6.93E-02	4.80E-01	2.63E-01	8.44E-02	3.10E-01	4.26E-01	6.87E-01
Harris 1								9.08E-01	8.04E-02
Indian Point 1-2	1.26E+00	5.67E+00	2.41E+00	4.02E+00	2.67E+00	1.85E+00	3.61E+00	6.02E+00	2.84E+00
Indian Point 3	2.90E+00	2.62E+00	5.46E-01	5.44E-01	1.26E+00	4.18E-01	1.95E-01	3.47E-01	3.22E-01
Joseph M. Farley 1	6.18E-02	1.31E-01	5.94E-02	5.75E+02	6.34E-02	6.72E-02	1.02E-01	5.09E-02	7.97E-02
Joseph M. Farley 2		2.69E-02	2.90E-02	2.04E-02	8.63E-02	3.77E-02	8.28E-02	4.63E-02	8.53E-02
Kewaunee	6.17E-01	8.15E-01	1.52E+00	5.43E-01	1.01E+00	1.35E+00	5.33E-01	1.29E+00	5.01E-01
Maine Yankee	2.97E-01	4.36E-01	7.03E-01	1.99E-01	8.62E-02	3.11E-02	2.99E-01	8.81E-01	3.49E-01
McGuire 1		3.94E-01	1.75E+00	1.87E+00	1.51E+00	6.21E-01	7.73E-01	1.57E+00	2.57E+00
McGuire 2				1.87E+00	1.51E+00	6.21E-01	7.73E-01	1.57E+00	2.57E+00
Millstone 2	2.81E+00	4.18E+00	1.39E+01	7.81E+00	3.55E+00	4.60E+00	4.49E+00	4.07E+00	8.89E+00
Millstone 3							3.01E+00	5.40E+00	3.15E+00
North Anna 1&2	1.05E+00	6.76E-01	1.32E+00	5.88E+00	4.51E+00	5.07E+00	9.41E-01	1.33E+00	4.32E-01
Oconee 1,2,& 3	1.54E+00	1.75E+00	1.04E+00	1.43E+00	1.58E+00	4.16E+00	3.02E+00	2.90E+00	3.10E+00
Palisades	8.73E-03	3.31E-02	1.27E-01	7.48E-02	3.68E-02	5.83E-02	1.40E-01	9.23E-02	3.43E-02
Palo Verde 1						N/D	N/D	N/D	N/D
Palo Verde 2							N/D	N/D	N/D
Palo Verde 3								N/D	N/D
Point Beach 1&2	6.29E-01	1.01E+00	2.95E+00	1.27E+00	1.22E+01	1.90E+00	1.60E+01	7.55E-01	9.58E-02
Prairie Island 1&2	1.32E-02	9.12E-03	2.23E-03	3.16E-02	1.91E-02	2.75E-02	6.01E-01	7.12E-02	2.55E-01
R. E. Ginna	1.96E-02	3.85E-02	6.17E-01	1.93E-01	1.69E-01	5.22E-01	6.47E-02	5.88E-02	3.43E-02
Rancho Seco 1	3.78E-03	5.92E-01	2.16E-01	2.81E-01	6.33E-01	7.39E-03	1.45E-03	5.78E-04	6.17E-03
Salem 1	2.65E+00	2.80E+00	3.22E+00	2.97E+00	3.31E+00	2.88E+00	4.35E+00	3.33E+00	3.15E+00
Salem 2	3.89E-01	1.51E+00	3.21E+00	2.85E+00	2.75E+00	2.80E+00	6.11E+00	4.07E+00	3.11E+00
San Onofre 1	1.12E+01	<5.53E+00	2.15E+00	1.22E+00	2.74E+00	7.79E+00	8.51E-01	8.42E-01	7.11E-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
Sequoyah 1&2	N/R	2.76E+00	9.82E+00	4.61E+00	3.23E+00	1.45E+00	1.65E-01	4.66E-01	4.48E-01
South Texas 1									2.24E-01
St. Lucie 1	2.36E+00	2.46E+00	3.07E+00	2.99E+00	1.93E+00	2.72E+00	2.53E+00	5.95E-01	2.64E-01
St. Lucie 2				4.37E-01	1.93E+00	2.75E+00	2.43E+00	5.42E-01	2.59E-01
Summer 1			1.24E-04	1.47E+00	4.54E+00	7.09E-01	3.26E-01	4.88E-01	7.55E-01
Surry 1&2	3.85E+00	6.11E+00	6.68E+00	1.45E+01	9.73E+00	8.55E+00	8.77E+00	5.17E+00	2.41E+00
Three Mile Island 1	1.83E-01	8.69E-02	5.29E-02	8.12E-02	3.41E-02	6.30E-03	1.41E-02	4.41E-02	4.68E-02
Three Mile Island 2	1.45E-05	2.22E-05	4.25E-05	9.03E-05	6.46E-04	1.77E-04	1.87E-04	1.16E-04	1.12E-03
TMI 2/Epicor	N/D	N/D	N/D	N/D	N/D	**	**	**	**
Trojan	7.87E-01	9.94E-01	8.56E-01	3.10E-01	3.49E-01	4.65E-01	2.64E-01	2.09E-01	2.01E-01
Turkey Point 3&4	6.78E-01	3.03E-01	1.68E+00	1.13E+00	2.27E-01				
Turkey Point 3						4.48E-01	2.53E-01	3.74E-01	3.27E-01
Turkey Point 4						4.48E-01	2.53E-01	3.74E-01	3.26E-01
Vogtle 1								5.77E-01	1.66E+00
Waterford 3						2.88E-01	4.02E+00	1.28E+00	1.41E+00
Wolf Creek 1						6.35E-01	2.26E+00	2.90E-01	3.79E-01
Yankee Rowe 1	1.75E-02	1.43E-02	9.53E-03	1.30E-02	3.06E-02	1.69E-02	1.36E-02	1.56E-02	7.10E-02
Zion 1	4.74E-01	1.61E+00	7.22E-01	1.50E+00	6.82E+00	3.24E-01	5.57E-01	7.53E-01	1.61E+00
Zion 2		1.05E+00	1.65E+00	1.15E+00	7.06E+00	2.05E+00	1.04E+00	8.20E-01	1.97E+00

** Included with Three Mile Island 2 total

N/D = Not Detectable

N/R = Not Reported

Table 9

Solid Waste Summary 1988

Boiling Water Reactors

Facility	Volume (Cubic Meters)	Activity (Curies)	No. Of Shipments
Big Rock Point 1	4.44E+01	7.28E+02	6
Browns Ferry 1,2,&3	7.81E+02	5.72E+02	71
Brunswick 1&2	6.89E+02	1.25E+05	109
Clinton 1	2.87E+02	6.14E+01	24
Cooper	3.09E+02	1.47E+02	39
Dresden 1,2,&3	2.35E+03	1.54E+03	138
Duane Arnold	2.12E+02	4.06E+02	23
Edwin I. Hatch 1&2	8.36E+02	2.02E+03	85
Fermi 2	2.38E+02	2.81E+02	27
Grand Gulf 1	4.99E+02	7.15E+02	63
Hope Creek 1	2.91E+02	3.23E+03	36
Humboldt Bay 3	3.99E+01	9.91E-02	1
James A. Fitzpatrick	3.81E+02	1.32E+04	37
Lacrosse	6.52E+00	7.03E+01	1
Lasalle 1&2	9.25E+02	3.38E+03	125
Limerick 1	8.95E+02	9.70E+02	62
Millstone 1	2.79E+02	9.54E+04	55
Monticello	1.48E+02	2.93E+02	13
Nine Mile Point 1	2.72E+02	3.07E+02	68
Nine Mile Point 2	3.78E+02	3.88E+02	46
Oyster Creek 1	1.81E+02	6.29E+03	45
Peach Bottom 2&3	8.38E+02	1.19E+03	162
Perry 1	4.95E+02	5.59E+02	42
Pilgrim 1	2.72E+02	2.19E+02	31
Quad-Cities 1&2	9.25E+02	6.26E+02	78
River Bend 1	3.06E+02	3.50E+02	45
Shoreham 1	6.26E+01	1.86E-02	3
Susquehanna 1&2	1.33E+03	2.65E+03	217
Vermont Yankee 1	1.73E+02	4.25E+02	20
WNP-2	4.70E+02	1.01E+03	46
Fort St. Vrain*	7.00E+00	3.10E-01	1

* High temperature gas cooled reactor

Table 10
Solid Waste Summary 1988

Pressurized Water Reactors

Facility	Volume (Cubic Meters)	Activity (Curies)	No. Of Shipments
Arkansas One 1&2	1.97E+02	8.22E+02	30
Beaver Valley 1&2	2.33E+02	4.29E+02	21
Braidwood 1&2	8.32E+01	3.51E+00	10
Byron 1&2	3.09E+02	5.09E+02	39
Callaway 1	9.34E+01	9.46E+02	11
Calvert Cliffs 1&2	5.25E+01	1.12E+03	13
Catawba 1&2	2.56E+02	7.05E+02	15
Crystal River 3	2.26E+02	1.07E+03	18
Davis-Besse 1	1.72E+02	1.76E+02	11
Diablo Canyon 1&2	2.10E+02	3.82E+02	21
Donald C. Cook 1&2	2.46E+02	5.58E+02	48
Fort Calhoun 1	4.87E+01	1.75E+01	4
H.B.Robinson 2	8.42E+01	3.76E+02	38
Haddam Neck	1.31E+02	3.37E+02	13
Harris 1	1.50E+02	1.05E+01	31
Indian Point 1-2	2.41E+02	4.67E+02	20
Indian Point 3	1.82E+02	3.57E+02	12
Joseph M. Farley 1&2	4.96E+02	1.47E+03	44
Kewaunee	7.49E+01	4.83E+02	6
Maine Yankee	1.37E+02	4.36E+02	40
McGuire 1&2	5.16E+02	6.49E+02	32
Millstone 2	1.59E+02	5.06E+01	15
Millstone 3	1.63E+02	5.34E+02	16
North Anna 1&2	2.95E+02	7.71E+02	23
Oconee 1,2,&3	7.23E+02	1.42E+04	51
Palisades	1.87E+02	1.38E+03	19
Palo Verde 1,2,&3	7.78E+02	7.78E+02	74
Point Beach 1&2	1.95E+02	6.61E+02	23
Prairie Island 1&2	5.68E+01	1.38E+02	12
R.E.Ginna	1.67E+02	3.80E+02	13
Rancho Seco 1	3.46E+02	6.25E+01	30
Salem 1&2	3.59E+02	3.80E+02	18
*San Onofre	4.24E-01	1.63E-01	24
San Onofre 1	3.08E+01	4.06E+00	0
San Onofre 2-3	2.60E+02	2.55E+03	0
Sequoyah 1&2	6.07E+02	2.92E+02	34
South Texas 1	0.00E+00	0.00E+00	0
St. Lucie 1&2	4.67E+02	1.29E+04	97
Summer 1	1.61E+02	1.22E+02	51
Surry 1&2	7.30E+02	1.94E+02	37
Three Mile Island 1	2.37E+02	6.92E+02	25
Three Mile Island 2	9.17E+02	7.18E+03	121
Trojan	2.48E+02	4.33E+02	13
Turkey Point 3&4	1.07E+02	7.05E+02	22
Vogtle 1	4.72E+01	2.55E+01	7
Waterford 3	2.81E+02	4.43E+03	16
Wolf Creek 1	1.24E+02	1.27E+03	8
Yankee Rowe 1	1.22E+02	8.85E+03	8
Zion 1&2	3.59E+02	2.50E+03	41

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

Table 11

Solid Waste Comparison By Year

Boiling Water Reactors		Volume (Cubic Meters) - Activity (Curies)							
Facility	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	1.16E+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	
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	
Fermi 2									
Grand Gulf 1									
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	
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	
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									
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									
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	5.50E+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+03+	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	
Edwin I. Hatch	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	**	**	**	**	
Fermi 2									
Grand Gulf 1					3.12E+02	7.21E+00	4.31E+02	9.09E+00	
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	
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	
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							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	
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

Boiling Water Reactors

Volume (Cubic Meters) - Activity (Curies)

Facility	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	9.22E+02	1.84E+03	8.43E+02	4.48E+04	6.89E+02	1.25E+05
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
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	**	**	**	**	**	**	**	**
Fermi 2			1.48E+02	2.12E+01	2.36E+02	9.37E+01	2.38E+02	2.81E+02
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
Hope Creek 1			8.45E+01	5.14E+00	4.21E+02	3.63E+02	2.91E+02	3.23E+03
Humboldt Bay 3	8.31E+02	2.60E+02	5.99E+02	3.50E+02	0.00E+00	0.00E+00	3.99E+01	9.91E-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
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	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	2.16E+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
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 12

Solid Waste Comparison By Year

Pressurized Water
Reactors

Volume (Cubic Meters) - Activity (Curies)

Facility	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	2.84E+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								
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								
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
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
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
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 W/OTHER UNIT		5.94E+02	6.49E+01	2.25E+02	1.63E+02	3.47E+02	2.02E+02
Joseph M. Farley 1&2			2.69E+02	5.72E+00	1.11E+03	2.32E+02	4.41E+02	2.26E+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	6.43E+02	2.46E+02	1.85E+02	1.53E+02	1.99E+01	8.83E+01	5.25E+02	1.98E+02
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
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
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								
Sequoyah 1&2							N/R	N/R
South Texas 1								
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 W/OTHER UNIT		SHOWN W/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								
Waterford 3								
Wolf Creek 1								
Yankee Rowe 1	2.81E+02	3.54E+00	2.60E+02	9.75E+00	2.36E+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

N/R = Not Reported

Table 12

Solid Waste Comparison By Year

Pressurized Water
Reactors

Volume (Cubic Meters) - Activity (Curies)

Facility	1981		1982		1983		1984	
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								
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
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
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
H. B. Robinson 2	9.02E+02	1.88E+01	1.38E+03	6.38E+01	1.09E+03	4.62E+01	3.05E+02	1.95E+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
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
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
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
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
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
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								
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								
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

N/R = Not Reported

Table 12

Solid Waste Comparison By Year

Pressurized Water
Reactors

Volume (Cubic Meters) - Activity (Curies)

Facility	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	2.20E+02	3.12E+02	9.34E+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
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
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
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
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
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
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
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
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
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
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
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							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					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

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

** Included with Three Mile Island 2 totals

Table 13

Net Electrical Energy Generation Comparison By Year

Boiling Water Reactors

Megawatt Hours

Facility	Initial Criticality	Commercial Operation	1978	1979	1980	1981	1982	1983
Big Rock Point 1	08/27/62	03/29/63	4.01E+05	1.14E+05	4.05E+05	4.70E+05	3.60E+05	3.49E+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
Browns Ferry 2	07/20/74	03/01/75			5.62E+06	7.47E+06	4.45E+06	6.39E+06
Browns Ferry 3	08/08/76	03/01/77			6.94E+06	6.26E+06	4.89E+06	5.39E+06
Brunswick 1	10/08/76	03/18/77	9.91E+06	6.82E+06	3.84E+06	2.56E+06	2.92E+06	1.39E+06
Brunswick 2	03/20/75	11/03/75			1.86E+05	3.28E+06	1.91E+06	3.94E+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
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
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
Dresden 3	01/31/71	11/16/71			4.33E+06	5.18E+06	3.89E+06	4.15E+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
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
Edwin I. Hatch 2	07/04/78	09/05/79			3.64E+06	4.48E+06	3.73E+06	3.81E+06
Fermi 2	06/21/85	01/23/86						
Grand Gulf 1	08/18/82	07/01/85						0.00E+00
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
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
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
Lasalle 1	06/21/82	01/01/84					4.61E+05	1.64E+06
Lasalle 2	03/10/84	10/19/84						
Limerick 1	12/22/84	02/01/86						
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
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
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
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
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
Peach Bottom 3	08/07/74	12/23/74			7.23E+06	3.13E+06	8.53E+06	2.42E+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+06	3.44E+06	3.29E+06	4.71E+06
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
Quad-Cities 2	04/26/72	03/10/73			3.61E+06	3.77E+06	5.06E+06	3.15E+06
River Bend 1	10/31/85	06/16/86						
Shoreham 1	02/07/85							
Susquehanna 1	09/10/82	06/08/83					3.21E+05	3.54E+06
Susquehanna 2	05/08/84	02/12/85						
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
WNP-2	01/19/84	12/13/84						
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

* High temperature gas cooled reactor

Table 13

Net Electrical Energy Generation Comparison By Year

Boiling Water Reactors

Megawatt Hours

Facility	Initial Criticality	Commercial Operation	1984	1985	1986	1987	1988
Big Rock Point 1	09/27/62	03/29/63	4.18E+05	3.62E+05	5.06E+05	3.75E+05	3.84E+05
Browns Ferry 1	08/17/73	08/01/74	7.85E+06	1.54E+06	0.00E+00	0.00E+00	0.00E+00
Browns Ferry 2	07/20/74	03/01/75	4.04E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Browns Ferry 3	08/08/76	03/01/77	2.91E+05	1.47E+06	0.00E+00	0.00E+00	0.00E+00
Brunswick 1	10/08/76	03/18/77	5.03E+06	1.91E+06	5.97E+06	4.05E+06	4.45E+06
Brunswick 2	03/20/75	11/03/75	1.39E+06	5.02E+06	2.91E+06	5.69E+06	3.92E+06
Clinton 1	02/27/87	11/24/87				6.84E+05	5.86E+06
Cooper	02/21/74	07/01/74	3.47E+06	1.07E+06	4.05E+06	5.52E+06	4.20E+06
Dresden 1	10/15/59	07/04/60	4.46E+06	0.00E+00	0.00E+00	0.00E+00	
Dresden 2	01/07/70	06/09/70	2.11E+06	3.09E+06	4.65E+06	3.34E+06	4.32E+06
Dresden 3	01/31/71	11/16/71	2.11E+06	4.39E+06	1.46E+06	4.40E+06	4.16E+06
Duane Arnold	03/23/74	02/01/75	2.72E+06	1.94E+06	3.01E+06	2.54E+06	3.14E+06
Edwin I. Hatch 1	09/12/74	12/31/75	3.60E+06	4.76E+06	3.65E+06	5.08E+06	4.11E+06
Edwin I. Hatch 2	07/04/78	09/05/79	1.88E+06	5.38E+06	3.62E+06	5.76E+06	4.25E+06
Fermi 2	06/21/85	01/23/86			0.00E+00	1.39E+06	4.06E+06
Grand Gulf 1	08/18/82	07/01/85	1.65E+05	2.65E+06	4.10E+06	7.73E+06	9.59E+06
Hope Creek 1	06/28/86	12/20/86			1.03E+06	7.28E+06	6.99E+06
Humboldt Bay 3	02/16/63	08/ /63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
James A. Fitzpatrick	11/17/74	07/28/75	4.90E+06	4.17E+06	6.02E+06	4.20E+06	4.36E+06
Lacrosse	07/11/67	11/01/69	3.19E+05	3.23E+05	1.57E+05		
Lasalle 1	06/21/82	01/01/84	5.21E+06	4.81E+06	2.02E+06	4.08E+06	5.44E+06
Lasalle 2	03/10/84	10/19/84	1.39E+06	3.43E+06	5.72E+06	4.54E+06	5.66E+06
Limerick 1	12/22/84	02/01/86	0.00E+00	1.14E+06	6.85E+06	5.32E+06	6.67E+06
Millstone 1	10/26/70	03/01/71	4.32E+06	4.59E+06	5.25E+06	4.38E+06	5.54E+06
Monticello	12/10/70	06/30/71	2.63E+05	4.29E+06	3.38E+06	3.53E+06	4.57E+06
Nine Mile Point 1	09/05/69	12/01/69	3.64E+06	4.93E+06	3.15E+06	4.62E+06	0.00E+00
Nine Mile Point 2	05/23/87	04/05/88				2.61E+05	2.51E+06
Oyster Creek 1	05/03/69	12/01/69	2.79E+05	3.75E+06	1.30E+06	3.11E+06	3.54E+06
Peach Bottom 2	09/16/73	07/05/74	2.43E+06	2.33E+06	6.90E+06	1.55E+06	0.00E+00
Peach Bottom 3	08/07/74	12/23/74	7.45E+06	3.28E+06	4.85E+06	1.46E+06	0.00E+00
Perry 1	06/06/86	11/18/87				8.28E+05	7.23E+06
Pilgrim 1	06/16/72	12/01/72	3.52E+03	4.95E+06	1.03E+06	0.00E+00	0.00E+00
Quad-Cities 1	10/18/71	02/18/73	3.35E+06	6.07E+06	4.42E+06	4.46E+06	5.66E+06
Quad-Cities 2	04/26/72	03/10/73	4.98E+06	4.56E+06	4.72E+06	4.95E+06	4.18E+06
River Bend 1	10/31/85	06/16/86			3.00E+06	4.96E+06	7.25E+06
Shoreham 1	02/07/85						
Susquehanna 1	09/10/82	06/08/83	6.09E+06	5.26E+06	5.83E+06	6.13E+06	8.41E+06
Susquehanna 2	05/08/84	02/12/85	9.32E+05	6.95E+06	5.45E+06	8.60E+06	5.90E+06
Vermont Yankee 1	03/24/72	11/30/72	3.34E+06	3.00E+06	2.06E+06	3.54E+06	4.11E+06
WNP-2	01/19/84	12/13/84	4.10E+05	5.18E+06	5.18E+06	5.40E+06	6.00E+06
Fort St. Vrain 1*	01/31/74	07/01/79	5.67E+04	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
Megawatt Hours

Pressurized Water Reactors								
Facility	Initial Criticality	Commercial Operation	1978	1979	1980	1981	1982	1983
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
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
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
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	9.91E+06	9.68E+06	4.53E+06	6.11E+06	5.36E+06	5.57E+06
Calvert Cliffs 2	11/30/76	04/01/77			6.41E+06	5.42E+06	5.00E+06	6.11E+06
Catawba 1	01/07/85	06/29/85						
Catawba 2	05/08/86	08/19/86						
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
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
Diablo Canyon 1	04/29/84	05/07/85						
Diablo Canyon 2	09/19/85	03/13/86						
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
Donald C. Cook 2	03/10/78	07/01/78			6.70E+06	6.38E+06	7.00E+06	7.01E+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
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
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
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
Indian Point 2	05/22/73	08/01/74			4.26E+06	3.06E+06	4.45E+06	5.90E+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
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
Joseph M. Farley 2	05/05/81	07/30/81				2.92E+06	5.30E+06	5.98E+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
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
McGuire 1	08/08/81	12/01/81				1.91E+04	4.30E+06	4.63E+06
McGuire 2	05/08/83	03/01/84						0.00E+00
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
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
North Anna 2	06/12/80	12/14/80			3.50E+05	5.65E+06	4.05E+06	5.80E+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
Oconee 2	11/11/73	09/09/74			3.88E+06	5.19E+06	3.44E+06	5.14E+06
Oconee 3	09/05/74	12/16/74			5.22E+06	5.64E+06	2.12E+06	7.10E+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
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
Point Beach 2	05/30/72	10/01/71			3.59E+06	3.72E+06	3.61E+06	3.02E+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
Prairie Island 2	12/17/74	12/21/74			3.47E+06	3.09E+06	3.86E+06	3.72E+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
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
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
Salem 2	08/08/80	10/13/81			0.00E+00	1.63E+06	7.94E+06	7.44E+05
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
San Onofre 2	07/26/82	08/08/83					1.26E+05	3.76E+06
San Onofre 3	08/29/83	04/01/84						9.97E+05
Sequoyah 1	07/05/80	07/01/81			5.18E+05	2.53E+06	4.91E+06	7.34E+06
Sequoyah 2	11/05/81	06/01/82						6.69E+06
South Texas 1	03/08/88	08/25/88						
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
St. Lucie 2	06/02/83	08/08/83						2.40E+06
Summer 1	10/22/82	01/01/84					1.91E+05	4.33E+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
Surry 2	03/07/73	05/01/73			2.24E+06	5.15E+06	5.49E+06	4.09E+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
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
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

N/R = Not Reported

Table 14

Net Electrical Energy Generation Comparison by Year
Megawatt Hours

Pressurized Water Reactors								
Facility	Initial	Commercial						
	Criticality	Operation	1978	1979	1980	1981	1982	1983
Turkey Point 3	10/20/72	12/14/72	8.29E+06	6.71E+06	4.39E+06	9.12E+05	3.77E+06	4.33E+06
Turkey Point 4	06/11/73	09/07/73			3.85E+06	4.50E+06	3.84E+06	2.97E+06
Vogtle 1	03/02/87	06/01/87						
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
Zion 1	06/19/73	12/31/73	1.35E+07	1.03E+07	6.51E+06	6.19E+06	4.70E+06	4.02E+06
Zion 2	12/24/73	09/17/74			5.28E+06	5.26E+06	5.16E+06	6.18E+06

Table 14

Net Electrical Energy Generation Comparison By Year
Megawatt Hours

Pressurized Water Reactors

Facility	Initial Criticality	Commercial Operation	1984	1985	1986	1987	1988
Arkansas One 1	08/06/74	12/19/74	4.60E+06	5.19E+06	3.57E+06	4.76E+06	3.95E+06
Arkansas One 2	12/05/78	03/26/80	6.20E+06	4.70E+06	5.31E+06	6.61E+06	4.95E+06
Beaver Valley 1	05/10/76	10/01/76	4.75E+06	5.90E+06	4.78E+06	5.62E+06	4.98E+06
Beaver Valley 2	08/04/87	11/17/87				7.38E+05	6.48E+06
Braidwood 1	05/29/87	07/29/88				1.46E+06	3.42E+06
Braidwood 2	03/08/88	10/17/88					1.35E+06
Byron 1	02/02/85	09/16/85		1.01E+06	7.40E+06	5.33E+06	6.29E+06
Byron 2	01/09/87	08/21/87				1.97E+06	6.36E+06
Callaway 1	10/02/84	12/19/84	3.23E+05	8.05E+06	7.20E+06	6.32E+06	8.94E+06
Calvert Cliffs 1	10/07/74	05/08/75	6.22E+06	4.36E+06	5.83E+06	5.27E+06	5.16E+06
Calvert Cliffs 2	11/30/76	04/01/77	5.34E+06	5.61E+06	7.01E+06	4.83E+06	6.60E+06
Catawba 1	01/07/85	06/29/85		3.44E+06	5.18E+06	6.38E+06	7.63E+06
Catawba 2	05/08/86	08/19/86			1.30E+06	7.17E+06	6.17E+06
Crystal River 3	01/14/77	03/13/77	6.48E+06	2.85E+06	2.65E+06	3.62E+06	5.77E+06
Davis-Besse 1	08/12/77	07/31/78	4.29E+06	1.94E+06	3.49E+03	5.06E+06	1.16E+06
Diablo Canyon 1	04/29/84	05/07/85	2.04E+05	5.23E+06	5.29E+06	8.28E+06	5.26E+06
Diablo Canyon 2	09/19/85	03/13/86		5.41E+06	6.55E+06	5.72E+06	6.23E+06
Donald C. Cook 1	01/18/75	08/27/75	7.75E+06	2.12E+06	6.65E+06	5.03E+06	7.47E+06
Donald C. Cook 2	03/10/78	07/01/78	5.36E+06	5.68E+06	4.34E+06	5.03E+06	2.32E+06
Fort Calhoun 1	08/06/73	06/20/74	2.33E+06	3.07E+06	3.61E+06	3.06E+06	2.63E+06
H. B. Robinson 2	09/20/70	03/07/71	1.90E+05	5.24E+06	4.80E+06	4.23E+06	3.18E+06
Haddam Neck	07/24/67	01/01/68	3.36E+06	4.64E+06	2.13E+06	2.53E+06	3.31E+06
Harris 1	01/03/87	05/02/87				3.38E+06	5.33E+06
Indian Point 1	08/02/62	10/ /62	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Indian Point 2	05/22/73	08/01/74	2.89E+06	6.67E+06	3.81E+06	5.15E+06	6.06E+06
Indian Point 3	04/06/76	08/30/76	6.04E+06	4.73E+06	5.53E+06	4.85E+06	6.71E+06
Joseph M. Farley 1	08/09/77	12/01/77	5.43E+06	5.87E+06	5.73E+06	6.44E+06	5.91E+06
Joseph M. Farley 2	05/05/81	07/30/81	6.62E+06	5.47E+06	5.96E+06	4.90E+06	7.17E+06
Kewaunee	03/07/74	06/16/74	3.81E+06	3.70E+06	3.85E+06	4.01E+06	3.91E+06
Maine Yankee	10/23/72	12/28/72	5.13E+06	5.35E+06	6.24E+06	4.04E+06	5.02E+06
McGuire 1	08/08/81	12/01/81	6.42E+06	6.78E+06	5.16E+06	7.35E+06	7.39E+06
McGuire 2	05/08/83	03/01/84	6.56E+06	5.60E+06	6.21E+06	7.57E+06	8.05E+06
Millstone 2	10/17/75	12/26/75	6.61E+06	3.50E+06	5.16E+06	6.89E+06	5.73E+06
Millstone 3	01/23/86	04/23/86			5.86E+06	6.74E+06	7.67E+06
North Anna 1	04/05/78	06/06/78	3.78E+06	5.80E+06	6.31E+06	3.57E+06	6.90E+06
North Anna 2	06/12/80	12/14/80	4.72E+06	6.81E+06	6.02E+06	5.65E+06	7.88E+06
Oconee 1	04/19/73	07/15/73	6.17E+06	7.07E+06	4.78E+06	5.03E+06	7.19E+06
Oconee 2	11/11/73	09/09/74	7.30E+06	5.06E+06	5.80E+06	6.23E+06	5.54E+06
Oconee 3	09/05/74	12/16/74	5.35E+06	4.86E+06	6.06E+06	5.08E+06	5.97E+06
Palisades	05/24/71	12/31/71	8.12E+05	5.30E+06	8.41E+05	2.63E+06	3.44E+06
Palo Verde 1	05/25/85	02/13/86		1.13E+06	5.85E+06	5.27E+06	6.67E+06
Palo Verde 2	04/18/86	09/19/86			2.65E+06	8.19E+06	6.75E+06
Palo Verde 3	10/25/87	01/08/88				3.20E+05	3.55E+04
Point Beach 1	11/02/70	12/21/70	3.11E+06	3.35E+06	3.77E+06	3.57E+06	3.83E+06
Point Beach 2	05/30/72	10/01/71	3.51E+06	3.60E+06	3.42E+06	3.61E+06	3.72E+06
Prairie Island 1	12/01/73	12/16/73	4.16E+06	3.68E+06	3.82E+06	3.59E+06	3.82E+06
Prairie Island 2	12/17/74	12/21/74	3.91E+06	3.61E+06	3.86E+06	4.43E+06	3.89E+06
R. E. Ginna	11/08/69	07/01/70	3.16E+06	3.62E+06	3.61E+06	3.80E+06	3.53E+06
Rancho Seco 1	09/16/74	04/17/75	3.77E+06	1.94E+06	0.00E+00	0.00E+00	2.81E+06
Salem 1	12/11/76	06/30/77	2.13E+06	9.01E+06	7.08E+06	6.21E+06	7.41E+06
Salem 2	08/08/80	10/13/81	3.20E+06	5.02E+06	5.31E+06	6.17E+06	5.97E+06
San Onofre 1	06/14/67	01/01/68	2.62E+05	2.46E+06	8.74E+05	2.71E+06	1.37E+06
San Onofre 2	07/26/82	08/08/83	5.27E+06	5.15E+06	6.36E+06	6.23E+06	9.00E+06
San Onofre 3	08/29/83	04/01/84	4.10E+06	3.71E+06	6.76E+06	7.52E+06	6.13E+06
Sequoyah 1	07/05/80	07/01/81	6.10E+06	4.06E+06	0.00E+00	0.00E+00	6.71E+04
Sequoyah 2	11/05/81	06/01/82	6.40E+06	5.61E+06	0.00E+00	0.00E+00	3.88E+06
South Texas 1	03/08/88	08/25/88					2.79E+06
St. Lucie 1	04/22/76	12/21/76	4.23E+06	5.87E+06	7.05E+06	5.72E+06	6.25E+06
St. Lucie 2	06/02/83	08/08/83	5.56E+06	6.11E+06	6.15E+06	5.95E+06	7.41E+06
Summer 1	10/22/82	01/01/84	4.20E+06	5.23E+06	7.16E+06	5.15E+06	5.05E+06
Surry 1	07/01/72	12/22/72	3.33E+06	5.62E+06	4.49E+06	4.63E+06	2.69E+06
Surry 2	03/07/73	05/01/73	5.21E+06	4.07E+06	4.50E+06	4.79E+06	3.57E+06
Three Mile Island 1	06/05/74	09/02/74	0.00E+00	8.12E+05	4.82E+06	5.03E+06	5.47E+06
Three Mile Island 2	03/28/78	12/30/78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Trojan	12/15/75	05/20/76	4.74E+06	6.91E+06	7.09E+06	4.35E+06	6.34E+06

Table 14

Net Electrical Energy Generation Comparison by Year
Pressurized Water Reactors   Megawatt Hours

Facility	Initial Criticality	Commercial Operation	1984	1985	1986	1987	1988
Turkey Point 3	10/20/72	12/14/72	4.78E+06	3.41E+06	4.51E+06	8.56E+05	3.45E+06
Turkey Point 4	06/11/73	09/07/73	3.08E+06	5.18E+06	1.72E+06	2.64E+06	3.26E+06
Vogtle 1	03/09/87	06/01/87				3.92E+06	6.79E+06
Waterford 3	03/04/85	09/24/85		1.81E+06	7.30E+06	7.43E+06	6.54E+06
Wolf Creek 1	05/22/85	09/03/85		2.94E+06	6.97E+06	6.50E+06	6.66E+06
Yankee Rowe 1	08/19/60	07/01/61	1.03E+06	1.18E+06	1.39E+06	1.14E+06	1.12E+06
Zion 1	06/19/73	12/31/73	5.69E+06	4.81E+06	4.90E+06	6.06E+06	6.34E+06
Zion 2	12/24/73	09/17/74	5.99E+06	5.11E+06	7.33E+06	5.11E+06	6.65E+06

Table 15

Thermal Energy Generation Comparison By Year

Boiling Water Reactors

Megawatt Hours

Facility	Initial Criticality	Commercial Operation	1972	1973	1974	1975	1976	1977
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
Browns Ferry 1	08/17/73	08/01/74		1.37E+06	1.64E+07	8.75E+06	1.34E+07	5.37E+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
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
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
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
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
Edwin I. Hatch 1	09/12/74	12/31/75				9.75E+06	1.38E+07	1.22E+07
Edwin I. Hatch 2	07/04/78	09/05/79						
Fermi 2	06/21/85	01/23/86						
Grand Gulf 1	08/18/82	07/01/85						
Hope Creed 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
James A. Fitzpatrick	11/17/74	07/28/75				6.81E+06	1.26E+07	1.18E+07
Lacrosse	07/11/67	11/01/69	8.20E+05	6.90E+05	1.08E+06	9.20E+05	6.10E+05	3.43E+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						
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
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
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
Nine Mile Point 2	05/23/87	04/05/88						
Oyster Creed 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
Peach Bottom 2	09/16/73	07/05/74			1.23E+07	3.34E+07	3.72E+07	2.86E+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
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
Quad-Cities 2	04/26/72	03/10/73						
River Bend 1	10/31/85	06/16/86						
Shoreham 1	02/07/85							
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
WNP-2	01/19/84	12/13/84						
Fort St. Vrain 1*	01/31/74	07/01/79						

* High temperature gas cooled reactor

Table 15

Thermal Energy Generation Comparison By Year

Boiling Water Reactors

Megawatt Hours

Facility	Initial Criticality	Commercial Operation	1978	1979	1980	1981	1982	1983
Big Rock Point 1	09/27/62	03/29/63	1.37E+06	3.96E+05	1.40E+06	1.63E+06	1.20E+06	1.14E+06
Browns Ferry 1	08/17/73	08/01/74	5.32E+07	6.31E+07	1.92E+07	1.36E+07	2.49E+07	6.78E+06
Browns Ferry 2	07/20/74	03/01/75			1.74E+07	2.31E+07	1.38E+07	1.97E+07
Browns Ferry 3	08/08/76	03/01/77			2.13E+07	1.95E+07	1.55E+07	1.70E+07
Brunswick 1	10/08/76	03/18/77	3.07E+07	2.12E+07	1.23E+07	8.29E+06	9.48E+06	4.53E+06
Brunswick 2	03/20/75	11/03/75			5.38E+06	1.04E+07	6.30E+06	1.23E+07
Clinton 1	02/27/87	11/24/87						
Cooper	02/21/74	07/01/74	1.54E+07	1.58E+07	1.36E+07	1.39E+07	1.64E+07	1.05E+07
Dresden 1	10/15/59	07/04/60	2.73E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dresden 2	01/07/70	06/09/70	3.13E+07	2.77E+07	1.57E+07	1.13E+07	1.69E+07	1.13E+07
Dresden 3	01/31/71	11/16/71			1.42E+07	1.71E+07	1.27E+07	1.37E+07
Duane Arnold	03/23/74	02/01/75	3.96E+06	9.07E+06	8.87E+06	7.05E+06	7.32E+06	7.38E+06
Edwin I. Hatch 1	09/12/74	12/31/75	3.37E+07	1.62E+07	1.54E+07	8.97E+06	9.42E+06	1.29E+07
Edwin I. Hatch 2	07/04/78	09/05/79			1.16E+07	1.47E+07	1.18E+07	1.19E+07
Fermi 2	06/21/85	01/23/86						
Grand Gulf 1	08/18/82	07/01/85						0.00E+00
Hope Creed 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
James A. Fitzpatrick	11/17/74	07/28/75	1.30E+07	8.97E+06	1.30E+07	1.42E+07	1.51E+07	1.42E+07
Lacrosse	07/11/67	11/01/69	6.54E+05	7.48E+05	8.00E+05	9.11E+05	5.27E+05	7.60E+05
Lasalle 1	06/21/82	01/01/84					2.08E+06	5.86E+06
Lasalle 2	03/10/84	10/19/84						
Limerick 1	12/22/84	02/01/86						
Millstone 1	10/26/70	03/01/71	1.43E+07	1.30E+07	1.04E+07	8.60E+06	1.36E+07	1.64E+07
Monticello	12/10/70	06/30/71	1.18E+07	1.35E+07	1.07E+07	1.01E+07	7.68E+06	1.30E+07
Nine Mile Point 1	09/05/69	12/01/69	1.39E+07	9.67E+06	1.41E+07	1.01E+07	3.42E+06	8.72E+06
Nine Mile Point 2	05/23/87	04/05/88						
Oyster Creed 1	05/03/69	12/01/69	1.10E+07	1.38E+07	6.27E+06	8.44E+06	6.79E+06	9.23E+05
Peach Bottom 2	09/16/73	07/05/74	4.39E+07	4.58E+07	1.37E+07	2.08E+07	1.53E+07	1.40E+07
Peach Bottom 3	08/07/74	12/23/74			2.26E+07	9.85E+06	2.65E+07	7.82E+06
Perry 1	06/06/86	11/18/87						
Pilgrim 1	06/16/72	12/01/72	1.33E+07	1.47E+07	9.20E+06	1.05E+07	9.90E+06	1.42E+07
Quad-Cities 1	10/18/71	02/18/73	3.14E+07	3.00E+07	1.17E+07	1.88E+07	1.12E+07	1.89E+07
Quad-Cities 2	04/26/72	03/10/73			1.22E+07	1.27E+07	1.67E+07	1.08E+07
River Bend 1	10/31/85	06/16/86						
Shoreham 1	02/07/85							
Susquehanna 1	09/10/82	06/08/83					1.16E+06	1.12E+07
Susquehanna 2	05/08/84	02/12/85						
Vermont Yankee 1	03/24/72	11/30/72	1.00E+07	1.08E+07	9.38E+06	1.13E+07	1.31E+07	9.12E+06
WNP-2	01/19/84	12/13/84						
Fort St. Vrain 1*	01/31/74	07/01/79	2.04E+06	4.78E+05	2.23E+06	2.23E+06	1.86E+06	2.58E+06

* High temperature gas cooled reactor

Table 15

Thermal Energy Generation Comparison By Year

Boiling Water Reactors

Megawatt Hours

Facility	Initial Criticality	Commercial Operation	1984	1985	1986	1987	1988
Big Rock Point 1	09/27/62	03/29/63	1.37E+06	1.19E+06	1.66E+06	1.23E+06	1.26E+06
Browns Ferry 1	08/17/73	08/01/74	2.45E+07	4.95E+06	0.00E+00	0.00E+00	0.00E+00
Browns Ferry 2	07/20/74	03/01/75	1.31E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Browns Ferry 3	08/08/76	03/01/77	9.11E+05	4.65E+06	0.00E+00	0.00E+00	0.00E+00
Brunswick 1	10/08/76	03/18/77	1.56E+07	6.06E+06	1.89E+07	1.29E+07	1.43E+07
Brunswick 2	03/20/75	11/03/75	4.53E+06	1.57E+07	9.43E+06	1.83E+07	1.24E+07
Clinton 1	02/27/87	11/24/87				2.15E+06	1.86E+07
Cooper	02/21/74	07/01/74	1.09E+07	3.42E+06	1.26E+07	1.72E+07	1.31E+07
Dresden 1	10/15/59	07/04/60	1.46E+07	0.00E+00	0.00E+00	0.00E+00	
Dresden 2	01/07/70	06/09/70	7.10E+06	1.03E+07	1.52E+07	1.11E+07	1.45E+07
Dresden 3	01/31/71	11/16/71	7.10E+06	1.47E+07	5.04E+06	1.46E+07	1.36E+07
Duane Arnold	03/23/74	02/01/75	8.71E+06	6.15E+06	9.48E+06	7.96E+06	9.97E+06
Edwin I. Hatch 1	09/12/74	12/31/75	1.20E+07	1.53E+07	1.18E+07	1.65E+07	1.35E+07
Edwin I. Hatch 2	07/04/78	09/05/79	5.99E+06	1.70E+07	1.19E+07	1.83E+07	1.36E+07
Fermi 2	06/21/85	01/23/86			2.23E+05	5.99E+06	1.30E+07
Grand Gulf 1	08/18/82	07/01/85	8.80E+05	9.80E+06	1.47E+07	2.55E+07	3.05E+07
Hope Creek 1	06/28/86	12/20/86			3.62E+06	2.29E+07	2.22E+07
Humboldt Bay 3	02/16/63	08/ /63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
James A. Fitzpatrick	11/17/74	07/28/75	1.52E+07	1.28E+07	1.84E+07	1.31E+07	1.34E+07
Lacrosse	07/11/67	11/01/69	1.07E+06	1.11E+06	5.58E+05		
Lasalle 1	06/21/82	01/01/84	2.30E+07	1.54E+07	6.54E+06	1.31E+07	1.69E+07
Lasalle 2	03/10/84	10/19/84	4.51E+06	1.10E+07	1.80E+07	1.43E+07	1.81E+07
Limerick 1	12/22/84	02/01/86	0.00E+00	4.42E+06	2.16E+07	1.73E+07	2.19E+07
Millstone 1	10/26/70	03/01/71	1.34E+07	1.42E+07	1.61E+07	1.34E+07	1.70E+07
Monticello	12/10/70	06/30/71	8.98E+05	1.31E+07	1.04E+07	1.10E+07	1.43E+07
Nine Mile Point 1	09/05/69	12/01/69	1.12E+07	1.52E+07	9.76E+06	1.42E+07	0.00E+00
Nine Mile Point 2	05/23/87	04/05/88				1.53E+06	8.32E+06
Oyster Creek 1	05/03/69	12/01/69	1.04E+06	1.16E+07	4.12E+06	9.69E+06	1.09E+07
Peach Bottom 2	09/16/73	07/05/74	7.87E+06	7.85E+06	2.16E+07	4.98E+06	0.00E+00
Peach Bottom 3	08/07/74	12/23/74	2.32E+07	1.08E+07	1.55E+07	4.76E+06	0.00E+00
Perry 1	06/06/86	11/18/87				2.56E+06	2.23E+07
Pilgrim 1	06/16/72	12/01/72	4.99E+05	1.50E+07	3.09E+06	0.00E+00	0.00E+00
Quad-Cities 1	10/18/71	02/18/73	1.06E+07	1.92E+07	1.41E+07	1.42E+07	1.83E+07
Quad-Cities 2	04/26/72	03/10/73	1.61E+07	1.46E+07	1.52E+07	1.60E+07	1.36E+07
River Bend 1	10/31/85	06/16/86			9.85E+06	1.55E+07	2.25E+07
Shoreham 1	02/07/85						
Susquehanna 1	09/10/82	06/08/83	1.94E+07	1.70E+07	1.87E+07	1.98E+07	2.65E+07
Susquehanna 2	05/08/84	02/12/85	3.23E+06	2.20E+07	1.74E+07	2.72E+07	1.87E+07
Vermont Yankee 1	03/24/72	11/30/72	1.04E+07	9.55E+06	6.57E+06	1.11E+07	1.30E+07
WNP-2	01/19/84	12/13/84	1.21E+06	1.64E+07	1.61E+07	1.67E+07	1.87E+07
Fort St. Vrain 1*	01/31/74	07/01/79	3.40E+05	3.34E+04	3.70E+05	6.68E+05	1.95E+06

* High temperature gas cooled reactor

Table 16

Thermal Energy Generation Comparison By Year
Megawatt Hours

Pressurized Water Reactors

Facility	Initial Criticality	Commercial Operation	1972	1973	1974	1975	1976	1977
Arkansas One 1	08/06/74	12/19/74			1.99E+06	1.54E+07	1.21E+07	1.64E+07
Arkansas One 2	12/05/78	03/26/80						
Beaver Valley 1	05/10/76	10/01/76					1.97E+06	1.01E+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						
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
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						
Crystal River 3	01/14/77	03/13/77						1.26E+07
Davis-Besse 1	08/12/77	07/31/78						1.66E+06
Diablo Canyon 1	04/29/84	05/07/85						
Diablo Canyon 2	08/19/85	03/13/86						
Donald C. Cook 1	01/18/75	08/27/75				1.46E+07	2.15E+07	1.55E+07
Donald C. Cook 2	03/10/78	07/01/78						
Fort Calhoun 1	08/06/73	06/20/74		2.03E+06	7.58E+06	6.71E+06	7.15E+06	9.40E+06
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
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
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
Indian Point 2	05/22/73	08/01/74						
Indian Point 3	04/06/76	08/30/76						
Joseph M. Farley 1	08/09/77	12/01/77						
Joseph M. Farley 2	05/05/81	07/30/81						
Kewaunee	03/07/74	06/16/74			5.03E+06	1.08E+07	1.08E+07	1.11E+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
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
Millstone 3	01/23/86	04/23/86						
North Anna 1	04/05/78	06/06/78						
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
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
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
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
Prairie Island 2	12/17/74	12/21/74						
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
Rancho Seco 1	09/16/74	04/17/75				4.11E+06	6.91E+06	1.81E+07
Salem 1	12/11/76	06/30/77					5.00E+04	6.70E+06
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
San Onofre 2	07/26/82	08/08/83						
San Onofre 3	08/29/83	04/01/84						
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						
St. Lucie 1	04/22/76	12/21/76					3.50E+05	1.75E+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
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
Three Mile Island 2	03/28/78	12/30/78						
Trojan	12/15/75	05/20/76					7.54E+06	2.12E+07

Table 16

Thermal Energy Generation Comparison by Year
Megawatt Hours

Pressurized Water Reactors

Facility	Initial Criticality	Commercial Operation	1972	1973	1974	1975	1976	1977
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
Turkey Point 4	06/11/73	09/07/73						
Vogtle 1	03/09/87	06/01/87						
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
Zion 1	06/19/73	12/31/73		2.73E+06	1.69E+07	3.28E+07	3.11E+07	3.66E+07
Zion 2	12/24/73	09/17/74						

Table 16

Thermal Energy Generation Comparison By Year								
Megawatt Hours								
Pressurized Water Reactors								
Facility	Initial Criticality	Commercial Operation	1978	1979	1980	1981	1982	1983
Arkansas One 1	08/06/74	12/19/74	1.64E+07	1.05E+07	1.29E+07	1.54E+07	1.22E+07	1.02E+07
Arkansas One 2	12/05/78	03/26/80	4.45E+04	3.45E+06	1.18E+07	1.39E+07	1.25E+07	1.43E+07
Beaver Valley 1	05/10/76	10/01/76	8.80E+06	6.11E+06	1.13E+06	1.55E+07	8.88E+06	1.51E+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						
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	3.14E+07	3.15E+07	1.52E+07	1.96E+07	1.68E+07	1.75E+07
Calvert Cliffs 2	11/30/76	04/01/77			2.05E+07	1.71E+07	1.62E+07	1.96E+07
Catawba 1	01/07/85	06/29/85						
Catawba 2	05/08/86	08/19/86						
Crystal River 3	01/14/77	03/13/77	7.97E+06	1.17E+07	1.04E+07	1.27E+07	1.52E+07	1.14E+07
Davis-Besse 1	08/12/77	07/31/78	8.52E+06	1.00E+07	6.71E+06	1.40E+07	1.03E+07	1.57E+07
Diablo Canyon 1	04/29/84	05/07/85						
Diablo Canyon 2	08/19/85	03/13/86						
Donald C. Cook 1	01/18/75	08/27/75	3.29E+07	3.68E+07	2.02E+07	2.11E+07	1.69E+07	1.68E+07
Donald C. Cook 2	03/10/78	07/01/78			2.14E+07	2.04E+07	2.22E+07	2.22E+07
Fort Calhoun 1	08/06/73	06/20/74	8.98E+06	1.16E+07	6.48E+06	6.98E+06	1.09E+07	9.14E+06
H. B. Robinson 2	09/20/70	03/07/71	1.33E+07	1.30E+07	1.07E+07	1.19E+07	7.67E+06	1.13E+07
Haddam Neck	07/24/67	01/01/68	1.51E+07	1.32E+07	1.14E+07	1.31E+07	1.45E+07	1.22E+07
Harris 1	01/03/87	05/02/87						
Indian Point 1	08/02/62	10/ /62	1.48E+07	1.61E+07	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
Indian Point 3	04/06/76	08/30/76	1.70E+07	1.57E+07	1.15E+07	1.14E+07	5.06E+06	2.82E+05
Joseph M. Farley 1	08/09/77	12/01/77	1.95E+07	5.77E+06	1.54E+07	8.96E+06	1.75E+07	1.76E+07
Joseph M. Farley 2	05/05/81	07/30/81				9.47E+06	1.75E+07	1.99E+07
Kewaunee	03/07/74	06/16/74	1.24E+07	1.09E+07	1.15E+07	1.21E+07	1.23E+07	1.19E+07
Maine Yankee	10/23/72	12/28/72	1.69E+07	1.41E+07	1.41E+07	1.67E+07	1.47E+07	1.83E+07
McGuire 1	08/08/81	12/01/81				8.50E+04	1.34E+07	1.39E+07
McGuire 2	05/08/83	03/01/84						0.00E+00
Millstone 2	10/17/75	12/26/75	1.44E+07	1.38E+07	1.55E+07	1.92E+07	1.60E+07	7.88E+06
Millstone 3	01/23/86	04/23/86						
North Anna 1	04/05/78	06/06/78	1.22E+07	1.41E+07	1.89E+07	1.51E+07	7.95E+06	1.68E+07
North Anna 2	06/12/80	12/14/80			1.12E+06	1.77E+07	1.29E+07	1.87E+07
Oconee 1	04/19/73	07/15/73	4.84E+07	4.37E+07	1.52E+07	9.00E+06	1.57E+07	1.72E+07
Oconee 2	11/11/73	09/09/74			1.20E+07	1.59E+07	1.06E+07	1.58E+07
Oconee 3	09/05/74	12/16/74			1.59E+07	1.72E+07	6.53E+06	2.14E+07
Palisades	05/24/71	12/31/71	9.44E+06	1.20E+07	8.19E+06	1.17E+07	1.12E+07	1.27E+07
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	2.33E+07	2.08E+07	8.09E+06	8.51E+06	8.60E+06	7.59E+06
Point Beach 2	05/30/72	10/01/71			1.11E+07	1.15E+07	1.13E+07	9.38E+06
Prairie Island 1	12/01/73	12/16/73	2.52E+07	1.12E+08	1.06E+07	1.25E+07	1.27E+07	1.24E+07
Prairie Island 2	12/17/74	12/21/74			1.14E+07	1.01E+07	1.26E+07	1.19E+07
R. E. Ginna	11/08/69	07/01/70	1.05E+07	9.35E+06	9.93E+06	1.07E+07	7.68E+06	9.67E+06
Rancho Seco 1	09/16/74	04/17/75	1.59E+07	1.79E+07	1.39E+07	8.92E+06	1.09E+07	9.16E+06
Salem 1	12/11/76	06/30/77	1.43E+07	6.60E+06	1.84E+07	2.02E+07	1.31E+07	1.67E+07
Salem 2	08/08/80	10/13/81			0.00E+00	5.11E+06	2.54E+07	2.95E+06
San Onofre 1	06/14/67	01/01/68	8.54E+06	1.05E+07	2.55E+06	2.59E+06	1.59E+06	0.00E+00
San Onofre 2	07/26/82	08/08/83					9.28E+05	1.23E+07
San Onofre 3	08/29/83	04/01/84						3.55E+06
Sequoyah 1	07/05/80	07/01/81			1.67E+06	8.06E+06	1.52E+07	2.22E+07
Sequoyah 2	11/05/81	06/01/82						2.03E+07
South Texas 1	03/08/88	08/25/88						
St. Lucie 1	04/22/76	12/21/76	1.64E+07	1.60E+07	1.70E+07	1.61E+07	2.18E+07	3.53E+06
St. Lucie 2	06/02/83	08/08/83						7.66E+06
Summer 1	10/22/82	01/01/84					7.95E+05	1.38E+07
Surry 1	07/01/72	12/22/72	3.27E+07	9.32E+06	8.67E+06	7.94E+06	1.83E+07	1.22E+07
Surry 2	03/07/73	05/01/73		7.26E+06	1.68E+07	1.79E+07	1.35E+07	1.73E+07
Three Mile Island 1	06/05/74	09/02/74	1.83E+07	2.83E+06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Three Mile Island 2	03/28/78	12/30/78	3.16E+06	N/R	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trojan	12/15/75	05/20/76	5.63E+06	1.70E+07	1.97E+07	2.10E+07	1.56E+07	1.34E+07

N/R = Not Reported

Table 16

Pressurized Water Reactors			Thermal Energy Generation Comparison By Year					
			Megawatt Hours					
Facility	Initial Criticality	Commercial Operation	1978	1979	1980	1981	1982	1983
Turkey Point 3	10/20/72	12/14/72	2.81E+07	2.28E+07	1.47E+07	3.03E+06	1.22E+07	1.41E+07
Turkey Point 4	06/11/73	09/07/73			1.32E+07	1.48E+07	1.27E+07	9.83E+06
Vogtle 1	03/09/87	06/01/87						
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	4.16E+06	4.17E+06	1.13E+06	3.63E+06	3.69E+06	4.69E+06
Zion 1	06/19/73	12/31/73	4.30E+07	3.31E+07	2.22E+07	1.98E+07	1.52E+07	1.34E+07
Zion 2	12/24/73	09/17/74			1.75E+07	1.77E+07	1.71E+07	2.00E+07

Table 16

Thermal Energy Generation Comparison By Year
Megawatt Hours

Pressurized Water Reactors

Facility	Initial Criticality	Commercial Operation	1984	1985	1986	1987	1988
Arkansas One 1	08/06/74	12/19/74	1.44E+07	1.62E+07	1.11E+07	1.51E+07	1.24E+07
Arkansas One 2	12/05/78	03/26/80	1.95E+07	1.50E+07	1.68E+07	2.10E+07	1.58E+07
Beaver Valley 1	05/10/76	10/01/76	1.58E+07	1.96E+07	1.55E+07	1.84E+07	1.64E+07
Beaver Valley 2	08/04/87	11/17/87				2.39E+06	2.13E+07
Braidwood 1	05/29/87	07/29/88				5.02E+06	1.04E+07
Braidwood 2	03/08/88	10/17/88					4.08E+06
Byron 1	02/02/85	09/16/85		3.34E+06	2.32E+07	1.71E+07	1.99E+07
Byron 2	01/09/87	08/21/87				6.47E+06	2.04E+07
Callaway 1	10/02/84	12/19/84	1.00E+06	2.49E+07	2.26E+07	1.98E+07	2.76E+07
Calvert Cliffs 1	10/07/74	05/08/75	1.96E+07	1.35E+07	1.82E+07	1.65E+07	1.62E+07
Calvert Cliffs 2	11/30/76	04/01/77	1.69E+07	1.78E+07	2.18E+07	1.50E+07	2.07E+07
Catawba 1	01/07/85	06/29/85		1.07E+07	1.59E+07	1.95E+07	2.76E+07
Catawba 2	05/08/86	08/19/86			4.04E+06	2.17E+07	1.88E+07
Crystal River 3	01/14/77	03/13/77	1.97E+07	1.17E+07	8.14E+06	1.11E+07	1.78E+07
Davis-Besse 1	08/12/77	07/31/78	1.39E+07	6.31E+06	1.29E+05	1.65E+07	3.91E+06
Diablo Canyon 1	04/29/84	05/07/85	9.48E+05	1.66E+07	1.70E+07	2.54E+07	1.66E+07
Diablo Canyon 2	08/19/85	03/13/86		2.12E+06	2.11E+07	1.82E+07	1.98E+07
Donald C. Cook 1	01/18/75	08/27/75	2.41E+07	6.83E+06	2.16E+07	1.64E+07	2.42E+07
Donald C. Cook 2	03/10/78	07/01/78	1.70E+07	1.82E+07	1.44E+07	1.65E+07	7.41E+06
Fort Calhoun 1	08/06/73	06/20/74	7.43E+06	9.56E+06	1.13E+07	9.48E+06	8.34E+06
H. B. Robinson 2	09/20/70	03/07/71	7.84E+05	1.66E+07	1.52E+07	1.35E+07	1.06E+07
Haddam Neck	07/24/67	01/01/68	1.08E+07	1.49E+07	7.26E+06	8.39E+06	1.06E+07
Harris 1	01/03/87	05/02/87				1.12E+07	1.71E+07
Indian Point 1	08/02/62	10/ /62	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Indian Point 2	05/22/73	08/01/74	1.17E+07	2.21E+07	1.29E+07	1.71E+07	1.95E+07
Indian Point 3	04/08/76	08/30/76	1.93E+07	1.51E+07	1.77E+07	1.56E+07	2.14E+07
Joseph M. Farley 1	08/09/77	12/01/77	1.78E+07	1.90E+07	1.85E+07	2.11E+07	1.92E+07
Joseph M. Farley 2	05/05/81	07/30/81	2.15E+07	1.74E+07	1.91E+07	1.60E+07	2.29E+07
Kewaunee	03/07/74	06/16/74	1.21E+07	1.16E+07	1.21E+07	1.26E+07	1.22E+07
Maine Yankee	10/23/72	12/28/72	1.62E+07	1.67E+07	1.93E+07	1.31E+07	1.67E+07
McGuire 1	08/08/81	12/01/81	1.94E+07	2.06E+07	1.56E+07	2.21E+07	2.26E+07
McGuire 2	05/08/83	03/01/84	1.94E+07	1.68E+07	1.96E+07	2.25E+07	2.41E+07
Millstone 2	10/17/75	12/26/75	2.14E+07	1.12E+07	1.66E+07	2.18E+07	1.81E+07
Millstone 3	01/23/86	04/23/86			2.17E+07	2.05E+07	2.33E+07
North Anna 1	04/05/78	06/06/78	1.18E+07	1.81E+07	1.98E+07	1.14E+07	2.20E+07
North Anna 2	06/12/80	12/14/80	1.51E+07	2.16E+07	1.92E+07	1.80E+07	2.50E+07
Oconee 1	04/19/73	07/15/73	1.86E+07	2.14E+07	1.46E+07	1.56E+07	2.21E+07
Oconee 2	11/11/73	09/09/74	2.23E+07	1.56E+07	1.79E+07	1.93E+07	1.72E+07
Oconee 3	09/05/74	12/16/74	1.63E+07	1.49E+07	1.88E+07	1.55E+07	1.80E+07
Palisades	05/24/71	12/31/71	2.72E+06	1.75E+07	2.76E+06	8.83E+06	1.14E+07
Palo Verde 1	05/25/85	02/13/86		4.39E+06	1.82E+07	1.61E+07	2.03E+07
Palo Verde 2	04/18/86	09/19/86			7.02E+06	2.49E+07	2.07E+07
Palo Verde 3	10/25/87	01/08/88				1.24E+06	3.03E+07
Point Beach 1	11/02/70	12/21/70	9.41E+06	1.02E+07	1.15E+07	1.09E+07	1.17E+07
Point Beach 2	05/30/72	10/01/71	1.09E+07	1.11E+07	1.06E+07	1.11E+07	1.14E+07
Prairie Island 1	12/01/73	12/16/73	1.33E+07	1.18E+07	1.22E+07	1.14E+07	1.23E+07
Prairie Island 2	12/17/74	12/21/74	1.24E+07	1.15E+07	1.23E+07	1.41E+07	1.26E+07
R. E. Ginna	11/08/69	07/01/70	1.00E+07	1.14E+07	1.13E+07	1.19E+07	1.10E+07
Rancho Seco 1	09/16/74	04/17/75	1.21E+07	6.26E+06	0.00E+00	0.00E+00	9.47E+06
Salem 1	12/11/76	06/30/77	6.95E+06	2.77E+07	2.24E+07	1.96E+07	2.32E+07
Salem 2	08/08/80	10/13/81	1.03E+07	1.60E+07	1.74E+07	1.96E+07	1.90E+07
San Onofre 1	06/14/67	01/01/68	9.24E+05	8.12E+06	3.00E+06	8.82E+06	4.52E+06
San Onofre 2	07/26/82	08/08/83	1.66E+07	1.65E+07	2.01E+07	1.93E+07	2.75E+07
San Onofre 3	08/29/83	04/01/84	1.29E+07	1.21E+07	2.13E+07	2.32E+07	1.89E+07
Sequoyah 1	07/05/80	07/01/81	1.92E+07	1.24E+07	0.00E+00	0.00E+00	5.16E+05
Sequoyah 2	11/05/81	06/01/82	1.96E+07	1.71E+07	0.00E+00	0.00E+00	1.26E+07
South Texas 1	03/08/88	08/25/88					8.81E+06
St. Lucie 1	04/22/76	12/21/76	1.35E+07	1.88E+07	2.23E+07	1.81E+07	1.97E+07
St. Lucie 2	06/02/83	08/08/83	1.77E+07	1.93E+07	1.94E+07	1.90E+07	2.35E+07
Summer 1	10/22/82	01/01/84	1.33E+07	1.65E+07	2.26E+07	1.84E+07	1.61E+07
Surry 1	07/01/72	12/22/72	1.11E+07	1.79E+07	1.42E+07	1.47E+07	8.45E+06
Surry 2	03/07/73	05/01/73		1.33E+07	1.45E+07	1.54E+07	1.16E+07
Three Mile Island 1	06/05/74	09/02/74	0.00E+00	2.82E+06	1.56E+07	1.56E+07	1.69E+07
Three Mile Island 2	03/28/78	12/30/78	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Trojan	12/15/75	05/20/76	1.54E+07	2.25E+07	2.29E+07	1.39E+07	1.98E+07

Table 16

Thermal Energy Generation Comparison By Year
Pressurized Water Reactors   Megawatt Hours

Facility	Initial Criticality	Commercial Operation	1984	1985	1986	1987	1988
Turkey Point 3	10/20/72	12/14/72	1.56E+07	1.11E+07	1.46E+07	2.96E+06	1.14E+07
Turkey Point 4	06/11/73	09/07/73	1.04E+07	1.69E+07	5.73E+06	8.69E+06	1.06E+07
Vogtle 1	03/09/87	06/01/87				1.27E+07	2.18E+07
Waterford 3	03/04/85	09/24/85		5.64E+06	2.27E+07	2.31E+07	2.06E+07
Wolf Creek 1	05/22/85	09/03/85		8.87E+06	2.09E+07	1.97E+07	2.01E+07
Yankee Rowe 1	08/19/60	07/01/61	3.61E+06	4.19E+06	4.90E+06	4.03E+06	4.03E+06
Zion 1	06/19/73	12/31/73	1.83E+07	1.85E+07	1.58E+07	1.88E+07	1.97E+07
Zion 2	12/24/73	09/17/74	1.92E+07	2.16E+07	2.30E+07	1.61E+07	2.08E+07

APPENDIX A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:ARKANSAS POWER &LIGHT
DOCKET NO.:50-313   LICENSED POWER (MWT):2.57E+03
THERMAL POWER (MWH):1.24E+07   NET ELECTRIC POWER (MWH):3.95E+06
COMMERCIAL OPERATION:12/19/74   INITIAL CRITICALITY:08/06/74
COOLING WATER SOURCE:DARDANELLE RESERVOIR

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
K-40	5.96E-06
CO-58	1.74E-05
CO-60	7.07E-06
KR-85	3.22E+00
KR-85M	3.70E+00
SR-89	8.89E-06
SR-90	9.34E-08
NB-97	1.01E-06
AG-110M	1.27E-06
SN-113	9.44E-07
I-131	8.13E-04
XE-131M	1.67E+00
I-132	4.19E-06
I-133	2.99E-05
XE-133	1.16E+03
XE-133M	1.01E+00
CS-134	1.73E-06
XE-135	8.01E+01
CS-137	1.76E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	6.38E-03
NA-24	9.88E-04
K-40	2.04E-03
AR-41	1.95E-04
CR-51	3.16E-02
MN-54	2.93E-01
FE-55	4.32E-01
CO-57	1.78E-03
CO-58	8.18E-01
FE-59	4.08E-03
CO-60	9.03E-02
ZN-65	3.18E-03
SE-75	2.28E-03
BR-84	2.38E-05
KR-85	7.32E-02
KR-85M	5.39E-03
KR-87	3.55E-06
KR-88	3.31E-04
Y-88	4.02E-06
SR-89	1.89E-02
SR-90	4.20E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-91	5.80E-04
SR-92	3.33E-03
NB-95	7.87E-03
ZR-95	4.42E-03
NB-97	3.49E-04
ZR-97	3.61E-04
MO-99	6.21E-03
TC-99M	4.29E-03
RU-103	1.97E-04
RU-106	7.43E-04
AG-110M	7.93E-01
CD-113M	4.14E-01
SN-113	7.66E-04
SB-122	3.33E-04
SB-124	2.72E-02
SB-125	3.30E-01
SB-127	7.31E-04
I-131	2.00E-01
XE-131M	7.08E-01
I-132	4.06E-04
BA-133	7.48E-06
I-133	2.78E-03
XE-133	8.28E+01
XE-133M	8.05E-01
CS-134	6.83E-02
I-135	5.11E-05
XE-135	1.35E-01
CS-136	3.11E-05
CS-137	1.60E-01
CS-138	1.51E-03
BA-140	1.17E-04
LA-140	6.26E-03
BI-214	9.90E-06

TOTAL AIRBORNE TRITIUM RELEASE 3.46E+00

TOTAL LIQUID TRITIUM RELEASE 2.50E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.39E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.02E+11

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:ARKANSAS POWER & LIGHT
DOCKET NO.:50-368   LICENSED POWER (MWT):2.82E+03
THERMAL POWER (MWH):1.58E+07   NET ELECTRIC POWER (MWH):4.95E+06
COMMERCIAL OPERATION:03/26/80   INITIAL CRITICALITY:12/05/78
COOLING WATER SOURCE:DARDANELLE RESERVOIR

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	1.69E-06
AR-41	1.98E-02
CR-51	5.61E-06
CO-57	2.18E-07
CO-58	5.89E-05
CO-60	2.17E-05
KR-85	1.78E-02
KR-85M	2.45E-01
KR-87	1.15E-02
KR-88	8.67E-02
RB-88	2.96E-05
SR-89	1.43E-06
SR-90	2.92E-08
SR-92	1.74E-06
NB-95	3.58E-06
ZR-95	4.24E-06
NB-97	1.04E-06
ZR-97	8.09E-07
RU-103	3.47E-07
AG-110M	1.51E-05
SN-113	5.56E-07
I-131	2.65E-04
XE-131M	3.84E+01
I-132	2.06E-06
I-133	3.85E-05
XE-133	1.79E+03
XE-133M	2.25E+00
XE-135	3.30E+02
CS-137	2.81E-05
BI-214	2.84E-04
PB-214	1.37E-05
RA-226	2.36E-06
TH-228	1.08E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	2.30E-04
BE-7	2.63E-04
NA-24	1.59E-02
K-40	3.97E-04
CR-51	1.67E-01
MN-54	1.61E-01
FE-55	4.64E-02

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-57	9.10E-05
CO-58	6.95E-01
FE-59	7.56E-03
CO-60	6.74E-02
BR-84	1.49E-04
KR-85	5.55E-02
KR-85M	7.22E-05
SR-89	1.38E-03
SR-90	4.41E-05
SR-92	9.19E-03
NB-95	6.37E-02
ZR-95	4.55E-02
NB-97	3.69E-04
ZR-97	4.55E-04
MO-99	4.09E-02
TC-99M	4.23E-02
RU-103	2.16E-03
RU-106	3.87E-04
AG-110M	9.24E-01
CD-113M	7.02E-01
SN-113	6.71E-03
SB-122	9.90E-03
SB-124	7.75E-02
SB-125	6.63E-01
SB-127	1.47E-03
I-131	1.34E-01
XE-131M	6.83E-02
I-132	2.31E-03
TE-132	1.92E-03
I-133	2.93E-02
XE-133	5.92E+00
XE-133M	5.19E-02
CS-134	1.18E-01
I-135	2.42E-03
XE-135	2.72E-02
CS-137	4.39E-01
CS-138	1.87E-03
LA-140	2.88E-03
CE-144	1.21E-03
W-187	1.35E-03

TOTAL AIRBORNE TRITIUM RELEASE 5.00E+00

TOTAL LIQUID TRITIUM RELEASE 2.44E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.10E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.02E+11

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	CASK	BARNWELL SC
5	CASK	HANFORD WA
1	UNSHIELDED VAN/RAIL	HANFORD WA
1	UNSHIELDED VAN/TRUCK	ALARON, WAMPUM PA
2	UNSHIELDED VAN/TRUCK	BEATTY NV
1	UNSHIELDED VAN/TRUCK	HANFORD WA
16	UNSHIELDED VAN/TRUCK	OAK RIDGE TN
1	UNSHIELDED VAN/TRUCK	QUADREX, OAK RIDGE TN
1	UNSHIELDED VAN/TRUCK	SEG, OAK RIDGE TN
1	UNSHIELDED VAN/TRUCK	WAMPUM PA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

AG-110M	%	1.93E+01	1.06E+01
CO-58	%	1.31E+01	1.89E+01
CO-60	%	6.93E+00	2.64E+00
CS-134	%	9.35E+00	1.83E+01
CS-137	%	2.42E+01	3.93E+01
FE-55	%	1.44E+01	2.31E+00
I-131	%		4.53E-01
NB-95	%	8.86E-01	6.99E-01
NI-63	%	7.43E+00	4.20E+00
SB-125	%	8.54E-01	7.23E-01
ZR-95	%	1.16E+00	

B

AG-110M	%		9.85E+00
C-14	%		5.44E-01
CO-58	%	8.34E+00	1.30E+01
CO-60	%	8.59E+00	9.78E+00
CS-134	%	1.01E+01	6.12E+00
CS-137	%	3.83E+01	2.17E+01
FE-55	%	2.52E+01	1.95E+01
MN-54	%		1.77E+00
NB-95	%		5.09E+00
NI-63	%	1.42E+01	1.37E+01
PU-241	%		2.15E+00

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: ARKANSAS ONE 1&2

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	5.82E+01
	CI	8.16E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	1.39E+02 *
	CI	5.85E+00
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

*ACTUAL BURIAL VOLUME

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE:PWR	LICENSEE:DUQUESNE LIGHT
DOCKET NO.:50-334		LICENSED POWER (MWT):2.66E+03
THERMAL POWER (MWH):1.64E+07		NET ELECTRIC POWER (MWH):4.98E+06
COMMERCIAL OPERATION:10/01/76		INITIAL CRITICALITY:05/10/76
COOLING WATER SOURCE:OHIO RIVER		
UNIT NUMBER: 2	TYPE:PWR	LICENSEE:DUQUESNE LIGHT
DOCKET NO.:50-412		LICENSED POWER (MWT):2.66E+03
THERMAL POWER (MWH):2.13E+07		NET ELECTRIC POWER (MWH):6.48E+06
COMMERCIAL OPERATION:11/17/87		INITIAL CRITICALITY:08/04/87
COOLING WATER SOURCE:OHIO RIVER		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.02E-01
MN-54	1.46E-07
CO-58	1.26E-05
CO-60	1.25E-04
KR-85	4.72E-01
KR-85M	2.43E-06
SR-90	9.73E-09
MO-99	2.79E-08
I-131	1.56E-04
XE-131M	1.79E-01
I-133	1.59E-04
XE-133	2.32E+00
I-135	2.13E-05
XE-135	4.44E-01
XE-135M	2.35E-02
CS-137	1.37E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	4.63E-04
NA-24	1.42E-05
CR-51	2.75E-05
MN-54	5.83E-04
FE-55	1.52E-02
CO-57	2.08E-04
CO-58	4.46E-02
CO-60	2.12E-02
ZN-65	2.32E-05
NB-95	1.06E-05
NB-97	2.85E-04
MO-99	1.95E-05
TC-99M	1.91E-05
RU-103	5.50E-06
AG-110M	1.79E-03
SB-124	9.90E-04
SB-125	1.26E-02
I-131	3.62E-04
I-133	8.95E-05

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: BEAVER VALLEY

LOCATION: SHIPPINGPORT, PA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-133	1.57E-02
XE-133M	1.20E-04
CS-134	1.10E-03
XE-135	2.28E-04
CS-137	2.42E-03
BA-LA-140	7.20E-06
CE-144	2.24E-05

TOTAL AIRBORNE TRITIUM RELEASE	4.33E+01
TOTAL LIQUID TRITIUM RELEASE	4.09E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	9.00E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	7.09E+09

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS
21

MODE OF TRANSPORTATION
TRUCK

DESTINATION
BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

AG-110M	%	7.02E-02	3.87E-02
AM-241	%	2.57E-05	3.09E-04
C-14	%	6.60E-02	1.42E-01
CE-141	%	4.44E-04	0.00E+00
CE-144/PR-144	%	1.30E-02	2.53E-02
CM-242	%	3.76E-04	2.55E-04
CM-243/244	%	5.90E-05	4.01E-04
CO-57	%	2.97E-01	6.00E-02
CO-58	%	8.18E+01	4.18E+00
CO-60	%	7.82E+00	1.15E+01
CR-51	%	2.92E-01	0.00E+00
CS-134	%	1.46E+00	2.15E+00
CS-137	%	1.42E+00	4.20E+00
FE-59	%	4.44E-02	0.00E+00
H-3	%	1.66E+00	5.69E+01
I-129	%	1.04E-04	3.78E-03
I-131	%	4.01E-02	0.00E+00
MN-54	%	1.12E+00	2.89E-01
NB-95	%	2.25E-01	0.00E+00
NI-59	%	1.17E-02	1.99E-02
NI-63	%	1.14E+00	9.41E+00
P-32	%	6.41E-04	0.00E+00
PU-238	%	9.96E-05	1.14E-03
PU-239/240	%	7.70E-06	6.10E-04
PU-241	%	5.21E-03	2.44E-02
RU-103	%	3.90E-04	0.00E+00
SB-124	%	4.72E-01	0.00E+00
SB-125	%	1.06E-01	6.01E-01
SR-89	%	1.42E-04	1.39E-04
SR-90	%	4.39E-04	1.41E-02
TC-99	%	8.76E-05	2.78E-03
ZR-95	%	1.24E-01	1.46E-04

B

AG-110M	%	2.85E-01	1.33E-01
AM-241	%	6.52E-04	2.08E-03
BA-140	%	0.00E+00	1.94E-05
C-14	%	2.56E-01	6.40E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: BEAVER VALLEY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
CE-144/PR-144	%	1.19E-01	5.80E-02
CM-242	%	1.37E-03	4.15E-04
CM-243/244	%	8.24E-04	1.63E-03
CO-57	%	1.01E-01	4.77E-02
CO-58	%	2.96E+00	2.17E+00
CO-60	%	2.61E+01	2.72E+01
CS-134	%	7.41E+00	5.82E+00
CS-137	%	1.23E+01	1.29E+01
FE-55	%	3.64E+01	3.46E+01
FE-59	%	0.00E+00	1.87E-03
H-3	%	1.96E+00	2.78E+00
I-129	%	1.13E-02	3.23E-02
I-131	%	0.00E+00	1.22E-06
MN-54	%	9.76E-01	7.90E-01
NB-95	%	0.00E+00	2.85E-03
NI-63	%	1.04E+01	1.15E+01
P-32	%	0.00E+00	4.83E-05
PU-238	%	3.01E-03	5.51E-03
PU-239/240	%	1.63E-03	3.20E-03
PU-241	%	0.00E+00	5.41E-01
SB-125	%	6.91E-01	6.84E-01
SR-89	%	0.00E+00	6.95E-04
SR-90	%	3.24E-02	3.22E-02
TC-99	%	8.53E-03	1.91E-02
ZR-95	%	0.00E+00	1.03E-02

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	5.13E+01
	CI	4.23E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	1.81E+02 *
	CI	6.17E+00
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

*VOLUME AFTER REDUCTION (4.69 E+2 M3 PRIOR TO REDUCTION)

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: BEAVER VALLEY 1

LOCATION: SHIPPINGPORT, PA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE: PWR   LICENSEE: DUQUESNE LIGHT
DOCKET NO.: 50-334   LICENSED POWER (MWT): 2.66E+03
THERMAL POWER (MWH): 1.64E+07   NET ELECTRIC POWER (MWH): 4.98E+06
COMMERCIAL OPERATION: 10/01/76   INITIAL CRITICALITY: 05/10/76
COOLING WATER SOURCE: OHIO RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-58	9.13E-04
CO-60	4.05E-04
KR-85	5.00E+01
I-131	1.70E-03
XE-131M	3.73E+00
I-133	1.16E-05
XE-133	2.03E+01
XE-133M	2.90E-02
CS-134	2.05E-06
XE-135	1.42E+00
CS-137	8.83E-05
CE-141	4.60E-06

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:BEAVER VALLEY 2

LOCATION:SHIPPINGPORT, PA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2	TYPE:PWR	LICENSEE:DUQUESNE LIGHT
DOCKET NO.:50-412		LICENSED POWER (MWT):2.66E+03
THERMAL POWER (MWH):2.13E+07		NET ELECTRIC POWER (MWH):6.48E+06
COMMERCIAL OPERATION:11/17/87		INITIAL CRITICALITY:08/04/87
COOLING WATER SOURCE:OHIO RIVER		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-58	3.12E-05
CO-60	7.48E-05
KR-85	1.30E+01
MO-99	8.45E-07
I-131	1.18E-05
I-133	7.00E-06
XE-133	5.39E-01
XE-135	1.53E+00
CE-141	3.83E-07
CE-144	7.73E-06

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:CONSUMERS POWER
DOCKET NO.:50-155   LICENSED POWER (MWT):2.40E+02
THERMAL POWER (MWH):1.26E+06   NET ELECTRIC POWER (MWH):3.84E+05
COMMERCIAL OPERATION:03/29/63   INITIAL CRITICALITY:09/27/62
COOLING WATER SOURCE:LAKE MICHIGAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
N-13	1.47E+03
NA-24	1.97E-04
CR-51	5.12E-04
MN-54	1.61E-04
CO-58	1.91E-06
FE-59	7.36E-06
CO-60	2.42E-04
ZN-65	9.26E-05
BR-82	3.11E-03
KR-85M	1.13E+02
KR-87	5.62E+02
KR-88	3.54E+02
SR-89	2.03E-04
SR-90	3.37E-06
SR-91	3.72E-03
NB-95	6.22E-06
MO-99	1.04E-04
AG-110M	6.92E-04
I-131	2.15E-03
I-133	2.05E-02
XE-133	4.26E+01
CS-134	8.11E-05
I-135	2.51E-02
XE-135	5.33E+02
XE-135M	9.16E+02
CS-137	2.96E-04
XE-138	3.78E+03
BA-139	9.76E-04
BA-140	5.30E-04
LA-140	1.55E-03
HG-203	2.81E-06
NP-239	5.63E-05
UNIDENTIFIED	1.77E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.06E-03
MN-54	4.53E-02
CO-58	9.88E-04
FE-59	6.02E-03
CO-60	5.69E-02
ZN-65	2.49E-03
SR-89	7.02E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:BIG ROCK POINT

LOCATION:4 MI NE CHARLEVOIX, MI

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-90	3.76E-03
SR-92	7.32E-06
MO-99	8.15E-06
AG-110M	8.84E-04
SB-124	4.97E-04
I-131	2.16E-04
I-133	5.31E-04
CS-134	3.91E-03
I-135	2.75E-04
CS-137	3.70E-02
UNIDENTIFIED	5.79E-02

TOTAL AIRBORNE TRITIUM RELEASE 5.30E+00

TOTAL LIQUID TRITIUM RELEASE 3.47E-01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	7.07E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	8.20E+10

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS   MODE OF TRANSPORTATION
6   N/R

DESTINATION
BARNWELL SC

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT YEAR TOTAL

M3   1.55E+01
CI   7.64E+01
M3   2.81E+01
CI   8.10E-01
M3   8.30E-01
CI   6.51E+02
M3
CI

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:BRAIDWOOD 1

LOCATION:24 MI SSW OF JOLIET, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:COMMONWEALTH EDISON
DOCKET NO.:50-456   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):1.04E+07   NET ELECTRIC POWER (MWH):3.42E+06
COMMERCIAL OPERATION:07/29/88   INITIAL CRITICALITY:05/29/87
COOLING WATER SOURCE:KANKAKEE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.31E-01
CO-58	1.20E-07
CO-60	1.90E-07
KR-85	1.78E-01
KR-85M	1.87E-02
KR-87	6.38E-04
KR-88	1.63E-02
I-131	3.22E-04
XE-131M	5.33E-01
I-133	1.27E-04
XE-133	4.02E+01
XE-133M	2.70E-01
I-134	2.40E-02
XE-135	3.81E-01

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.77E-03
CL-38	7.32E-05
CR-51	5.56E-03
MN-54	2.14E-01
CO-57	6.75E-03
CO-58	8.03E+00
FE-59	5.75E-03
CO-60	1.40E-01
CU-64	7.97E-04
NI-65	1.16E-05
BR-82	7.36E-05
KR-85	2.96E-01
KR-88	2.19E-02
SR-89	6.68E-04
Y-92	1.76E-05
NB-95	1.75E-03
ZR-95	9.58E-04
ZR-97	1.50E-02
MO-99	1.02E-04
AG-110M	4.49E-05
SN-113	2.58E-05
SB-124	4.51E-02
SB-125	1.23E-03
I-131	1.87E-02
I-132	6.56E-02
I-133	1.29E-03

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

INSTALLATION:BRAIDWOOD 1

LOCATION:24 MI SSW OF JOLIET, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-133	1.26E-02
CS-134	1.92E-03
I-134	1.44E-03
I-135	3.28E-05
XE-135	1.09E-04
CS-136	1.28E-04
CS-137	8.82E-03
BA-LA-140	1.89E-03
W-187	3.64E-05

TOTAL AIRBORNE TRITIUM RELEASE	2.73E+00
TOTAL LIQUID TRITIUM RELEASE	2.74E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.53E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.81E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:COMMONWEALTH EDISON
DOCKET NO.:50-457   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):4.08E+06   NET ELECTRIC POWER (MWH):1.35E+06
COMMERCIAL OPERATION:10/17/88   INITIAL CRITICALITY:03/08/88
COOLING WATER SOURCE:KANKAKEE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	7.84E-01
KR-85	1.45E-02
KR-85M	1.19E-02
KR-87	9.60E-05
KR-88	5.66E-04
I-131	7.61E-05
XE-131M	8.85E-01
I-133	1.58E-05
XE-133	3.65E+01
XE-133M	1.09E-01
I-135	3.26E-06
XE-135	3.73E-02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.55E-03
CR-51	5.56E-03
MN-54	1.62E-01
CO-57	3.52E-03
CO-58	2.62E+00
FE-59	2.57E-03
CO-60	8.71E-02
CU-64	7.97E-04
NI-65	1.16E-05
BR-82	7.36E-05
KR-88	5.92E-03
Y-92	1.76E-05
NB-95	1.70E-03
ZR-95	9.13E-04
ZR-97	1.50E-02
MO-99	1.02E-04
SN-113	2.58E-05
SB-124	5.65E-03
SB-125	1.23E-03
I-131	1.74E-02
I-132	6.55E-02
I-133	1.28E-03
XE-133	1.21E-02
CS-134	1.92E-03
I-134	1.23E-03
I-135	1.37E-05
XE-135	1.09E-04
CS-136	1.28E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: BRAIDWOOD 2

LOCATION: 24 MI SSW OF JOLIET, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-137	8.82E-03
BA-LA-140	1.36E-03
W-187	3.64E-05

TOTAL AIRBORNE TRITIUM RELEASE	2.66E+00
TOTAL LIQUID TRITIUM RELEASE	2.44E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.41E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.39E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: BRAIDWOOD

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
9	EXCLUSIVE USE VEHICLE	RICHLAND WA
1	EXCLUSIVE USE VEHICLE	SEG, OAK RIDGE TN

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE   JULY-DEC

A

BE-7	%	1.01E+00
CO-58	%	6.69E+01
CO-60	%	2.92E+00
CS-137	%	1.91E+00
FE-55	%	1.65E+00
H-3	%	1.13E+01
MN-54	%	6.26E+01
NI-63	%	2.89E+00
	%	1.47E+00
		1.33E+00

B

CO-58	%	8.69E+01
FE-55	%	1.14E+00
MN-54	%	1.10E+01

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
D. OTHER

UNIT	YEAR TOTAL
M3	5.11E+01
CI	3.46E+00
M3	3.21E+01 *
CI	4.82E-02
M3	
CI	
M3	
CI	

*VOLUME PRIOR TO REDUCTION BY SEG, A LICENSED PROCESSOR (1.76E+1 M3 AFTER REDUCTION).

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE: BWR   LICENSEE: TENNESSEE VALLEY AUTHORITY
DOCKET NO.: 50-259   LICENSED POWER (MWT): 3.29E+03
THERMAL POWER (MWH): 0.00E+00   NET ELECTRIC POWER (MWH): 0.00E+00
COMMERCIAL OPERATION: 08/01/74   INITIAL CRITICALITY: 08/17/73
COOLING WATER SOURCE: TENNESSEE RIVER
UNIT NUMBER: 2   TYPE: BWR   LICENSEE: TENNESSEE VALLEY AUTHORITY
DOCKET NO.: 50-260   LICENSED POWER (MWT): 3.29E+03
THERMAL POWER (MWH): 0.00E+00   NET ELECTRIC POWER (MWH): 0.00E+00
COMMERCIAL OPERATION: 03/01/75   INITIAL CRITICALITY: 07/20/74
COOLING WATER SOURCE: TENNESSEE RIVER
UNIT NUMBER: 3   TYPE: BWR   LICENSEE: TENNESSEE VALLEY AUTHORITY
DOCKET NO.: 50-296   LICENSED POWER (MWT): 3.29E+03
THERMAL POWER (MWH): 0.00E+00   NET ELECTRIC POWER (MWH): 0.00E+00
COMMERCIAL OPERATION: 03/01/77   INITIAL CRITICALITY: 08/08/76
COOLING WATER SOURCE: TENNESSEE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	1.54E-03
KR-85	<1.36E+03
KR-85M	<3.40E+00
KR-87	<8.50E+00
KR-88	<1.22E+01
SR-89	<9.33E-04
SR-90	<3.11E-04
I-131	<4.12E-03
I-133	<2.28E-02
XE-133	<9.26E+00
CS-134	<3.49E-03
I-135	<2.50E+02
XE-135	<3.27E+00
XE-135M	<1.25E+01
CS-137	<3.92E-03
XE-138	<3.27E+01
BA-140	<1.14E-02
LA-140	<4.83E-03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	<1.86E-02
MN-54	<9.57E-04
FE-55	<9.05E-03
CO-57	6.98E-06
CO-58	<2.95E-03
FE-59	<6.10E-03
CO-60	4.56E-02
ZN-65	6.93E-03
KR-85	1.60E-03
SR-89	<1.34E-03
SR-90	<7.15E-04
NB-95	<2.70E-03

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

INSTALLATION: BROWNS FERRY

LOCATION: 10 MI NW DECATUR, AL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ZR-95	<4.76E-03
MO-TC-99M	<2.28E-03
SB-125	1.15E-03
I-131	<3.38E-03
XE-133	<7.49E-03
CS-134	3.67E-02
XE-135	<1.87E-03
CS-137	1.51E-01
BA-140	<1.28E-02
LA-140	<1.88E-03
CE-141	<3.95E-03
HF-181	8.45E-06

TOTAL AIRBORNE TRITIUM RELEASE	5.92E-01
TOTAL LIQUID TRITIUM RELEASE	1.46E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.58E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.65E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: BROWNS FERRY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
71	SOLE USE TRUCK	BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
A			
CO-60	%	2.67E+01	4.88E+01
CS-134	%	1.08E+01	3.62E+00
CS-137	%	3.82E+01	1.48E+01
FE-55	%	9.11E+00	2.26E+01
MN-54	%	8.40E-02	1.76E-01
OTHERS	%	4.15E+00	3.88E+00
ZN-65	%	1.09E+01	3.07E+00
B			
AG-110M	%	1.22E+00	1.33E+00
CO-60	%	2.06E+01	1.88E+01
CR-51	%	1.12E+01	1.21E+01
CS-134	%	7.11E+00	7.19E+00
CS-137	%	8.65E+00	7.19E+00
FE-55	%	2.48E+01	2.57E+01
FE-59	%	1.79E+00	1.34E+00
MN-54	%	4.08E+00	4.43E+00
NB-95	%	2.13E+00	2.31E+01
OTHERS	%	4.92E-01	2.14E-01
ZN-65	%	1.80E+01	1.94E+01
C			
CO-60	%		5.56E+01
FE-55	%		3.80E+01
OTHERS	%		5.14E+00
ZN-65	%		1.29E+00

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	2.17E+02
BOTTOMS, ETC.	CI	4.34E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	5.62E+02*
EQUIPMENT, ETC.	CI	3.20E+01
C. IRRADIATED COMPONENTS, CONTROL	M3	1.69E+00
RODS, ETC.	CI	1.06E+02
D. OTHER	M3	
	CI	

*VOLUME AFTER COMPACTION(9.34E+02 M3 BEFORE COMPACTION)

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:CAROLINA POWER &LIGHT
DOCKET NO.:50-325   LICENSED POWER (MWT):2.44E+03
THERMAL POWER (MWH):1.43E+07   NET ELECTRIC POWER (MWH):4.45E+06
COMMERCIAL OPERATION:03/18/77   INITIAL CRITICALITY:10/08/76
COOLING WATER SOURCE:CAPE FEAR RIVER

UNIT NUMBER: 2   TYPE:BWR   LICENSEE:CAROLINA POWER &LIGHT
DOCKET NO.:50-324   LICENSED POWER (MWT):2.44E+03
THERMAL POWER (MWH):1.24E+07   NET ELECTRIC POWER (MWH):3.92E+06
COMMERCIAL OPERATION:11/03/75   INITIAL CRITICALITY:03/20/75
COOLING WATER SOURCE:CAPE FEAR RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.17E+01
CR-51	1.30E-01
MN-54	6.50E-03
CO-57	2.66E-06
CO-58	3.99E-03
FE-59	1.39E-03
CO-60	7.73E-03
ZN-65	5.73E-05
KR-85M	7.08E+01
KR-87	1.07E+01
KR-88	6.11E+01
SR-89	9.91E-04
SR-90	9.15E-06
NB-95	1.77E-05
RU-103	9.27E-06
I-131	2.27E-02
I-132	3.80E-02
I-133	4.35E-02
XE-133	4.35E+02
XE-133M	1.13E+00
CS-134	1.41E-04
I-134	2.27E-02
I-135	4.57E-02
XE-135	6.10E+02
XE-135M	8.45E+01
CS-136	3.73E-06
CS-137	4.41E-04
XE-137	2.30E+02
XE-138	5.05E+01
BA-140	6.14E-04
BA-LA-140	1.91E-03
LA-140	4.20E-04
CE-141	4.25E-08
CE-144	2.06E-05

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.43E-02
AR-41	5.40E-06
CR-51	1.43E-01
MN-54	1.61E-01
FE-55	3.28E-02
MN-56	4.90E-05
CO-57	7.98E-06
CO-58	3.88E-02
FE-59	1.08E-02
CO-60	2.31E-01
ZN-69M	1.85E-06
AS-76	7.53E-04
KR-85	4.19E-03
KR-85M	5.45E-06
SR-89	2.45E-03
SR-90	6.34E-05
SR-91	4.06E-04
Y-91M	4.88E-04
SR-92	2.44E-04
Y-92	2.37E-04
NB-95	2.35E-05
NB-95M	2.99E-06
MO-99	1.56E-03
TC-99M	4.83E-03
TC-101	1.17E-05
TC-104	6.04E-05
RU-105	1.90E-05
AG-110M	4.37E-04
SB-124	3.59E-05
SB-125	1.24E-04
I-131	1.31E-02
I-132	2.70E-04
TE-132	1.05E-03
I-133	5.97E-03
XE-133	4.91E-02
XE-133M	5.28E-04
CS-134	3.43E-02
I-134	3.41E-05
I-135	2.88E-03
XE-135	1.63E-01
XE-135M	1.82E-03
CS-136	2.85E-04
CS-137	1.21E-01
BA-LA-140	1.35E-04
CE-144	8.58E-04
W-187	2.23E-04
NP-239	7.94E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:BRUNSWICK

LOCATION:20 MI S WILMINGTON, NC

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

TOTAL AIRBORNE TRITIUM RELEASE 5.55E+00
TOTAL LIQUID TRITIUM RELEASE 3.10E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.71E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.82E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: BRUNSWICK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
63	SOLE USE	CNSI BARNWELL SC
41	SOLE USE	SEG OAK RIDGE TN
5	SOLE USE	US ECOLOGY HANFORD WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CO-58	%	1.42E+00	2.01E+00
CO-60	%	2.86E+01	2.46E+01
CR-51	%	2.77E+00	9.56E+00
CS-134	%		2.75E+00
CS-137	%	2.50E+00	3.98E+00
FE-55	%	4.60E+01	3.41E+01
FE-59	%		7.80E-01
I-131	%		7.00E-01
MN-54	%	1.66E+01	1.90E+01
NI-63	%	1.12E+00	1.20E+00

B

CO-58	%	1.20E+00	
CO-60	%	1.89E+01	1.91E+01
CR-51	%	1.40E+00	3.83E+00
CS-137	%		1.70E+00
FE-55	%	6.47E+01	6.63E+01
MN-54	%	1.11E+01	6.87E+00
NI-63	%	9.70E-01	

D

CO-60	%		2.60E+01
CS-137	%		1.30E+00
FE-55	%		6.30E+01
MN-54	%		2.58E+00
SR-89	%		1.55E+00

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	3.16E+02
	CI	1.25E+05
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	3.15E+02 *
	CI	2.41E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	0.00E+00
	CI	0.00E+00
D. OTHER	M3	5.84E+01
OIL	CI	6.35E-01

*VOLUMES REPORTED WERE AFTER COMPACTION

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:BYRON

LOCATION:3 MI SW BYRON, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE:PWR	LICENSEE:COMMONWEALTH EDISON CO.
DOCKET NO.:50-454		LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):1.99E+07		NET ELECTRIC POWER (MWH):6.29E+06
COMMERCIAL OPERATION:09/16/85		INITIAL CRITICALITY:02/02/85
COOLING WATER SOURCE:ROCK RIVER		
UNIT NUMBER: 2	TYPE:PWR	LICENSEE:COMMONWEALTH EDISON CO.
DOCKET NO.:50-455		LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):2.04E+07		NET ELECTRIC POWER (MWH):6.36E+06
COMMERCIAL OPERATION:08/21/87		INITIAL CRITICALITY:01/09/87
COOLING WATER SOURCE:ROCK RIVER		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	6.57E-01
KR-85	1.06E+01
KR-85M	3.97E-01
KR-87	5.57E-03
KR-88	2.53E-01
I-131	1.28E-02
XE-131M	6.72E+00
I-132	4.45E-04
I-133	3.72E-03
XE-133	1.73E+03
XE-133M	1.25E+01
I-134	2.52E-05
I-135	1.12E-03
XE-135	1.71E+01
CS-137	2.32E-05
BA-LA-140	1.78E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.30E-05
CR-51	1.89E-01
MN-54	2.93E-02
CO-57	1.04E-03
CO-58	5.96E-01
FE-59	2.77E-02
CO-60	3.01E-01
ZN-65	8.13E-04
KR-85M	3.80E-04
KR-88	1.74E-04
RB-88	1.57E-03
NB-95	3.90E-02
ZR-95	2.43E-02
MO-99	2.02E-04
TC-99M	2.30E-05
RU-103	8.37E-04
AG-110M	3.18E-05
SN-113	5.36E-04
SB-124	9.63E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SB-125	1.43E-02
I-131	2.70E-02
XE-131M	6.31E-02
I-132	1.01E-03
BA-133	1.85E-04
I-133	9.65E-04
XE-133	5.08E+00
XE-133M	8.36E-02
CS-134	4.45E-02
I-135	3.62E-04
XE-135	1.39E-02
XE-135M	1.48E-04
CS-136	8.14E-04
CS-137	5.45E-02
BA-LA-140	8.71E-03
BA-141	1.02E-04
HF-181	4.93E-04
AU-199	8.87E-05

TOTAL AIRBORNE TRITIUM RELEASE	1.62E+00
TOTAL LIQUID TRITIUM RELEASE	1.01E+03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.69E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.99E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:BYRON

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
32	EXCLUSIVE USE
7	EXCLUSIVE USE

DESTINATION
BARNWELL SC
BARNWELL SC (VIA VENDOR)

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

M3 1.56E+02

CI 5.07E+02

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 1.53E+02 *

CI 2.11E+00

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3

CI

D. OTHER

M3

CI

*THE TOTAL VOLUME CONTAINS 1.09E+2 M3 SENT TO A PROCESSOR & NOT IN FINAL BURIAL FORM.

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:UNION ELECTRIC COMPANY
DOCKET NO.:50-483   LICENSED POWER (MWT):3.57E+03
THERMAL POWER (MWH):2.76E+07   NET ELECTRIC POWER (MWH):8.94E+06
COMMERCIAL OPERATION:12/19/84   INITIAL CRITICALITY:10/02/84
COOLING WATER SOURCE:MISSOURI RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	2.38E-06
AR-41	6.10E-01
KR-85	8.20E+01
KR-85M	2.50E+00
KR-88	7.28E-01
RB-88	8.30E-02
I-131	1.87E-05
XE-131M	2.40E+00
XE-133	5.60E+02
XE-133M	2.56E+00
XE-135	3.73E+01

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	5.37E-03
MN-54	1.88E-03
FE-55	1.50E-02
CO-57	4.11E-05
CO-58	3.75E-03
FE-59	1.43E-05
CO-60	1.05E-02
KR-85	8.98E-04
KR-85M	3.33E-06
KR-87	7.37E-06
SR-89	4.69E-03
SR-90	1.86E-03
NB-95	5.71E-04
ZR-95	1.71E-04
RU-106	9.62E-04
AG-110M	4.07E-06
SN-113	7.47E-06
SB-124	1.41E-05
I-131	3.29E-04
XE-131M	4.53E-03
I-133	3.35E-06
XE-133	7.04E-01
XE-133M	5.86E-03
CS-134	1.29E-02
XE-135	5.47E-03
CS-137	2.02E-02
BA-140	1.46E-05
CE-144	4.43E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:CALLAWAY

LOCATION:10 MI SE FULTON, MO

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

TOTAL AIRBORNE TRITIUM RELEASE 1.53E+01
TOTAL LIQUID TRITIUM RELEASE 8.93E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	9.77E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.68E+09

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: CALLAWAY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
2	CASK	BARNWELL SC
1	CASK	RICHLAND WA
1	TRUCK	BEATTY NV
7	TRUCK	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-58	%	1.24E+01	
CO-60	%	9.56E+00	2.01E+01
CS-134	%	1.33E+01	1.41E+01
CS-137	%	1.76E+01	3.04E+01
FE-55	%	1.32E+01	1.79E+01
H-3	%	1.27E+01	
MN-54	%	2.60E+00	6.77E+00
NI-63	%	8.01E+00	9.73E+00
SB-125	%	9.73E+00	

B

C-14	%	1.14E+01	
CE-144	%	2.13E+00	
CO-58	%	2.08E+01	
CO-60	%	6.13E+00	
CR-51	%	2.26E+01	
FE-55	%	1.04E+01	
MN-54	%	3.75E+00	
NB-95	%	9.91E+00	
NI-63	%	5.15E+00	
ZR-95	%	6.50E+00	

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

M3 6.36E+01

CI 9.44E+02

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 2.98E+01

CI 1.28E+00

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3

CI

D. OTHER

M3

CI

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE: PWR	LICENSEE: BALTIMORE GAS & ELECTRIC
DOCKET NO.: 50-317		LICENSED POWER (MWT): 2.70E+03
THERMAL POWER (MWH): 1.62E+07		NET ELECTRIC POWER (MWH): 5.16E+06
COMMERCIAL OPERATION: 05/08/75		INITIAL CRITICALITY: 10/07/74
COOLING WATER SOURCE: CHESAPEAKE BAY		
UNIT NUMBER: 2	TYPE: PWR	LICENSEE: BALTIMORE GAS & ELECTRIC
DOCKET NO.: 50-318		LICENSED POWER (MWT): 2.70E+03
THERMAL POWER (MWH): 2.07E+07		NET ELECTRIC POWER (MWH): 6.60E+06
COMMERCIAL OPERATION: 04/01/77		INITIAL CRITICALITY: 11/30/76
COOLING WATER SOURCE: CHESAPEAKE BAY		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	5.46E-06
AR-41	6.08E-02
CO-57	4.97E-07
CO-58	2.10E-05
CO-60	2.80E-06
KR-85	3.14E+02
KR-85M	4.46E+01
KR-87	9.08E+00
KR-88	4.46E+00
I-131	1.25E-01
XE-131M	2.55E+01
TE-132	6.82E-07
I-133	1.17E-01
XE-133	4.88E+03
XE-133M	3.89E+01
CS-134	2.04E-05
I-135	8.97E-05
XE-135	3.74E+02
XE-135M	3.26E-03
CS-137	1.17E-02
CE-144	9.86E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	7.97E-05
NA-24	1.23E-03
CR-51	8.54E-02
MN-54	8.81E-03
CO-57	2.65E-04
CO-58	4.78E-01
FE-59	2.16E-04
CO-60	3.31E-02
SR-89	<3.68E-03
SR-90	<4.91E-04
NB-95	3.17E-02
ZR-95	1.66E-02
NB-97	1.75E-02
MO-99	9.60E-05

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
TC-99M	3.63E-03
RU-103	3.01E-03
AG-108M	1.84E-05
AG-110M	7.21E-02
SN-113	2.17E-03
SB-124	2.05E-02
SB-125	1.70E-01
TE-129	4.47E-05
I-131	2.79E-01
I-132	1.71E-03
TE-132	6.75E-04
I-133	2.54E-02
CS-134	4.48E-01
I-135	6.68E-04
CS-136	4.62E-03
CS-137	9.31E-01
BA-140	1.72E-05
LA-140	3.27E-04
CE-141	5.74E-04
LA-142	1.66E-03
CE-144	2.21E-03
HG-203	5.28E-05

TOTAL AIRBORNE TRITIUM RELEASE	3.13E+01
TOTAL LIQUID TRITIUM RELEASE	6.24E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.16E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.38E+12

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: CALVERT CLIFFS

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
13	MOTOR SURFACE TRANSIT	BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)   JAN-JUNE   JULY-DEC

A		
CO-58	%	7.50E+00 3.05E+01
CO-60	%	1.70E+00 1.70E+00
CS-134	%	3.34E+01 1.87E+01
CS-137	%	5.02E+01 4.00E+01
MN-54	%	1.00E+00
NI-63	%	5.10E+00 5.10E+00
B		
CO-60	%	1.50E+01
CS-134	%	1.10E+01
CS-137	%	2.20E+01
FE-55	%	4.20E+01
NI-63	%	9.00E+00

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	UNIT	YEAR TOTAL
	M3	2.09E+01
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	CI	1.12E+03
	M3	3.16E+01 *
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	CI	1.72E+00
	M3	
D. OTHER	CI	
	M3	
	CI	

*VOLUME AFTER REDUCTION (5.98E+1 M3 PRIOR TO REDUCTION)

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE: PWR   LICENSEE: DUKE POWER CO
DOCKET NO.: 50-413   LICENSED POWER (MWT): 3.41E+03
THERMAL POWER (MWH): 2.29E+07   NET ELECTRIC POWER (MWH): 7.63E+06
COMMERCIAL OPERATION: 06/29/85   INITIAL CRITICALITY: 01/07/85
COOLING WATER SOURCE: LAKE WYLIE

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	3.18E-03
NA-24	1.38E-06
AR-41	5.99E+00
CR-51	6.34E-07
MN-54	2.85E-06
MN-56	7.97E-08
CO-58	1.52E-05
CO-60	6.81E-06
BR-80M	1.06E-06
BR-82	1.28E-06
KR-85	2.08E+00
KR-85M	9.23E-01
KR-87	1.31E-01
KR-88	1.03E+00
RB-88	7.96E-05
RB-89	1.57E-08
SR-90	3.26E-07
NB-95	7.70E-08
ZR-95	4.15E-10
TC-99M	3.79E-09
RU-106	3.53E-08
AG-108M	2.38E-09
SB-126	1.04E-08
I-131	7.62E-04
TE-131M	1.09E-08
XE-131M	1.22E+01
I-132	2.30E-06
I-133	4.50E-04
XE-133	1.51E+03
XE-133M	1.55E+01
CS-134	3.41E-08
I-134	1.44E-06
I-135	1.88E-06
XE-135	1.80E+01
XE-135M	5.68E-03
CS-137	5.74E-08
CS-138	1.13E-06
XE-138	3.60E-03
BA-139	4.72E-08
BA-140	8.32E-10
W-187	5.26E-08

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	3.98E-04
F-18	6.22E-03
NA-24	3.34E-04
AR-41	1.06E-07
SC-46	1.03E-05
CR-51	5.25E-02
MN-54	2.14E-02
FE-55	1.82E-01
CO-57	4.75E-04
CO-58	1.17E-01
FE-59	1.02E-02
CO-60	5.41E-02
ZN-65	4.02E-04
SE-75	7.77E-05
BR-80M	8.66E-05
BR-82	3.77E-05
BR-84	3.02E-05
KR-85M	1.32E-05
KR-88	8.82E-06
RB-88	3.22E-05
SR-89	6.09E-05
SR-90	1.34E-05
Y-91M	9.25E-06
SR-92	5.54E-05
NB-95	6.51E-03
ZR-95	4.12E-03
NB-97	8.12E-04
NB-97M	1.80E-05
MO-99	5.35E-05
TC-99M	3.37E-04
RU-103	3.08E-04
RU-106	5.10E-04
AG-110M	3.15E-04
SN-113	9.75E-04
SB-122	1.46E-03
SB-124	7.32E-03
SB-125	2.29E-02
SB-126	1.60E-04
I-131	9.78E-03
TE-131M	5.34E-05
XE-131M	1.62E-04
I-132	1.54E-04
I-133	2.19E-03
XE-133	7.12E-02
XE-133M	1.61E-03
CS-134	5.92E-03
I-135	9.37E-05
XE-135	3.86E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-135M	1.66E-05
CS-136	4.28E-05
CS-137	9.24E-03
CS-138	6.67E-03
BA-139	1.24E-05
BA-140	6.29E-05
LA-140	1.44E-03
CE-141	8.99E-06
CE-143	2.75E-06
HF-181	1.41E-05
W-187	3.73E-05
TL-208	5.12E-06
PB-212	1.92E-05
BI-214	4.81E-05
PB-214	1.25E-04
AC-228	1.08E-05
TH-228	1.44E-02
NP-239	2.26E-05

TOTAL AIRBORNE TRITIUM RELEASE	3.03E+01
TOTAL LIQUID TRITIUM RELEASE	3.53E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.46E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.15E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:DUKE POWER CO
DOCKET NO.:50-414   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):1.88E+07   NET ELECTRIC POWER (MWH):6.17E+06
COMMERCIAL OPERATION:08/19/86   INITIAL CRITICALITY:05/08/86
COOLING WATER SOURCE:LAKE WYLIE

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	3.18E-03
NA-24	1.38E-06
AR-41	5.99E+00
CR-51	6.34E-07
MN-54	2.85E-06
MN-56	7.97E-08
CO-58	1.52E-05
CO-60	6.81E-06
BR-80M	1.06E-06
BR-82	1.28E-06
KR-85	2.08E+00
KR-85M	9.23E-01
KR-87	1.31E-01
KR-88	1.03E+00
RB-88	7.96E-05
RB-89	1.57E-08
SR-90	3.26E-07
NB-95	7.70E-08
ZR-95	4.15E-10
TC-99M	3.79E-09
RU-106	3.53E-08
AG-108M	2.38E-09
SB-126	1.04E-08
I-131	7.62E-04
TE-131M	1.09E-08
XE-131M	1.22E+01
I-132	2.30E-06
I-133	4.50E-04
XE-133	1.51E+03
XE-133M	1.55E+01
CS-134	3.41E-08
I-134	1.44E-06
I-135	1.88E-06
XE-135	1.80E+01
XE-135M	5.68E-03
CS-137	5.74E-08
CS-138	1.13E-06
XE-138	3.60E-03
BA-139	4.72E-08
BA-140	8.32E-10
W-187	5.26E-08

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	3.98E-04
F-18	6.22E-03
NA-24	3.34E-04
AR-41	1.06E-07
SC-46	1.03E-05
CR-51	5.25E-02
MN-54	2.14E-02
FE-55	1.82E-01
CO-57	4.75E-04
CO-58	1.17E-01
FE-59	1.02E-02
CO-60	5.41E-02
ZN-65	4.02E-04
SE-75	7.77E-05
BR-80M	8.66E-05
BR-82	3.77E-05
BR-84	3.02E-05
KR-85M	1.32E-05
KR-88	8.82E-06
RB-88	3.22E-05
SR-89	6.09E-05
SR-90	1.34E-05
Y-91M	9.25E-06
SR-92	5.54E-05
NB-95	6.51E-03
ZR-95	4.12E-03
NB-97	8.12E-04
NB-97M	1.80E-05
MO-99	5.35E-05
TC-99M	3.37E-04
RU-103	3.08E-04
RU-106	5.10E-04
AG-110M	3.15E-04
SN-113	9.75E-04
SB-122	1.46E-03
SB-124	7.32E-03
SB-125	2.29E-02
SB-126	1.60E-04
I-131	9.78E-03
TE-131M	5.34E-05
XE-131M	1.62E-04
I-132	1.54E-04
I-133	2.19E-03
XE-133	7.12E-02
XE-133M	1.61E-03
CS-134	5.92E-03
I-135	9.37E-05
XE-135	3.86E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-135M	1.66E-05
CS-136	4.28E-05
CS-137	9.24E-03
CS-138	6.67E-03
BA-139	1.24E-05
BA-140	6.29E-05
LA-140	1.44E-03
CE-141	8.99E-06
CE-143	2.75E-06
HF-181	1.41E-05
W-187	3.73E-05
TL-208	5.12E-06
PB-212	1.92E-05
BI-214	4.81E-05
PB-214	1.25E-04
AC-228	1.08E-05
TH-228	1.44E-02
NP-239	2.26E-05

TOTAL AIRBORNE TRITIUM RELEASE	3.03E+01
TOTAL LIQUID TRITIUM RELEASE	3.53E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.46E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.15E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: CATAWBA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS   MODE OF TRANSPORTATION
+   15   N/R

DESTINATION
N/R

+DOES NOT INCLUDE BROKERED TOTALS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

BA-140	%		5.06E-05
CO-58	%	3.31E+01	1.50E+01
CO-60	%	1.09E+01	1.47E+01
CS-134	%	7.61E+00	5.90E+00
CS-137	%	1.36E+01	1.11E+01
FE-55	%	1.44E+01	1.92E+01
I-131	%		1.01E-03
I-133	%		1.01E-04
LA-140	%		6.75E-05
MN-54	%	1.03E+01	2.40E+01
NI-63	%	7.10E+00	9.70E+00
TC-99M	%		1.01E-04

B

CO-58	%	2.80E+01	2.43E+01
CO-60	%	1.58E+01	2.47E+01
CR-51	%	2.15E+01	1.81E+01
FE-55	%	8.37E+00	7.00E+00
MN-54	%	6.49E+00	9.20E+00
NB-95	%	1.25E+01	1.05E+01
NI-63	%	1.18E+00	1.00E+00
ZR-95	%	5.63E+00	4.70E+00

D

CO-58	%	2.33E+01	2.33E+01
CO-60	%	2.11E+01	2.11E+01
CR-51	%	1.05E+01	1.05E+01
FE-55	%	2.82E+01	2.82E+01
FE-59	%	2.00E+00	2.00E+00
H-3	%	3.80E+00	3.80E+00
MN-54	%	5.90E+00	5.90E+00
NB-95	%	2.10E+00	2.10E+00
NI-63	%	3.10E+00	3.10E+00

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: CATAWBA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	7.00E+01
BOTTOMS, ETC.	CI	6.40E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	1.70E+02 *
EQUIPMENT, ETC.	CI	2.96E+01
C. IRRADIATED COMPONENTS, CONTROL	M3	
RODS, ETC.	CI	
D. OTHER	M3	1.60E+01
DEWATERED MECHANICAL FILTERS	CI	3.55E+01

*TOTAL VOLUME INCLUDES COMPACTED AND NON-COMPACTED VOLUMES

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:ILLINOIS POWER
DOCKET NO.:50-461   LICENSED POWER (MWT):2.89E+03
THERMAL POWER (MWH):1.86E+07   NET ELECTRIC POWER (MWH):5.86E+06
COMMERCIAL OPERATION:11/24/87   INITIAL CRITICALITY:02/27/87
COOLING WATER SOURCE:SALT CREEK

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.74E-03
CR-51	5.36E-02
MN-54	2.08E-03
CO-58	1.41E-03
FE-59	2.45E-04
CO-60	1.77E-03
AS-76	3.27E-05
SR-89	5.81E-05
SR-90	8.44E-07
Y-91M	2.61E-05
TC-99M	4.65E-04
I-131	2.45E-04
I-133	4.77E-04
I-134	7.70E-05
XE-135	4.34E+00
CS-138	7.99E-04
BA-139	1.55E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	8.23E-04
CR-51	7.88E-02
MN-54	1.23E-02
FE-55	1.80E-03
CO-58	7.29E-03
FE-59	4.99E-04
CO-60	6.07E-03
ZN-65	2.04E-05
AS-76	6.98E-05
SR-89	1.23E-03
SR-90	3.82E-05
ZR-NB-95	6.68E-06
MO-99	1.54E-04
TC-99M	4.71E-04
SB-122	2.41E-05
SB-124	3.60E-05
XE-135	2.82E-06

TOTAL AIRBORNE TRITIUM RELEASE 8.82E+00
TOTAL LIQUID TRITIUM RELEASE 2.90E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.62E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.40E+08

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 24
MODE OF TRANSPORTATION TRUCK

DESTINATION
RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS 0
MODE OF TRANSPORTATION N/A

DESTINATION
N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A		
C-14	%	9.86E+00
CO-58	%	5.90E+00
CO-60	%	9.30E+00
CR-51	%	1.46E+01
FE-55	%	2.62E+01
FE-59	%	3.00E+00
MN-54	%	3.97E+01
NI-63	%	1.26E+01
OTHER	%	1.30E+00
B		
CO-58	%	4.70E+00
CO-60	%	4.00E+00
CR-51	%	4.87E+01
FE-55	%	1.66E+01
FE-59	%	1.20E+00
MN-54	%	2.46E+01
OTHER	%	2.00E-01

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT YEAR TOTAL

M3 1.48E+02
CI 5.85E+01
M3 1.39E+02
CI 2.90E+00
M3
CI
M3
CI

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:INDIANA MICHIGAN POWER CO.
DOCKET NO.:50-315   LICENSED POWER (MWT):3.25E+03
THERMAL POWER (MWH):2.42E+07   NET ELECTRIC POWER (MWH):7.47E+06
COMMERCIAL OPERATION:08/27/75   INITIAL CRITICALITY:01/18/75
COOLING WATER SOURCE:LAKE MICHIGAN
UNIT NUMBER: 2   TYPE:PWR   LICENSEE:INDIANA MICHIGAN POWER CO.
DOCKET NO.:50-316   LICENSED POWER (MWT):3.39E+03
THERMAL POWER (MWH):7.41E+06   NET ELECTRIC POWER (MWH):2.32E+06
COMMERCIAL OPERATION:07/01/78   INITIAL CRITICALITY:03/10/78
COOLING WATER SOURCE:LAKE MICHIGAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.90E-01
MN-54	3.39E-06
CO-58	6.83E-05
CO-60	3.42E-07
KR-85	1.52E+00
KR-85M	1.45E-01
KR-87	1.27E-01
KR-88	7.04E-01
NB-95	1.34E-07
ZR-95	3.33E-06
CD-109	3.49E-05
I-131	6.79E-03
XE-131M	8.08E-01
I-133	8.13E-04
XE-133	2.45E+02
XE-133M	1.25E+00
CS-134	3.40E-04
I-135	6.64E-05
XE-135	8.12E+00
XE-135M	1.35E-01
CS-137	8.04E-04
XE-138	1.04E-01
CE-139	4.92E-08

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	4.06E-04
CR-51	7.12E-03
MN-54	2.39E-02
FE-55	3.70E-02
CO-57	4.95E-04
CO-58	7.30E-02
CO-60	6.72E-02
ZN-65	1.78E-03
KR-85	1.96E-03
SR-85	8.68E-06
SR-89	3.67E-04
SR-90	1.64E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:DONALD C. COOK

LOCATION:11 MI SSW ST. JOSEPH, MI

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ZR-NB-95	2.91E-03
ZR-97	6.85E-04
TC-99M	8.85E-05
AG-110M	2.69E-02
SN-113	2.69E-04
SB-124	1.98E-03
SB-125	4.66E-02
I-131	3.94E-02
XE-131M	7.36E-03
I-133	1.14E-03
XE-133	5.70E-01
XE-133M	5.34E-03
CS-134	2.93E-02
XE-135	1.48E-03
CS-136	3.30E-03
CS-137	3.78E-02
BA-LA-140	5.66E-04

TOTAL AIRBORNE TRITIUM RELEASE	6.04E+00
TOTAL LIQUID TRITIUM RELEASE	1.10E+03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.78E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.27E+12

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
47	TRUCK	BARNWELL SC
1	TRUCK	RICHLAND WA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)	JAN-JUNE	JULY-DEC
A		
CO-58	% 5.00E+00	
CO-60	% 3.00E+01	
CS-134	% 1.50E+01	
CS-137	% 3.50E+01	
FE-55	% 5.00E+00	
NI-63	% 1.00E+01	
B		
C-14	%	2.00E-01
CO-58	% 4.00E+01	
CO-60	% 2.00E+01	3.80E+01
CS-134	% 1.00E+01	1.40E+01
CS-137	% 1.50E+01	4.70E+01
FE-55	% 1.50E+01	
H-3	%	7.00E-01

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	2.64E+01
BOTTOMS, ETC.	CI	5.55E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	2.19E+02 *
EQUIPMENT, ETC.	CI	3.13E+00
C. IRRADIATED COMPONENTS, CONTROL	M3	
RODS, ETC.	CI	
D. OTHER	M3	
	CI	

*VOLUME BURIED AFTER REDUCTION (8.82E+2 M3 PRIOR TO REDUCTION)

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:COOPER

LOCATION:70 MI S OMAHA, NE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:NEBRASKA PUBLIC PWR&IOWA PWR&LIGHT
DOCKET NO.:50-298   LICENSED POWER (MWT):2.38E+03
THERMAL POWER (MWH):1.31E+07   NET ELECTRIC POWER (MWH):4.20E+06
COMMERCIAL OPERATION:07/01/74   INITIAL CRITICALITY:02/21/74
COOLING WATER SOURCE:MISSOURI RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
KR-83M	1.38E+01
KR-85	7.64E+01
KR-85M	2.70E+01
KR-87	8.56E+01
KR-88	8.83E+01
RB-88	8.00E-04
KR-89	3.82E+02
RB-89	5.38E-06
SR-89	4.23E-04
SR-91	6.62E-04
I-131	9.86E-03
I-132	9.25E-05
TE-132	4.08E-05
I-133	2.02E-03
XE-133	1.31E+02
XE-133M	1.15E+00
I-135	1.12E-03
XE-135	1.31E+02
XE-135M	4.72E+01
CS-137	3.84E-05
XE-137	4.60E+02
CS-138	7.61E-03
XE-138	3.74E+02
BA-139	2.09E-04
BA-140	4.59E-04
LA-140	3.14E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.59E-02
CR-51	1.44E-01
MN-54	2.80E-01
FE-55	7.46E-02
CO-58	8.84E-02
FE-59	1.00E-03
CO-60	1.09E+00
SR-89	8.27E-02
SR-90	6.99E-03
MO-99	4.76E-04
TC-99M	1.18E-02
AG-110M	9.87E-03
SB-125	1.72E-03
I-131	6.89E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-133	3.37E-03
XE-133	3.02E-03
CS-134	1.61E-01
XE-135	7.09E-05
CS-136	2.00E-04
CS-137	2.77E-01
BA-140	2.10E-03
LA-140	2.23E-03

TOTAL AIRBORNE TRITIUM RELEASE	N/D
TOTAL LIQUID TRITIUM RELEASE	4.17E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.02E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.68E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: COOPER

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	EXCLUSIVE USE VEHICLE	BEATTY NV
31	EXCLUSIVE USE VEHICLE	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
7	RAIL	MORRIS IL

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A			
	AG-110M	%	4.46E-01 2.13E-01
	BA-1A-140	%	2.93E-01 1.48E-02
	C-14	%	7.12E-01 5.67E-01
	CM-242	%	2.34E-04 1.01E-04
	CO-58	%	8.00E-01 2.26E+00
	CO-60	%	3.79E+01 5.53E+01
	CR-51	%	4.38E+00
	CS-134	%	4.94E+00 3.08E+00
	CS-137	%	8.83E+00 4.60E+00
	FE-55	%	2.71E+01 2.30E+01
	H-3	%	7.26E-02 5.23E-02
	I-129	%	2.90E-04 8.15E-05
	I-131	%	5.44E-01 2.59E-01
	I-133	%	6.36E-05
	MN-54	%	1.27E+01 9.47E+00
	NI-63	%	1.00E+00 1.24E+00
	PU-241	%	1.96E-02 7.31E-03
	SB-125	%	2.52E-01
	SR-90	%	1.45E-02 6.90E-03
	TC-99	%	2.54E-03 1.38E-03
B			
	C-14	%	2.33E-02 1.76E-02
	CM-242	%	1.83E-04 1.41E-04
	CO-58	%	4.87E-01 3.67E-01
	CO-60	%	4.39E+01 4.73E+01
	CS-134	%	3.69E-01 3.83E-01
	CS-137	%	1.18E+00 1.30E+00
	FE-55	%	4.33E+01 4.21E+01
	H-3	%	6.37E-02 4.79E-02
	MN-54	%	3.28E+00 2.64E+00
	NI-63	%	6.37E+00 4.95E+00
	PU-241	%	6.18E-03 6.59E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: COOPER

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
SB-125	%	1.05E+00	1.03E+00
SR-90	%	9.33E-04	8.46E-04
TC-99	%	9.86E-04	7.40E-04

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	1.28E+02
BOTTOMS, ETC.	CI	1.46E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	1.81E+02
EQUIPMENT, ETC.	CI	1.19E+00
C. IRRADIATED COMPONENTS, CONTROL	M3	
RODS, ETC.	CI	
D. OTHER	M3	
	CI	

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:CRYSTAL RIVER

LOCATION:70 MI N TAMPA, FL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 3   TYPE:PWR   LICENSEE:FLORIDA POWER
DOCKET NO.:50-302   LICENSED POWER (MWT):2.45E+03
THERMAL POWER (MWH):1.78E+07   NET ELECTRIC POWER (MWH):5.77E+06
COMMERCIAL OPERATION:03/13/77   INITIAL CRITICALITY:01/14/77
COOLING WATER SOURCE:GULF OF MEXICO

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
KR-85	2.45E+01
KR-85M	6.88E+00
SR-89	6.78E-07
SR-90	2.69E-07
I-131	9.87E-04
XE-131M	4.29E+01
I-133	7.27E-05
XE-133	3.26E+03
XE-133M	4.05E+00
CS-134	2.56E-05
XE-135	7.22E+01
CS-137	5.08E-05
CS-138	2.96E-07
UNIDENTIFIED	1.40E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	5.79E-04
MN-54	3.19E-03
FE-55	1.42E-02
CO-58	4.38E-02
CO-60	3.96E-02
KR-85	7.88E-02
KR-85M	2.59E-03
KR-88	1.45E-04
RB-88	2.81E-03
SR-89	4.22E-03
SR-90	2.09E-04
SR-92	8.67E-03
NB-95	8.40E-04
ZR-95	1.71E-04
ZR-97	1.08E-03
MO-99	6.94E-05
TC-99M	9.13E-04
RU-106	3.88E-03
AG-110M	2.47E-02
I-131	3.15E-03
XE-131M	2.94E-01
I-133	4.35E-04
XE-133	2.53E+01
XE-133M	2.28E-01
CS-134	5.86E-03
XE-135	1.55E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:CRYSTAL RIVER

LOCATION:70 MI N TAMPA, FL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-137	1.31E-02
BA-139	2.76E-04
LA-140	9.78E-04
UNIDENTIFIED	5.82E-02

TOTAL AIRBORNE TRITIUM RELEASE	9.93E+00
TOTAL LIQUID TRITIUM RELEASE	5.11E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.42E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	8.37E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:CRYSTAL RIVER

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
18	TRUCK (EXCLUSIVE USE)

DESTINATION
BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
0	N/A

DESTINATION
N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-58	%	5.05E+01	1.68E+01
CO-60	%	1.01E+01	6.42E+01
CR-51	%	2.22E+00	
CS-134	%	8.81E+00	
CS-137	%	1.33E+01	
MN-54	%	4.29E+00	1.07E+01
NI-63	%	6.89E+00	

B

CO-58	%	1.24E+01	3.90E+00
CO-60	%	1.78E+01	1.41E+01
CS-134	%	1.19E+01	
CS-137	%	2.67E+01	5.50E+00
FE-55	%	2.02E+01	5.01E+01
NI-63	%	4.08E+00	1.40E+01

TYPE OF WASTE

UNIT YEAR TOTAL

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

M3	5.08E+01
CI	1.06E+03
M3	1.75E+02
CI	1.15E+01
M3	
CI	
M3	
CI	

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:DAVIS-BESSE

LOCATION:21 MI E TOLEDO, OH

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:TOLEDO EDISON & CLEVELAND ELEC. ILLUM.
DOCKET NO.:50-346   LICENSED POWER (MWT):2.77E+03
THERMAL POWER (MWH):3.91E+06   NET ELECTRIC POWER (MWH):1.16E+06
COMMERCIAL OPERATION:07/31/78   INITIAL CRITICALITY:08/12/77
COOLING WATER SOURCE:LAKE ERIE

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
KR-85	4.94E+00
KR-88	9.96E-01
SR-89	<8.22E-07
SR-90	<5.12E-07
I-131	4.76E-04
XE-131M	1.93E-02
I-133	1.64E-04
XE-133	1.02E+02
XE-133M	1.59E-01
XE-135	1.12E+00

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.37E-04
MN-54	9.09E-04
FE-55	<3.86E-02
CO-57	3.10E-04
CO-58	3.27E-02
FE-59	7.57E-06
CO-60	5.66E-02
ZN-65	4.61E-06
SR-89	<1.15E-04
SR-90	<3.53E-05
ZR-95	2.88E-04
TC-99M	6.32E-06
AG-110M	3.45E-02
SN-113	2.19E-04
SB-125	2.95E-03
I-131	2.50E-04
CS-134	6.19E-04
CS-137	1.68E-03
LA-140	4.82E-05
CE-144	6.82E-04

TOTAL AIRBORNE TRITIUM RELEASE   4.99E+01
TOTAL LIQUID TRITIUM RELEASE   3.50E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.94E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.93E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS
11

MODE OF TRANSPORTATION
TRUCK (EXCLUSIVE USE)

DESTINATION
BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CS-137

%

3.69E+01

B

CS-137

%

7.26E+01

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

M3 4.23E+01

CI 1.74E+02

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 1.30E+02

CI 2.00E+00

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3

CI

D. OTHER

M3

CI

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:PACIFIC GAS & ELECTRIC CO
DOCKET NO.:50-275   LICENSED POWER (MWT):3.34E+03
THERMAL POWER (MWH):1.66E+07   NET ELECTRIC POWER (MWH):5.26E+06
COMMERCIAL OPERATION:05/07/85   INITIAL CRITICALITY:04/29/84
COOLING WATER SOURCE:PACIFIC OCEAN
UNIT NUMBER: 2   TYPE:PWR   LICENSEE:PACIFIC GAS & ELECTRIC CO
DOCKET NO.:50-323   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):1.98E+07   NET ELECTRIC POWER (MWH):6.23E+06
COMMERCIAL OPERATION:03/13/86   INITIAL CRITICALITY:08/19/85
COOLING WATER SOURCE:PACIFIC OCEAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.07E+00
CR-51	4.75E-06
MN-54	2.34E-04
CO-58	2.28E-04
CO-60	3.18E-05
KR-85	8.99E+00
KR-85M	1.03E-01
KR-87	1.58E-03
KR-88	1.16E-01
ZR-95	1.20E-05
I-131	6.99E-04
XE-131M	1.56E+01
I-133	3.61E-04
XE-133	2.88E+02
XE-133M	9.16E-01
CS-134	4.73E-05
XE-135	1.17E+01
XE-135M	4.45E-03
CS-137	2.98E-05
XE-138	9.76E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	3.84E-04
NA-24	7.49E-04
CR-51	1.87E-02
MN-54	3.60E-02
FE-55	3.50E-01
MN-56	2.11E-08
CO-57	2.92E-03
CO-58	8.53E-01
FE-59	5.68E-03
CO-60	2.00E-01
ZN-65	9.04E-05
KR-85M	6.69E-08
SR-89	1.96E-03
SR-90	1.39E-04
SR-91	4.62E-07

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-92	1.47E-08
ZR-95	9.72E-03
MO-99	1.59E-03
RU-103	1.32E-04
AG-110M	3.10E-04
SN-113	3.25E-04
SN-117M	1.04E-05
SB-122	2.94E-04
SB-124	6.33E-03
SB-125	7.61E-02
TE-129M	1.70E-04
I-131	6.35E-02
XE-131M	3.89E-05
I-132	2.22E-05
TE-132	3.50E-04
I-133	1.70E-02
XE-133	8.87E-02
XE-133M	3.20E-04
CS-134	1.63E-01
I-134	5.47E-08
I-135	1.12E-03
XE-135	2.23E-03
CS-136	1.94E-03
CS-137	1.90E-01
CS-138	6.35E-11
BA-139	7.75E-08
LA-140	2.06E-03
CE-141	2.56E-06
CE-144	5.37E-05
W-187	1.72E-06

TOTAL AIRBORNE TRITIUM RELEASE 6.53E+01
TOTAL LIQUID TRITIUM RELEASE 4.29E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.67E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.39E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:DIABLO CANYON

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
7	TRUCK	BARNWELL SC
14	TRUCK	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

		JAN-JUNE	JULY-DEC
A			
	CO-58	%	8.00E+00
	CO-60	%	2.20E+01
	CR-51	%	1.60E+01
	CS-137	%	1.10E+01
	FE-55	%	5.20E+01
B			
	CO-58	%	6.00E+00
	CO-60	%	8.00E+00
	FE-55	%	4.00E+01
	H-3	%	2.80E+01

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
D. OTHER

UNIT	YEAR TOTAL
M3	2.40E+01
CI	3.85E+02
M3	1.86E+02
CI	7.43E+00
M3	
CI	
M3	
CI	

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:DRESDEN 1

LOCATION:14 MI SW JOLIET, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:COMMON WEALTH EDISON
DOCKET NO.:50-10   LICENSED POWER (MWT):7.00E+02
THERMAL POWER (MWH):0.00E+00   NET ELECTRIC POWER (MWH):0.00E+00
COMMERCIAL OPERATION:07/04/60   INITIAL CRITICALITY:10/15/59
COOLING WATER SOURCE:KANKAKEE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	2.29E-07
CO-60	1.39E-05
SR-90	1.20E-07
CS-134	3.29E-07
CS-137	4.50E-05

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2	TYPE:BWR	LICENSEE:COMMONWEALTH EDISON
DOCKET NO.:50-237		LICENSED POWER (MWT):2.53E+03
THERMAL POWER (MWH):1.45E+07		NET ELECTRIC POWER (MWH):4.32E+06
COMMERCIAL OPERATION:06/09/70		INITIAL CRITICALITY:01/07/70
COOLING WATER SOURCE:KANKAKEE RIVER		
UNIT NUMBER: 3	TYPE:BWR	LICENSEE:COMMONWEALTH EDISON
DOCKET NO.:50-249		LICENSED POWER (MWT):2.53E+03
THERMAL POWER (MWH):1.36E+07		NET ELECTRIC POWER (MWH):4.16E+06
COMMERCIAL OPERATION:11/16/71		INITIAL CRITICALITY:01/31/71
COOLING WATER SOURCE:KANKAKEE RIVER		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	9.06E-04
MN-54	1.29E-03
CO-58	3.79E-04
FE-59	1.25E-04
CO-60	7.59E-03
ZN-65	1.50E-04
KR-85	1.30E-02
KR-85M	8.64E-01
KR-87	8.59E-06
KR-88	1.64E+00
SR-89	1.45E-04
SR-90	2.13E-06
ZR-95	7.80E-05
MO-99	3.66E-03
AG-110M	1.69E-05
SB-124	2.49E-06
I-131	1.09E-01
I-133	3.91E-02
XE-133	2.25E+01
I-135	6.73E-02
XE-135	1.12E+02
XE-135M	7.36E+00
CS-136	5.58E-06
CS-137	4.50E-04
XE-138	2.34E+01
BA-140	5.14E-03
CE-141	4.51E-05
CE-144	3.14E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	2.48E-05
CO-60	2.90E-04
SR-89	2.10E-06
SR-90	3.20E-07
CS-137	8.51E-05

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:COMMONWEALTH EDISON
DOCKET NO.:50-10   LICENSED POWER (MWT):7.00E+02
THERMAL POWER (MWH):0.00E+00   NET ELECTRIC POWER (MWH):0.00E+00
COMMERCIAL OPERATION:07/04/60   INITIAL CRITICALITY:10/15/59
COOLING WATER SOURCE:KANKAKEE RIVER
UNIT NUMBER: 2   TYPE:BWR   LICENSEE:COMMONWEALTH EDISON
DOCKET NO.:50-237   LICENSED POWER (MWT):2.53E+03
THERMAL POWER (MWH):1.45E+07   NET ELECTRIC POWER (MWH):4.32E+06
COMMERCIAL OPERATION:06/09/70   INITIAL CRITICALITY:01/07/70
COOLING WATER SOURCE:KANKAKEE RIVER
UNIT NUMBER: 3   TYPE:BWR   LICENSEE:COMMONWEALTH EDISON
DOCKET NO.:50-249   LICENSED POWER (MWT):2.53E+03
THERMAL POWER (MWH):1.36E+07   NET ELECTRIC POWER (MWH):4.16E+06
COMMERCIAL OPERATION:11/16/71   INITIAL CRITICALITY:01/31/71
COOLING WATER SOURCE:KANKAKEE RIVER

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.65E-05
CR-51	6.80E-04
MN-54	7.01E-03
FE-55	1.20E-02
CO-58	3.62E-04
FE-59	7.75E-04
CO-60	7.88E-02
SR-90	1.71E-04
NB-95	6.00E-08
ZR-95	5.70E-08
SB-124	1.60E-07
I-131	2.48E-05
XE-133	4.18E-04
XE-135	5.03E-04
CS-137	1.59E-02
CS-138	3.38E-04
LA-140	1.11E-06

TOTAL AIRBORNE TRITIUM RELEASE   2.60E+01
TOTAL LIQUID TRITIUM RELEASE   1.72E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.02E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	4.61E+08

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	MOTOR FREIGHT(EXCL. USE)	ALARON
99	MOTOR FREIGHT(EXCL. USE)	BARNWELL SC
1	MOTOR FREIGHT(EXCL. USE)	CHEM-NUCLEAR, IL
3	MOTOR FREIGHT(EXCL. USE)	CNSI
4	MOTOR FREIGHT(EXCL. USE)	RICHLAND WA
25	MOTOR FREIGHT(EXCL. USE)	SEG, TN
4	MOTOR FREIGHT(EXCL. USE)	WESTINGHOUSE-DDR, PA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	MOTOR FREIGHT(EXCL. USE)	BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

		JAN-JUNE	JULY-DEC
A			
	CO-60	% 7.45E+01	7.45E+01
	CS-137	% 7.00E-01	7.00E-01
	FE-55	% 1.24E+01	1.24E+01
	MN-54	% 9.80E+00	9.80E+00
	OTHER	% 2.60E+00	2.60E+00
B			
	CO-60	% 2.44E+01	2.44E+01
	CS-137	% 1.40E+00	1.40E+00
	FE-55	% 7.13E+01	7.13E+01
	MN-54	% 2.80E+00	2.80E+00
	OTHER	% 2.00E-01	2.00E-01
C			
	CO-60	% 2.94E+01	2.94E+01
	FE-55	% 6.80E+01	6.80E+01
	MN-54	% 2.64E+00	2.64E+00

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	4.23E+02
BOTTOMS, ETC.	CI	1.33E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	1.92E+03
EQUIPMENT, ETC.	CI	2.08E+02
C. IRRADIATED COMPONENTS, CONTROL	M3	4.66E+00
RODS, ETC.	CI	2.06E+00
D. OTHER	M3	
	CI	

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

INSTALLATION:DUANE ARNOLD

LOCATION:8 MI NW CEDAR RAPIDS, IA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:IOWA ELECTRIC LIGHT & POWER
DOCKET NO.:50-331   LICENSED POWER (MWT):1.66E+03
THERMAL POWER (MWH):9.97E+06   NET ELECTRIC POWER (MWH):3.14E+06
COMMERCIAL OPERATION:02/01/75   INITIAL CRITICALITY:03/23/74
COOLING WATER SOURCE:CEDAR RAPIDS RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
N-13	3.15E+00
CR-51	4.73E-03
MN-54	5.18E-04
CO-58	9.52E-05
CO-60	3.29E-03
KR-85	7.45E-03
KR-85M	1.57E+01
KR-87	2.11E+01
KR-88	3.22E+01
SR-89	4.14E-05
SR-90	3.55E-07
I-131	6.65E-03
I-133	1.96E-03
XE-133	2.29E+02
XE-133M	7.30E-01
CS-134	4.00E-05
I-135	3.16E-04
XE-135	3.61E+02
XE-135M	2.29E+01
CS-137	1.41E-05
XE-138	2.06E+01
BA-LA-140	2.03E-05
CE-144	9.10E-05

TOTAL AIRBORNE TRITIUM RELEASE   2.38E+01
TOTAL LIQUID TRITIUM RELEASE   0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	N/A
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	N/A

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:DUANE ARNOLD

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS

20

3

MODE OF TRANSPORTATION

TRUCK (EXCLUSIVE USE)

TRUCK (EXCLUSIVE USE)

DESTINATION

BARNWELL SC

RICHLAND WA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	%	2.18E-01	5.00E-02
CM-242	%	1.31E+00	3.05E-04
CO-58	%	3.08E+00	2.89E+00
CO-60	%	3.69E+01	2.83E+01
CR-51	%	9.32E+00	5.61E-01
CS-134	%	3.91E+00	3.43E+00
CS-137	%	6.68E+00	3.34E+00
FE-55	%	2.51E+01	4.52E+01
H-3	%	7.32E-02	2.10E-02
I-129	%	4.22E-03	
MN-54	%	1.24E+01	1.22E+01
NI-63	%	1.00E+00	8.87E-01
OTHERS	%	1.31E+00	1.05E+00
PU-241	%	2.80E-02	1.98E-02
SR-89	%		6.25E-01
TC-99	%	2.46E-03	
TRU	%	1.20E-03	1.71E-03
ZN-65	%		1.19E+00

B

C-14	%		1.25E-05
CM-242	%		4.88E-03
CO-58	%		1.70E+00
CO-60	%		3.06E+01
CR-51	%		2.15E+01
FE-55	%		3.08E+01
FE-59	%		9.38E-01
H-3	%		1.45E-01
MN-54	%		9.38E+00
NI-63	%		2.97E+00
OTHERS	%		1.19E+00
PU-241	%		4.93E-01
TRU	%		9.68E-03

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

INSTALLATION:DUANE ARNOLD

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		9.33E+01
BOTTOMS, ETC.	CI		3.99E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		1.19E+02 *
EQUIPMENT, ETC.	CI		7.24E+00
C. IRRADIATED COMPONENTS, CONTROL	M3		
RODS, ETC.	CI		
D. OTHER	M3		
	CI		

*ACTUAL VOLUME BURIED (NON-COMPACTED PLUS FINAL COMPACTED VOLUME)

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:ALABAMA POWER
DOCKET NO.:50-348   LICENSED POWER (MWT):2.65E+03
THERMAL POWER (MWH):1.92E+07   NET ELECTRIC POWER (MWH):5.91E+06
COMMERCIAL OPERATION:12/01/77   INITIAL CRITICALITY:08/09/77
COOLING WATER SOURCE:CHATAHOOCHEE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.63E+01
CR-51	2.40E-04
MN-54	2.85E-05
CO-58	7.47E-05
FE-59	1.45E-05
CO-60	4.06E-05
ZN-65	1.30E-05
KR-85	6.86E+02
KR-85M	6.11E-01
KR-87	6.27E-02
KR-88	2.02E-01
I-131	1.18E-03
XE-131M	1.15E+00
I-133	1.30E-06
XE-133	1.83E+02
XE-133M	2.18E+00
CS-134	1.48E-08
XE-135	6.03E+01
XE-135M	2.58E-07
CS-137	1.28E-06
XE-138	8.21E-02
CE-141	3.00E-07
CE-144	1.45E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.00E-05
CR-51	7.14E-03
MN-54	5.04E-04
FE-55	9.84E-03
CO-57	1.91E-05
CO-58	7.14E-03
FE-59	1.49E-04
CO-60	1.38E-02
CU-64	1.65E-04
ZN-65	6.86E-06
AS-76	4.06E-06
SR-90	1.74E-05
SR-91	4.50E-06
NB-95	2.89E-03
ZR-95	7.78E-04
ZR-97	8.60E-06
MO-99	8.59E-06

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:JOSEPH M. FARLEY 1

LOCATION:DOTHAN, AL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
TC-99M	4.11E-05
RU-103	9.22E-04
RU-106	1.38E-03
AG-110M	4.78E-03
SB-124	5.56E-04
SB-125	2.21E-02
I-131	2.89E-04
I-132	2.15E-03
TE-132	9.62E-05
I-133	4.31E-06
XE-133	1.40E-01
CS-134	8.94E-04
I-135	1.87E-06
XE-135	2.45E-04
CS-136	5.70E-05
CS-137	3.28E-03
LA-140	2.19E-04
CE-141	1.40E-04
CE-144	2.47E-04
NP-239	7.96E-06

TOTAL AIRBORNE TRITIUM RELEASE	1.16E+02
TOTAL LIQUID TRITIUM RELEASE	5.16E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.99E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.99E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:ALABAMA POWER
DOCKET NO.:50-364   LICENSED POWER (MWT):2.65E+03
THERMAL POWER (MWH):2.29E+07   NET ELECTRIC POWER (MWH):7.17E+06
COMMERCIAL OPERATION:07/30/81   INITIAL CRITICALITY:05/05/81
COOLING WATER SOURCE:CHATAHOOCHEE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.56E+01
KR-85	4.58E+02
I-131	2.36E-06
I-133	5.00E-09
XE-133	7.41E+01
XE-133M	1.90E-01
CS-134	9.36E-09
XE-135	2.38E+01
CS-137	1.46E-07
XE-138	5.32E-02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	7.74E-05
CR-51	5.37E-03
MN-54	6.85E-04
FE-55	2.04E-02
CO-57	6.54E-06
CO-58	6.47E-03
FE-59	2.71E-04
CO-60	1.41E-02
CU-64	3.76E-04
ZN-65	1.04E-05
SR-91	6.87E-06
NB-95	2.82E-03
ZR-95	5.77E-04
ZR-97	1.16E-05
TC-99M	2.23E-05
RU-103	7.21E-04
RU-106	1.29E-03
AG-110M	5.68E-03
SB-124	7.52E-04
SB-125	2.31E-02
I-131	6.10E-05
TE-131M	1.47E-05
I-132	6.24E-04
TE-132	1.22E-04
I-133	2.02E-05
XE-133	2.23E-01
CS-134	9.98E-05
I-135	2.06E-06
XE-135	2.97E-04
CS-136	8.52E-05

N/A=NOT APPLICABLE

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N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-137	9.96E-04
BA-140	1.45E-05
LA-140	1.43E-04
CE-141	9.67E-05
CE-144	2.22E-04
NP-239	2.32E-05

TOTAL AIRBORNE TRITIUM RELEASE	5.96E+01
TOTAL LIQUID TRITIUM RELEASE	7.53E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.04E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.91E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:JOSEPH M. FARLEY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
14	CHEM-NUCLEAR TRANSPORT	BARNWELL SC
30	HITTMAN TRANSPORT	BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-57	%	1.30E-01	
CO-58	%	5.03E+00	4.93E+00
CO-60	%	2.75E+01	3.42E+01
CR-51	%	1.00E-01	
CS-134	%	1.34E+01	5.12E+00
CS-137	%	2.27E+01	1.47E+01
FE-55	%	1.23E+01	1.52E+01
H-3	%	1.10E-01	
MN-54	%	2.59E+00	2.31E+00
NI-59	%	1.00E-01	
NI-63	%	1.51E+01	1.62E+01
RU-106	%	3.70E-01	
SB-124	%	3.70E-01	5.30E+00

B

C-14	%	1.09E+00	1.84E+00
CE-144	%	2.07E+00	
CO-58	%	1.22E+01	2.34E+00
CO-60	%	1.74E+01	2.85E+01
CR-51	%	2.80E+00	
CS-134	%	1.05E+01	1.11E+00
CS-137	%	1.70E+01	1.99E+00
FE-55	%	1.13E+01	4.60E+01
H-3	%	1.70E+00	2.90E+00
MN-54	%	2.45E+00	1.25E+00
NB-95	%	9.30E-01	1.36E+00
NI-63	%	8.03E+00	9.63E+00
PU-241	%	1.09E+00	
RU-106	%	3.76E+00	
SB-124	%	3.58E+00	

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:JOSEPH M. FARLEY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		9.99E+01
BOTTOMS, ETC.	CI		1.46E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		3.96E+02
EQUIPMENT, ETC.	CI		1.60E+01
C. IRRADIATED COMPONENTS, CONTROL	M3		
RODS, ETC.	CI		
D. OTHER	M3		
	CI		

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:FERMI

LOCATION:LAGUNA BEACH, MICHIGAN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:BWR   LICENSEE:DETROIT EDISON COMPANY
DOCKET NO.:50-341   LICENSED POWER (MWT):3.29E+03
THERMAL POWER (MWH):1.30E+07   NET ELECTRIC POWER (MWH):4.06E+06
COMMERCIAL OPERATION:01/23/88   INITIAL CRITICALITY:06/21/85
COOLING WATER SOURCE:LAKE ERIE

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	9.70E-07
NA-24	2.71E-02
CR-51	1.07E-03
MN-54	9.04E-05
CO-57	2.32E-06
CO-58	1.82E-04
CO-60	4.73E-05
ZN-65	2.72E-04
AS-76	5.07E-04
KR-85M	4.26E-01
RB-89	3.54E-04
SR-89	1.70E-04
SR-90	5.40E-05
SR-91	2.02E-04
Y-91M	1.62E-04
MO-99	1.53E-04
TC-99M	8.61E-04
RU-103	2.82E-05
BA-131	1.64E-04
I-131	4.05E-04
I-132	1.01E-05
I-133	6.39E-03
BA-135M	8.60E-04
I-135	8.44E-05
XE-135	6.84E-01
CS-138	1.78E-04
BA-139	1.51E-03
BA-140	9.54E-05
LA-140	2.69E-04
CE-144	6.74E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	8.12E-06
NA-24	3.24E-03
CR-51	2.90E-02
MN-54	4.20E-03
CO-58	6.52E-03
FE-59	2.10E-03
CO-60	2.21E-03
ZN-65	2.41E-03
AS-76	7.44E-04
BR-83	4.49E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:FERMI

LOCATION:LAGUNA BEACH, MICHIGAN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-89	2.48E-04
SR-90	1.08E-05
NB-95	2.22E-04
ZR-95	1.78E-04
MO-99	1.54E-03
TC-99M	2.46E-03
RU-103	3.42E-03
AG-110M	1.18E-05
BA-131	2.58E-04
I-133	1.23E-04
XE-133	1.64E-05
BA-135M	9.23E-05
XE-135	3.05E-04
CE-144	1.79E-03
ND-147	1.29E-04
RE-188	6.54E-05
OTHER	8.73E-03

TOTAL AIRBORNE TRITIUM RELEASE N/D
TOTAL LIQUID TRITIUM RELEASE 9.33E-01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.29E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.93E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:FERMI

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
22	TRUCK	BARNWELL SC
2	TRUCK	CHANNAHON IL
2	TRUCK	INTERIM PROCESSOR-BARNWELL SC
1	TRUCK	WAMPUM PA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)   JAN-JUNE   JULY-DEC

A

BA-131	%	1.60E+00	4.90E+00
C-14	%	5.43E-01	5.00E-01
CD-109	%	1.13E+00	
CE-144	%		2.50E+00
CO-58	%	1.60E+01	8.20E+00
CO-60	%	5.65E+00	5.40E+00
CR-51	%	4.30E+01	4.08E+01
CS-137	%	6.20E-02	1.00E-01
FE-55	%	6.41E+00	2.08E+01
FE-59	%	3.79E+00	3.00E+00
H-3	%	1.88E-01	1.00E-01
MN-54	%	1.39E+01	7.60E+00
NI-63	%		1.00E-01
SR-90	%		1.00E-01
ZN-65	%	7.76E+00	6.20E+00
ZR-95	%		1.00E-01

B

C-14	%	9.80E-02	4.90E+00
CO-58	%	3.01E+01	1.80E+01
CO-60	%	2.15E+01	1.58E+01
CR-51	%	6.52E+00	1.23E+01
FE-55	%	1.73E+01	2.56E+01
H-3	%	5.30E-02	
MN-54	%	1.77E+01	1.58E+01
NI-63	%		1.20E+00
ZN-65	%	6.73E+00	6.40E+00

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.77E+02
	CI	2.79E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	6.14E+01 *
	CI	1.52E+00
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

*TOTAL VOLUME INCLUDES COMPACTED(JAN-JUNE) AND NON-COMPACTED(JULY-DEC) WASTE.

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE: BWR   LICENSEE: POWER AUTHORITY OF THE STATE OF NY
DOCKET NO.: 50-333   LICENSED POWER (MWT): 2.44E+03
THERMAL POWER (MWH): 1.34E+07   NET ELECTRIC POWER (MWH): 4.36E+06
COMMERCIAL OPERATION: 07/28/75   INITIAL CRITICALITY: 11/17/74
COOLING WATER SOURCE: LAKE ONTARIO

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.34E+01
CR-51	2.28E-03
MN-54	2.26E-04
CO-58	2.42E-04
CO-60	8.45E-04
ZN-65	6.50E-05
KR-85M	4.16E+02
KR-87	1.66E+02
KR-88	5.59E+02
SR-89	5.60E-04
SR-90	4.12E-06
I-131	1.68E-02
XE-131M	1.26E+01
I-133	4.79E-02
XE-133	1.41E+03
XE-133M	5.92E+01
CS-134	4.03E-05
XE-135	1.05E+03
XE-135M	5.17E+01
CS-137	1.14E-04
XE-138	1.50E+02
BA-1A-140	9.44E-04
CE-141	2.21E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	5.09E-04
CR-51	2.84E-04
MN-54	1.07E-02
CO-58	1.10E-03
FE-59	1.09E-04
CO-60	1.78E-02
ZN-65	3.50E-04
SB-124	3.88E-05
I-131	5.88E-04
I-133	2.88E-04
XE-133	3.13E-04
CS-134	4.62E-03
I-135	5.94E-05
XE-135	3.81E-04
CS-137	1.13E-02
NP-239	3.34E-04

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: JAMES A. FITZPATRICK

LOCATION: 36 MI N SYRACUSE, NY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

TOTAL AIRBORNE TRITIUM RELEASE 1.11E+01
TOTAL LIQUID TRITIUM RELEASE 8.87E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.36E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.35E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
27	TRUCK
10	TRUCK

DESTINATION
BARNWELL SC
RICHLAND WA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	%	3.00E-02	3.10E-01
CO-58	%	1.63E+00	4.72E+00
CO-60	%	5.18E+01	4.61E+01
CR-51	%	2.41E+00	4.09E+00
CS-134	%	1.74E+00	1.01E+00
CS-137	%	5.02E+00	2.63E+00
FE-55	%	2.62E+01	2.22E+01
FE-59	%		1.92E+00
MN-54	%	7.02E+00	1.28E+01
NI-63	%	9.80E-01	7.90E-01
ZN-65	%	2.32E+00	2.13E+00

B

CO-58	%	1.27E+00	1.30E+00
CO-60	%	5.12E+01	5.13E+01
CR-51	%	2.53E+00	2.90E+00
CS-134	%	2.95E+00	2.70E+00
CS-137	%	6.79E+00	6.70E+00
FE-55	%	2.36E+01	2.42E+01
MN-54	%	7.63E+00	7.50E+00
NI-63	%	8.80E-01	1.10E+00
ZN-65	%	3.34E+00	3.30E+00

C

CO-60	%		2.75E+01
FE-55	%		6.72E+01
H-3	%		2.10E-01
MN-54	%		2.80E+00
NI-63	%		2.20E+00

D

CO-60	%		5.63E+01
CR-51	%		2.84E+00
CS-134	%		1.11E+00
CS-137	%		4.33E+00
FE-55	%		2.60E+01
MN-54	%		3.98E+00
NI-63	%		1.14E+00
ZN-65	%		3.56E+00

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		1.11E+02
BOTTOMS, ETC.	CI		4.07E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		2.55E+02
EQUIPMENT, ETC.	CI		7.58E+00
C. IRRADIATED COMPONENTS, CONTROL	M3		4.00E-01
RODS, ETC.	CI		1.28E+04
D. OTHER	M3		1.42E+01
WASTE OIL	CI		2.00E-04

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:OMAHA PUBLIC POWER
DOCKET NO.:50-285   LICENSED POWER (MWT):1.50E+03
THERMAL POWER (MWH):8.34E+06   NET ELECTRIC POWER (MWH):2.63E+06
COMMERCIAL OPERATION:06/20/74   INITIAL CRITICALITY:08/06/73
COOLING WATER SOURCE:MISSOURI RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	4.08E-05
AR-41	1.73E+00
KR-85	6.07E+00
KR-85M	7.41E-03
SR-89	1.35E-07
SR-90	6.46E-08
I-131	3.07E-04
XE-131M	1.71E+01
I-133	2.29E-03
XE-133	7.55E+02
XE-133M	3.40E+00
XE-135	1.62E+00
CS-137	2.45E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	7.75E-05
CR-51	3.28E-04
MN-54	1.74E-02
CO-57	3.46E-05
CO-58	4.31E-02
CO-60	8.17E-03
SR-89	3.04E-03
SR-90	4.25E-04
NB-95	2.92E-04
ZR-95	4.35E-05
MO-99	1.32E-04
TC-99M	6.69E-04
RU-103	1.04E-04
AG-110M	1.12E-03
SB-124	8.34E-04
SB-125	6.97E-02
I-131	2.31E-02
I-133	1.06E-03
XE-133	4.04E-01
CS-134	3.62E-02
XE-135	1.35E-03
CS-136	5.95E-05
CS-137	9.90E-02
BA-140	2.61E-04
LA-140	3.36E-03

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

TOTAL AIRBORNE TRITIUM RELEASE 3.85E+00
TOTAL LIQUID TRITIUM RELEASE 2.32E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.02E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.58E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: FORT CALHOUN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
2	CLOSED SOLE USE VEHICLE	BARNWELL SC
2	CLOSED SOLE USE VEHICLE	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)   JAN-JUNE   JULY-DEC

A

AG-110M	%	4.20E+00
CE-144	%	4.20E+00
CO-60	%	4.32E+01
CS-137	%	1.50E+00
MN-54	%	1.00E+00
NB-97	%	4.30E+00
NI-63	%	2.33E+01
RU-106	%	1.20E+01
SB-125	%	4.10E+00
SR-92	%	1.20E+00

B

CO-58	%	7.70E+00	
CO-60	%	5.90E+00	4.80E+00
CS-134	%	1.77E+01	1.57E+01
CS-137	%	6.46E+01	7.65E+01

TYPE OF WASTE

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	3.25E+00
BOTTOMS, ETC.	CI	1.52E+01
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	4.55E+01
EQUIPMENT, ETC.	CI	2.31E+00
C. IRRADIATED COMPONENTS, CONTROL	M3	
RODS, ETC.	CI	
D. OTHER	M3	
	CI	

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:FORT ST. VRAIN

LOCATION:35 MI N DENVER, CO

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:HTG   LICENSEE:PUBLIC SERVICE CO OF COLORADO
DOCKET NO.:50-267   LICENSED POWER (MWT):8.42E+02
THERMAL POWER (MWH):1.95E+06   NET ELECTRIC POWER (MWH):6.60E+05
COMMERCIAL OPERATION:07/01/79   INITIAL CRITICALITY:01/31/74
COOLING WATER SOURCE:SOUTH PLATTE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	8.89E-03
KR-85	2.39E+00
KR-85M	8.65E-01
KR-87	8.29E-02
KR-88	8.35E-01
XE-131M	2.47E+00
XE-133	2.45E+02
XE-133M	2.42E+00
XE-135	5.49E+00
XE-135M	9.62E-03

TOTAL AIRBORNE TRITIUM RELEASE   4.02E+00
TOTAL LIQUID TRITIUM RELEASE   1.61E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.11E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.20E+09

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION		DESTINATION	
NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	BEATTY NV	
1	HIGHWAY		
ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
A			
C-14	%		4.26E+01
FE-55	%		2.00E-01
H-3	%		5.67E+01
NI-63	%		3.00E-01
PU-241	%		1.00E-01
B			
AG-110M	%		2.00E-01
CS-137	%		5.00E-01
FE-55	%		1.00E+01
H-3	%		8.62E+01
S-35	%		2.00E+00

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	4.88E+00
	CI	1.80E-01
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.12E+00 *
	CI	1.30E-01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

*VOLUME BEFORE COMPACTION

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:ROCHESTER GAS&ELEC
DOCKET NO.:50-244   LICENSED POWER (MWT):1.52E+03
THERMAL POWER (MWH):1.10E+07   NET ELECTRIC POWER (MWH):3.53E+06
COMMERCIAL OPERATION:07/01/70   INITIAL CRITICALITY:11/08/69
COOLING WATER SOURCE:LAKE ONTARIO

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
C-14	1.77E+00
AR-41	1.19E+00
KR-85M	9.83E-02
KR-87	1.60E-01
KR-88	2.15E-01
I-131	4.33E-05
XE-131M	1.97E-01
I-133	2.80E-03
XE-133	3.46E+01
XE-133M	2.82E-02
XE-135	1.26E+01
XE-135M	1.77E+00
XE-138	6.48E-01
UNIDENTIFIED	1.36E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	2.70E-04
MN-54	1.34E-04
FE-55	2.47E-05
CO-58	8.59E-04
CO-60	1.61E-03
SR-89	1.13E-04
SR-90	4.51E-05
ZR-NB-95	9.21E-05
MO-99	1.11E-04
AG-110M	1.49E-04
I-131	9.97E-03
I-132	5.96E-05
I-133	6.56E-03
XE-133	2.45E-03
CS-134	3.58E-03
I-134	4.87E-05
I-135	2.48E-03
XE-135	1.59E-03
CS-137	8.11E-03

TOTAL AIRBORNE TRITIUM RELEASE   1.68E+02
TOTAL LIQUID TRITIUM RELEASE   3.48E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	9.93E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.17E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
13	HIGHWAY VEHICLE	BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE   JULY-DEC

A			
	CO-60	%	5.33E+01 4.66E+01
	CS-134	%	1.07E+01 9.67E+00
	CS-137	%	1.01E+01 1.47E+01
	FE-55	%	4.70E+00 4.72E+00
	H-3	%	2.62E+00 7.57E+00
	NI-63	%	1.88E+01 1.53E+01
B			
	CO-58	%	
	CO-60	%	2.76E+01 1.60E+01
	CS-137	%	8.00E+00
	FE-55	%	5.36E+01 5.70E+01
	NI-63	%	1.12E+01 1.50E+00

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT	YEAR TOTAL
M3	9.13E+01
CI	3.47E+02
M3	7.58E+01 *
CI	3.28E+01
M3	
CI	
M3	
CI	

*VOLUME AFTER REDUCTION PROCESS

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:SYSTEM ENERGY RESOURCES, INC.
DOCKET NO.:50-416   LICENSED POWER (MWT):3.83E+03
THERMAL POWER (MWH):3.05E+07   NET ELECTRIC POWER (MWH):9.59E+06
COMMERCIAL OPERATION:07/01/85   INITIAL CRITICALITY:08/18/82
COOLING WATER SOURCE:MISSISSIPPI RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.02E+00
CR-51	3.11E-04
MN-54	2.40E-05
CO-58	2.57E-06
FE-59	5.40E-07
CO-60	4.72E-05
KR-85M	6.23E-01
KR-87	1.14E+00
KR-88	6.79E-01
KR-89	8.53E+01
SR-89	3.62E-06
RU-106	1.36E-05
I-131	6.07E-05
I-133	2.95E-04
XE-133	2.85E-02
XE-135	1.08E+00
XE-135M	9.21E-01
CS-137	1.22E-06
XE-138	2.56E+00

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.25E-03
CR-51	3.11E-01
MN-54	2.87E-02
FE-55	4.87E-03
MN-56	2.15E-05
CO-58	6.47E-03
FE-59	2.89E-03
CO-60	2.70E-02
CU-64	1.96E-03
AS-76	5.57E-03
SR-89	1.12E-03
SR-92	1.73E-04
ZR-NB-95	2.88E-04
ZR-97	1.27E-05
MO-99	1.55E-04
TC-99M	4.52E-04
RU-106	2.36E-04
AG-110M	1.09E-03
TE-129	3.47E-05
TE-129M	9.31E-05
I-131	1.80E-05

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:GRAND GULF

LOCATION:25 MI, VICKSBURG. MS

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-133	2.21E-05
XE-133	7.79E-05
CS-134	3.98E-04
I-135	1.90E-05
XE-135	7.25E-04
CS-137	3.74E-04
CS-138	1.51E-05
CE-141	2.14E-05
W-187	1.07E-04

TOTAL AIRBORNE TRITIUM RELEASE	3.73E+00
TOTAL LIQUID TRITIUM RELEASE	1.34E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.04E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.32E+09

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:GRAND GULF

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
63	TRUCK

DESTINATION
BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
0	N/A

DESTINATION
N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

	%	JAN-JUNE	JULY-DEC
CO-58	%	3.00E+00	
CO-60	%	2.60E+01	3.20E+01
CR-51	%	1.20E+01	5.00E+00
FE-55	%	3.00E+01	3.40E+01
MN-54	%	2.30E+01	2.40E+01
OTHERS	%	6.00E+00	5.00E+00

B

	%	JAN-JUNE	JULY-DEC
CO-60	%	1.90E+01	3.30E+01
CR-51	%	2.80E+01	5.00E+00
FE-55	%	2.10E+01	3.70E+01
FE-59	%	2.00E+00	
MN-54	%	1.20E+01	2.20E+01
OTHERS	%	1.80E+01	3.00E+00

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
D. OTHER

M3	3.46E+02
CI	7.09E+02
M3	1.53E+02
CI	6.37E+00
M3	
CI	
M3	
CI	

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:HADDAM NECK

LOCATION:9.5 MI SE MIDDLETOWN, CT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:CONNECTICUT YANKEE ATOMIC POWER
DOCKET NO.:50-213   LICENSED POWER (MWT):1.82E+03
THERMAL POWER (MWH):1.06E+07   NET ELECTRIC POWER (MWH):3.31E+06
COMMERCIAL OPERATION:01/01/68   INITIAL CRITICALITY:07/24/67
COOLING WATER SOURCE:CONNECTICUT RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	1.86E-06
AR-41	7.14E-01
CO-60	3.54E-04
KR-85	1.94E+02
KR-85M	3.38E+00
KR-87	3.07E+00
KR-88	4.55E+00
SR-90	8.70E-06
I-131	3.64E-02
XE-131M	4.05E+00
I-133	2.55E-03
XE-133	2.27E+03
XE-133M	7.69E+00
CS-134	6.11E-06
I-135	3.89E-02
XE-135	5.42E+01
XE-135M	5.45E-01
CS-137	1.50E-04
XE-137	3.65E-01
XE-138	1.36E+00

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	9.87E-04
MN-54	2.89E-03
FE-55	5.41E-02
CO-57	1.37E-04
CO-58	1.88E-02
CO-60	1.03E-01
SR-89	8.99E-05
SR-90	1.11E-03
ZR-NB-95	5.79E-05
AG-110M	1.81E-05
SB-124	3.98E-04
SB-125	8.72E-04
I-131	3.76E-02
XE-131M	4.28E-03
I-132	7.61E-02
I-133	9.97E-02
XE-133	2.18E-01
XE-133M	3.40E-03
CS-134	7.53E-03
I-134	1.33E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:HADDAM NECK

LOCATION:9.5 MI SE MIDDLETOWN, CT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-135	1.26E-01
XE-135	2.47E-03
CS-137	2.43E-02
BA-LA-140	8.16E-06

TOTAL AIRBORNE TRITIUM RELEASE 9.20E+01

TOTAL LIQUID TRITIUM RELEASE 1.18E+03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	7.28E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.17E+11

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:HADDAM NECK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS
13

MODE OF TRANSPORTATION
TRUCK

DESTINATION
BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS
0

MODE OF TRANSPORTATION
N/A

DESTINATION
N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

AM-241	%	8.64E-03	7.95E-03
C-14	%	8.50E-02	6.00E-02
CM-242	%	2.20E-02	2.00E-02
CM-243	%	6.37E-03	5.71E-03
CM-244	%	6.37E-03	5.71E-03
CO-57	%	1.64E-02	1.00E-02
CO-58	%	6.66E+00	2.65E+00
CO-60	%	1.78E+01	1.64E+01
CR-51	%	2.25E+00	1.50E+00
CS-134	%	1.06E+01	3.92E+00
CS-137	%	1.80E+01	4.00E+01
FE-55	%	3.82E+01	2.95E+01
FE-59	%	1.94E-02	1.00E-02
H-3	%	5.40E-02	1.00E-02
I-129	%	1.22E-04	1.57E-04
MN-54	%	9.36E-01	4.00E-01
NI-63	%	4.82E+00	4.85E+00
PU-238	%	1.80E-02	1.00E-02
PU-239	%	3.25E-03	2.52E-03
PU-240	%	3.25E-03	2.52E-03
PU-241	%	2.74E-01	3.20E-01
SR-90	%	1.36E-01	2.80E-01
TC-99	%	6.49E-04	6.02E-04

B

AM-241	%	2.37E-03	2.37E-02
C-14	%	3.77E-01	3.77E-01
CM-242	%	1.96E-02	1.93E-02
CM-243	%	1.34E-02	1.34E-02
CM-244	%	1.34E-02	1.34E-02
CO-58	%	5.47E+00	5.47E+00
CO-60	%	1.98E+01	1.98E+01
CS-134	%	2.00E+00	2.00E+00
CS-137	%	3.50E+00	3.50E+00

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
FE-55	%	6.15E+01	6.15E+01
H-3	%	3.85E-01	3.85E-01
I-129	%	1.15E-03	1.54E-03
MN-54	%	1.58E+00	1.58E+00
NI-63	%	4.16E+00	4.16E+00
PU-238	%	4.12E-02	4.12E-02
PU-239	%	6.19E-03	6.18E-03
PU-240	%	6.19E-03	6.18E-02
PU-241	%	1.11E+00	1.11E+00
SR-90	%	5.95E-03	5.94E-03
TC-99	%	1.33E-03	1.33E-03

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	3.07E+01
	CI	3.28E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	1.00E+02 *
	CI	8.27E+00
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

*TOTAL VOLUME AFTER VOLUME REDUCTION

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:HARRIS

LOCATION:20 MI SW RALEIGH, NC

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:CAROLINA POWER & LIGHT
DOCKET NO.:50-400   LICENSED POWER (MWT):2.77E+03
THERMAL POWER (MWH):1.71E+07   NET ELECTRIC POWER (MWH):5.33E+06
COMMERCIAL OPERATION:05/02/87   INITIAL CRITICALITY:01/03/87
COOLING WATER SOURCE:MAKEUP RESERVOIR

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	1.03E-07
AR-41	3.55E-01
CR-51	6.04E-06
CO-58	3.45E-05
CO-60	3.96E-06
KR-85M	4.86E+01
KR-87	1.62E+01
KR-88	8.10E+01
NB-95	1.48E-06
I-132	3.40E-06
XE-133	1.94E+03
XE-133M	3.24E+01
XE-135	1.13E+02
XE-138	1.62E+01

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	2.55E-06
BE-7	1.01E-03
CR-51	4.36E-02
MN-54	5.02E-03
FE-55	2.11E-03
CO-57	7.78E-05
CO-58	6.14E-02
FE-59	7.46E-04
CO-60	6.50E-03
KR-85M	1.79E-04
SR-90	2.52E-06
ZR-NB-95	7.66E-04
TC-99M	1.60E-05
RU-103	5.77E-06
RU-105	2.18E-05
SN-113	8.88E-05
SB-122	1.16E-05
SB-124	2.95E-04
SB-125	6.59E-04
I-131	2.94E-04
XE-131M	1.80E-04
I-133	2.63E-05
XE-133	4.25E-01
XE-133M	8.74E-03
XE-135	3.89E-02
CS-137	2.08E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:HARRIS

LOCATION:20 MI SW RALEIGH, NC

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED

ACTIVITY (CI)

BA-LA-140

4.63E-05

HF-181

1.90E-05

TOTAL AIRBORNE TRITIUM RELEASE N/D

TOTAL LIQUID TRITIUM RELEASE 4.01E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION) LITERS 7.31E+07

VOLUME OF DILUTION WATER USED DURING PERIOD LITERS 6.40E+09

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:HARRIS

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
+ 31	TRUCK	BARNWELL SC

+22 SHIPMENTS WERE MADE FROM SEG PROCESSING FACILITY IN OAK RIDGE, TN

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	%	1.15E-03	1.87E+00
CO-58	%	3.25E+01	5.18E+01
CO-60	%	4.41E+00	7.66E+00
CR-51	%		9.80E-01
FE-55	%	8.65E+00	1.77E+01
H-3	%	4.77E+01	7.19E+00
MN-54	%	4.71E+00	6.07E+00
NB-95	%		1.26E+00
NI-63	%	2.04E+00	5.44E+00

B

AM-241	%		1.49E-04
C-14	%	1.00E-02	5.79E-01
CM-244	%		2.18E-04
CO-58	%	3.93E+00	1.10E+01
CO-60	%		2.04E+00
CR-51	%		5.76E-01
CS-137	%		9.38E-02
FE-55	%		7.49E+01
FE-59	%		1.12E-01
H-3	%	9.60E+01	9.23E-01
MN-54	%		2.55E+00
NB-95	%		1.26E+00
NI-63	%		5.78E+00
SR-89	%		3.87E-02
ZR-95	%		1.77E-01

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT	YEAR TOTAL
M3	1.17E+02
CI	9.20E+00
M3	3.26E+01 *
CI	1.32E+00
M3	
CI	
M3	
CI	

*VOLUME AFTER REDUCTION BY SEG

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1 TYPE:BWR LICENSEE:GEORGIA POWER
DOCKET NO.:50-321 LICENSED POWER (MWT):2.44E+03
THERMAL POWER (MWH):1.35E+07 NET ELECTRIC POWER (MWH):4.11E+06
COMMERCIAL OPERATION:12/31/75 INITIAL CRITICALITY:09/12/74
COOLING WATER SOURCE:ALTAMAHA RIVER
UNIT NUMBER: 2 TYPE:BWR LICENSEE:GEORGIA POWER
DOCKET NO.:50-366 LICENSED POWER (MWT):2.44E+03
THERMAL POWER (MWH):1.36E+07 NET ELECTRIC POWER (MWH):4.25E+06
COMMERCIAL OPERATION:09/05/79 INITIAL CRITICALITY:07/04/78
COOLING WATER SOURCE:ALTAMAHA RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.34E+01
CR-51	6.11E-04
MN-54	3.71E-05
CO-58	2.27E-04
CO-60	3.84E-04
ZN-65	3.57E-03
KR-85	8.81E+01
KR-85M	1.83E+02
KR-87	8.36E+01
KR-88	1.80E+02
SR-89	1.58E-03
SR-90	8.25E-06
NB-95	3.65E-05
I-131	9.39E-03
XE-131M	6.80E+01
I-133	2.69E-02
XE-133	2.36E+03
XE-133M	2.50E+00
CS-134	1.05E-03
I-135	2.46E-02
XE-135	2.70E+02
XE-135M	1.20E+02
CS-137	1.29E-03
XE-137	3.27E-01
XE-138	9.11E+01
BA-140	2.73E-03
LA-140	4.22E-03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	8.55E-06
NA-24	1.34E-02
AR-41	1.60E-05
CR-51	7.67E-03
MN-54	1.32E-02
MN-56	3.82E-04
CO-58	3.36E-03
FE-59	7.76E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	4.33E-02
NI-63	1.39E-06
CU-64	3.00E-02
NI-65	1.39E-06
ZN-65	1.37E-01
AS-76	4.62E-04
KR-85	2.63E-03
KR-87	5.99E-06
RB-88	3.82E-04
SR-89	7.49E-04
SR-91	1.17E-03
Y-91M	1.04E-04
SR-92	7.93E-04
NB-95	5.30E-04
ZR-95	1.42E-04
NB-97	3.54E-03
MO-99	4.63E-04
TC-99M	2.86E-03
SB-125	5.23E-03
I-131	2.26E-02
TE-131	1.73E-05
XE-131M	7.95E-03
I-132	4.26E-04
I-133	9.22E-03
XE-133	3.53E-02
XE-133M	7.06E-04
CS-134	2.67E-01
I-134	6.85E-03
I-135	3.62E-03
XE-135	4.05E-02
XE-135M	4.00E-03
CS-136	3.13E-03
CS-137	4.03E-01
CS-138	2.89E-04
BA-139	3.61E-04
BA-140	3.55E-04
LA-140	1.63E-04
CE-141	9.85E-05
CE-144	2.54E-04
NP-239	6.82E-03

TOTAL AIRBORNE TRITIUM RELEASE 4.89E+01

TOTAL LIQUID TRITIUM RELEASE 4.40E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.91E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.26E+10

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
66	CASK	BARNWELL SC
19	VAN (BOX)	BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-60	%		1.06E+01
CS-134	%	1.83E+01	
CS-137	%	2.12E+01	9.10E+00
OTHERS	%	3.14E+01	2.87E+01
ZN-65	%	2.91E+01	5.16E+01

B

CO-60	%	3.41E+01	2.68E+01
CS-137	%	9.10E+00	6.70E+00
OTHERS	%	1.65E+01	1.58E+01
ZN-65	%	4.03E+01	5.08E+01

D

CO-60	%	4.47E+01	
FE-55	%	2.17E+01	
NB-95	%	4.80E+00	
OTHERS	%	1.40E+01	
ZN-65	%	1.48E+01	

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

UNIT YEAR TOTAL

M3 3.59E+02

CI 2.02E+03

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 4.76E+02

CI 4.21E+00

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3

CI

D. OTHER

M3 1.10E+00

CI 4.20E+00

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:PUBLIC SERV ELEC & GAS CO OF NJ
DOCKET NO.:50-354   LICENSED POWER (MWT):3.29E+03
THERMAL POWER (MWH):2.22E+07   NET ELECTRIC POWER (MWH):6.99E+06
COMMERCIAL OPERATION:12/20/86   INITIAL CRITICALITY:06/28/86
COOLING WATER SOURCE:DELAWARE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
KR-83M	1.76E+00
KR-85M	1.76E+00
KR-87	7.05E+00
KR-88	7.05E+00
KR-89	4.76E+01
XE-133	3.52E+00
XE-135	8.88E+00
XE-135M	1.06E+01
XE-137	5.47E+01
XE-138	3.34E+01

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.25E-01
AR-41	2.47E-03
CR-51	9.23E-02
MN-54	3.21E-02
FE-55	2.34E-01
CO-58	7.58E-03
FE-59	1.11E-02
CO-60	1.52E-02
CU-64	8.93E-04
ZN-65	1.92E-01
ZN-69	7.28E-05
ZN-69M	8.00E-05
KR-85	1.01E-02
KR-85M	1.14E-05
KR-87	3.54E-05
Y-91	6.95E-06
Y-91M	2.01E-03
SR-92	2.63E-05
NB-95	3.47E-05
NB-97	2.90E-04
ZR-97	2.84E-04
MO-99	3.82E-04
TC-99M	1.18E-03
TC-101	9.44E-05
RU-103	1.53E-05
TC-106	1.00E-04
SB-122	8.54E-06
I-131	2.19E-05
XE-131M	3.66E-04
TE-132	1.60E-05

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:HOPE CREEK

LOCATION:18 MI SE WILMINGTON, DE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-133	3.48E-04
XE-133	3.67E-03
XE-133M	4.98E-05
XE-135	9.06E-03
XE-135M	1.20E-05
CS-137	1.43E-06
BA-139	8.22E-05
CE-141	1.21E-05
CE-143	3.55E-06
PR-144	5.77E-03
HG-203	1.65E-05
NP-239	4.40E-05
UNIDENTIFIED	2.35E-03

TOTAL AIRBORNE TRITIUM RELEASE	1.63E+02
TOTAL LIQUID TRITIUM RELEASE	9.36E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.61E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.19E+09

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:HOPE CREEK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
29	TRUCK	BARNWELL SC
7	TRUCK	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CE-144	%	2.70E-01
CO-58	%	1.14E+00
CO-60	%	6.28E+00
CR-51	%	7.97E+00
CS-137	%	9.00E-02
FE-55	%	1.15E+01
FE-59	%	8.10E-01
H-3	%	1.00E-02
MN-54	%	9.98E+00
NI-63	%	4.60E-01
PU-241	%	1.00E-02
ZN-65	%	6.15E+01

B

CO-58	%	2.96E+00
CO-60	%	9.49E+00
CR-51	%	8.86E+00
FE-55	%	1.30E+01
MN-54	%	8.61E+00
ZN-65	%	5.66E+01

D

CO-60	%	7.87E+01
CS-137	%	1.88E+01

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	2.51E+02
	CI	3.23E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.85E+01
	CI	4.09E-01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	1.19E+01
SOLIDIFIED OIL	CI	1.40E-05

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:HUMBOLDT BAY

LOCATION:4 MI SW EUREKA, CA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 3   TYPE:BWR   LICENSEE:PACIFIC GAS &ELECTRIC
DOCKET NO.:50-133   LICENSED POWER (MWT):2.20E+02
THERMAL POWER (MWH):0.00E+00   NET ELECTRIC POWER (MWH):0.00E+00
COMMERCIAL OPERATION:08/01/63   INITIAL CRITICALITY:02/16/63
COOLING WATER SOURCE:HUMBOLDT BAY

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	7.39E-05
KR-85	<6.48E+01
SR-90	2.66E-06
CS-134	<1.50E-05
CS-137	7.24E-05
UNIDENTIFIED	<1.51E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	9.38E-04
SR-90	1.52E-04
CS-134	2.20E-05
CS-137	6.49E-03
UNIDENTIFIED	<1.23E-05

TOTAL AIRBORNE TRITIUM RELEASE <3.98E-02
TOTAL LIQUID TRITIUM RELEASE 9.44E-04

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.04E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.35E+10

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	TRUCK	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)	JAN-JUNE	JULY-DEC
B		
C-14	8	7.25E-02
CO-60	8	6.24E+00
CS-137	8	2.67E+01
FE-55	8	6.14E+01
H-3	8	<2.63E-01
I-129	8	<7.04E-02
NI-63	8	1.99E+00
PU-241	8	8.24E-01
SR-90	8	1.61E+00
TC-99	8	9.05E-01
D		
C-14	8	2.55E-01
CS-137	8	5.17E+01
FE-55	8	4.64E+01
H-3	8	<5.10E-01
I-129	8	<2.55E-01
TC-99	8	7.65E-01

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	0.00E+00
	CI	0.00E+00
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	3.54E+01
	CI	9.24E-02
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	0.00E+00
	CI	0.00E+00
D. OTHER	M3	4.50E+00
ABSORBED LIQUIDS	CI	6.67E-03

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE: PWR	LICENSEE: CONSOLIDATED EDISON
DOCKET NO.: 50-3		LICENSED POWER (MWT): 6.15E+02
THERMAL POWER (MWH): 0.00E+00		NET ELECTRIC POWER (MWH): 0.00E+00
COMMERCIAL OPERATION:		INITIAL CRITICALITY: 08/02/62
COOLING WATER SOURCE: HUDSON RIVER		
UNIT NUMBER: 2	TYPE: PWR	LICENSEE: CONSOLIDATED EDISON
DOCKET NO.: 50-247		LICENSED POWER (MWT): 2.76E+03
THERMAL POWER (MWH): 1.95E+07		NET ELECTRIC POWER (MWH): 6.06E+06
COMMERCIAL OPERATION: 08/01/74		INITIAL CRITICALITY: 05/22/73
COOLING WATER SOURCE: HUDSON RIVER		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
C-14	8.00E+00
AR-41	7.40E-01
MN-54	1.56E-03
FE-55	3.14E-06
CO-58	1.52E-04
CO-60	5.65E-03
NI-63	6.14E-07
KR-85M	2.16E-01
KR-87	4.57E-02
KR-88	2.85E-01
SR-90	1.09E-08
I-131	4.02E-05
I-133	2.97E-03
XE-133	2.05E+02
XE-133M	4.34E-01
XE-135	1.13E+01
XE-135M	4.99E-01
CS-137	1.77E-03
XE-138	3.52E-03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	2.11E-01
MN-54	9.53E-03
FE-55	6.71E-01
CO-57	3.70E-04
CO-58	4.85E-01
FE-59	6.95E-03
CO-60	4.56E-01
NI-63	2.37E-01
ZN-65	6.46E-05
SR-89	1.93E-04
SR-90	2.25E-05
NB-95	1.60E-02
ZR-95	2.53E-03
RU-103	1.87E-04
RU-106	4.06E-04
AG-110M	8.74E-03

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SB-124	4.47E-02
SB-125	2.94E-01
I-131	3.07E-02
I-132	2.75E-02
I-133	1.56E-01
XE-133	1.43E-02
CS-134	1.22E-02
I-134	8.60E-03
I-135	9.70E-02
XE-135	3.23E-03
XE-135M	2.16E-02
CS-137	5.72E-02
BA-140	1.43E-03
LA-140	7.26E-03
CE-144	1.32E-04

TOTAL AIRBORNE TRITIUM RELEASE	1.69E+00
TOTAL LIQUID TRITIUM RELEASE	4.39E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.89E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.17E+12

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS
20

MODE OF TRANSPORTATION
TRUCK

DESTINATION
BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-58	%	3.10E+01	5.23E+01
CO-60	%	3.40E+01	1.54E+01
CS-134	%	1.40E+00	
CS-134, MN-54, SB-124, SB-125, CR-51, NB-95, I-129, TC-99, SR-90, PU-241, C-14, H-3	%		3.47E+00
CS-137	%	3.00E+00	2.32E+01
FE-55	%	1.90E+01	3.57E+00
NI-63	%	1.00E+01	2.03E+00
OTHERS	%	1.60E+00	

B

C-14	%		2.60E+00
CO-58	%	6.32E+00	7.20E+00
CO-60	%	2.65E+01	2.59E+01
CS-134	%	8.00E+00	7.90E+00
CS-137	%	1.78E+01	1.74E+01
FE-55	%	8.00E+00	7.90E+00
H-3	%	1.09E+01	1.07E+01
I-129, SR-90, PU-241, TC-99, C-14	%	1.00E+01	
MN-54	%	3.04E+00	3.10E+00
NB-95	%		2.10E+00
NI-63	%	8.58E+00	8.40E+00
PU-241	%		2.10E+00
SR-90	%		1.60E+00
ZR-95	%		3.00E+00

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

M3 2.53E+01
CI 4.45E+02

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 2.15E+02
CI 2.13E+01

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3
CI

D. OTHER

M3
CI

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 3   TYPE: PWR   LICENSEE: POWER AUTHORITY OF THE STATE OF NY
DOCKET NO.: 50-286   LICENSED POWER (MWT): 2.76E+03
THERMAL POWER (MWH): 2.14E+07   NET ELECTRIC POWER (MWH): 6.71E+06
COMMERCIAL OPERATION: 08/30/76   INITIAL CRITICALITY: 04/06/76
COOLING WATER SOURCE: HUDSON RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.58E-01
CO-58	8.69E-06
KR-85	3.26E+00
KR-85M	1.46E-01
KR-87	5.92E-02
KR-88	2.08E-01
I-131	3.41E-03
XE-131M	8.32E+00
I-133	5.47E-04
XE-133	2.87E+02
XE-133M	2.02E+00
CS-134	1.49E-06
XE-135	8.24E+00
XE-135M	1.32E-02
CS-137	2.40E-06
XE-138	3.30E-03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	7.25E-05
AR-41	2.03E-04
CR-51	1.79E-02
MN-54	1.53E-03
FE-55	1.17E-01
CO-57	1.21E-05
CO-58	3.96E-02
FE-59	4.52E-03
CO-60	1.52E-02
NI-63	5.78E-03
KR-85	1.32E-02
KR-85M	7.51E-06
SR-85	5.79E-05
SR-89	4.90E-06
Y-91M	1.22E-06
NB-95	9.33E-04
ZR-95	2.15E-04
TC-99M	1.55E-04
AG-110M	1.38E-02
SN-113	9.50E-05
SB-124	3.74E-03
SB-125	3.30E-02
I-131	2.96E-02
XE-131M	4.66E-02

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION: INDIAN POINT 3

LOCATION: 3 MI SW PEEKSKILL, NY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-132	1.24E-05
I-133	4.05E-04
XE-133	2.17E+00
XE-133M	1.97E-02
CS-134	1.95E-02
XE-135	1.85E-02
XE-135M	1.14E-04
CS-136	1.44E-04
CS-137	1.87E-02
LA-140	5.32E-04

TOTAL AIRBORNE TRITIUM RELEASE	4.56E+00
TOTAL LIQUID TRITIUM RELEASE	5.73E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	8.84E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.14E+12

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
2	TRUCK	ALARON, WAMPUM PA
4	TRUCK	BARNWELL SC
5	TRUCK	SEG, OAK RIDGE TN (VOL. RED.)
1	TRUCK	U.S. ECOLOGY, MEMPHIS TN

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CO-58	%	1.00E+01	1.40E+01
CO-60	%	3.40E+01	1.10E+01
CR-51	%		1.50E+00
CS-134	%	1.20E+01	2.00E+01
CS-137	%	2.10E+01	1.80E+01
FE-55	%	6.00E+00	2.60E+01
MN-54	%	4.00E+00	1.40E+00
NI-63	%	1.30E+01	5.90E+00

B

CO-58	%		5.00E+00
CO-60	%		2.80E+01
CS-137	%		2.00E+00
FE-55	%		5.90E+01
NI-63	%		5.00E+00

D

CO-58	%	5.00E+00	5.00E+00
CO-60	%	2.80E+01	2.80E+01
CS-137	%	2.00E+00	2.00E+00
FE-55	%	5.90E+01	5.90E+01
H-3	%	1.00E+00	
NI-63	%	5.00E+00	5.00E+00

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

UNIT YEAR TOTAL

M3 1.26E+01

CI 3.53E+02

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 3.00E+00

CI 1.55E+00

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3 0.00E+00

CI 0.00E+00

D. OTHER

M3 1.66E+02

CONTAMINATED EQUIP. (VOL. RED.)

CI 1.86E+00

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:WISCONSIN PUBLIC SERVICE
DOCKET NO.:50-305   LICENSED POWER (MWT):1.65E+03
THERMAL POWER (MWH):1.22E+07   NET ELECTRIC POWER (MWH):3.91E+06
COMMERCIAL OPERATION:06/16/74   INITIAL CRITICALITY:03/07/74
COOLING WATER SOURCE:LAKE MICHIGAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	7.57E-02
FE-55	<4.24E-05
CO-58	1.59E-05
CO-60	1.27E-05
AS-76	4.08E-08
KR-85	1.88E-01
KR-85M	1.80E-03
SR-89	<4.83E-05
SR-90	<9.25E-06
MO-TC-99M	6.50E-08
RU-103	2.01E-08
TC-104	1.02E-06
I-131	3.45E-04
XE-131M	1.47E-03
I-132	5.29E-03
I-133	2.51E-05
XE-133	6.42E+00
XE-133M	1.43E-02
XE-135	4.97E-02
CS-137	5.39E-07
UNIDENTIFIED	<2.23E+01

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	3.08E-04
AR-41	7.64E-05
CR-51	8.36E-03
MN-54	5.02E-03
FE-55	7.92E-02
NI-56	1.90E-05
CO-57	3.62E-04
CO-58	2.68E-01
FE-59	1.94E-03
CO-60	6.28E-02
KR-85M	7.82E-07
SR-89	1.28E-03
SR-90	1.40E-05
NB-95	1.36E-03
ZR-95	9.53E-04
AG-110M	2.32E-02
SN-113	7.88E-04
SB-122	6.30E-04
SB-124	1.52E-02

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:KEWAUNEE

LOCATION:27 MI ESE GREEN BAY, WI

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SB-125	1.15E-02
I-131	1.35E-03
I-132	5.80E-05
I-133	3.25E-04
XE-133	3.85E-03
CS-134	6.16E-03
I-135	2.60E-05
XE-135	3.41E-06
CS-136	1.92E-04
CS-137	7.91E-03
LA-140	7.38E-05

TOTAL AIRBORNE TRITIUM RELEASE <7.15E+00

TOTAL LIQUID TRITIUM RELEASE 3.32E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.38E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.89E+10

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:KEWAUNEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS

MODE OF TRANSPORTATION

DESTINATION

4

CASK

BARNWELL SC

2

CNSI-CONVENTIONAL VAN

BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

AG-110M

%

2.07E+00

C-14

%

4.79E-01

7.90E-01

CM-242

%

4.93E-05

3.37E-06

CO-57

%

1.36E-01

CO-58

%

3.37E+01

1.13E+00

CO-60

%

4.76E+01

3.93E+01

CR-51

%

3.57E-04

CS-137

%

4.55E-01

FE-55

%

2.50E+01

MN-54

%

3.53E+00

7.58E-01

NB-94

%

2.26E-04

8.40E-05

NB-95

%

2.89E-01

1.45E-02

NI-59

%

1.64E-01

2.28E-01

NI-63

%

1.43E+01

1.98E+01

PU-241

%

7.41E-02

4.89E-04

SB-124

%

3.78E-02

SB-125

%

1.01E+01

SN-113

%

4.67E-02

SR-90

%

7.11E-03

TRU

%

7.15E-04

1.36E-05

ZR-95

%

6.85E-03

B

AG-110M

%

6.87E-01

C-14

%

3.45E-01

CM-242

%

1.79E-03

CO-57

%

1.38E-01

CO-58

%

3.99E+00

CO-60

%

5.40E+01

CS-137

%

4.12E-01

FE-55

%

5.96E+00

MN-54

%

4.06E+00

NB-95

%

1.28E+00

NI-59

%

2.96E-01

NI-63

%

2.57E+01

PU-241

%

1.96E-02

SB-125

%

1.79E+00

SN-113

%

2.06E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:KEWAUNEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
SR-90	%		2.47E-03
TRU	%		2.04E-03
ZR-95	%		1.17E+00
D			
AG-110M	%		6.89E-01
C-14	%	4.75E-01	5.41E-01
CM-242	%	3.77E-06	8.75E-03
CO-57	%		1.38E-01
CO-58	%	3.36E+01	4.00E+00
CO-60	%	4.75E+01	5.41E+01
CS-137	%		4.14E-01
FE-55	%		1.12E+00
MN-54	%	3.53E+00	4.07E+00
NB-94	%	2.25E-04	
NB-95	%	2.89E-01	2.48E+00
NI-59	%	1.64E-01	3.32E-01
NI-63	%	1.43E+01	2.88E+01
PU-241	%		9.32E-02
SB-125	%		1.79E+00
SN-113	%		2.07E-01
SR-90	%		2.15E-03
TRU	%	5.50E-05	9.91E-03
ZR-95	%		1.17E+00

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.72E+01
	CI	4.35E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	4.85E+01
	CI	7.66E-01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	0.00E+00
	CI	0.00E+00
D. OTHER	M3	9.23E+00
NON-COMPR. CONTAMINATED SCRAP	CI	4.66E+01

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:LACROSSE

LOCATION:19 MI S LACROSSE, WI

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:DAIRYLAND POWER
DOCKET NO.:50-409   LICENSED POWER (MWT):1.65E+02
THERMAL POWER (MWH):0.00E+00   NET ELECTRIC POWER (MWH):0.00E+00
COMMERCIAL OPERATION:11/01/69   INITIAL CRITICALITY:07/11/67
COOLING WATER SOURCE:MISSISSIPPI RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	5.08E-07
CO-57	8.08E-08
CO-58	1.41E-07
CO-60	3.48E-06
ZN-65	1.06E-06
SR-89	2.63E-07
NB-95	3.68E-07
RU-RH-106	2.70E-07
CS-137	3.37E-06
CE-144	7.33E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	2.37E-02
FE-55	1.05E-01
CO-57	4.89E-05
CO-58	5.95E-05
CO-60	2.45E-01
ZN-65	9.76E-04
SR-89	4.29E-04
SR-90	1.57E-03
ZR-NB-95	7.31E-05
AG-110M	5.63E-04
CS-134	1.53E-03
CS-137	6.82E-02
CE-144	1.25E-04

TOTAL AIRBORNE TRITIUM RELEASE   1.28E+00
TOTAL LIQUID TRITIUM RELEASE   4.60E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	8.47E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.28E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: LACROSSE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS   MODE OF TRANSPORTATION
1   SOLE USE

DESTINATION
BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

AM-241	%	3.19E-03
C-14	%	1.29E-03
CM-242	%	1.78E-02
CM-243/244	%	1.40E-03
CO-60	%	5.58E+01
CS-137	%	5.82E+00
FE-55	%	2.49E+01
H-3	%	5.25E-03
I-129	%	2.90E-03
MN-54	%	7.50E+00
NI-59	%	5.64E-02
NI-63	%	4.95E+00
PU-238	%	7.87E-03
PU-239/240	%	4.44E-03
PU-241	%	3.53E-01
SR-90	%	5.82E-01
TC-99	%	5.96E-05
U-235	%	2.42E-06
U-238	%	2.05E-06

B

CO-60	%	6.37E+01
CS-137	%	2.00E+00
FE-55	%	1.40E+00
MN-54	%	1.00E+00
NI-63	%	3.20E+01

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
D. OTHER

UNIT YEAR TOTAL

M3	4.62E+00
CI	7.03E+01
M3	1.90E+00
CI	1.93E-02
M3	
CI	
M3	
CI	

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE: BWR	LICENSEE: COMMONWEALTH EDISON COMPANY
DOCKET NO.: 50-373		LICENSED POWER (MWT): 3.32E+03
THERMAL POWER (MWH): 1.69E+07		NET ELECTRIC POWER (MWH): 5.44E+06
COMMERCIAL OPERATION: 01/01/84		INITIAL CRITICALITY: 06/21/82
COOLING WATER SOURCE: RESERVOIR		
UNIT NUMBER: 2	TYPE: BWR	LICENSEE: COMMONWEALTH EDISON COMPANY
DOCKET NO.: 50-374		LICENSED POWER (MWT): 3.32E+03
THERMAL POWER (MWH): 1.81E+07		NET ELECTRIC POWER (MWH): 5.66E+06
COMMERCIAL OPERATION: 10/19/84		INITIAL CRITICALITY: 03/10/84
COOLING WATER SOURCE: RESERVOIR		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	8.30E+00
CR-51	9.58E-04
MN-54	7.72E-04
CO-58	1.55E-04
CO-60	3.56E-03
ZN-65	4.25E-05
KR-85	4.60E-02
KR-85M	5.24E+02
KR-87	2.77E-01
KR-88	6.58E+02
SR-89	5.73E-05
MO-99	7.17E-06
I-131	7.81E-03
I-132	2.40E-02
I-133	4.02E-01
XE-133	2.42E+03
I-134	3.11E-03
I-135	3.86E-02
XE-135	1.82E+02
CS-137	1.35E-05
LA-140	1.09E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.48E-02
CR-51	7.06E+00
MN-54	1.16E+00
FE-55	2.66E-01
CO-58	3.33E-01
FE-59	5.27E-01
CO-60	1.50E+00
ZN-65	5.94E-02
SR-89	4.76E-04
SR-90	3.19E-05
NB-95	6.32E-03
ZR-95	1.05E-03
TC-99M	1.90E-05
AG-110M	7.15E-03

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION: LASALLE

LOCATION: 11 MI SE OF OTTAWA, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-131	3.23E-02
CS-134	1.84E-02
CS-136	1.95E-03
CS-137	4.91E-02
CS-138	2.10E-03
BA-LA-140	9.12E-06
CE-141	7.60E-04

TOTAL AIRBORNE TRITIUM RELEASE	3.15E-03
TOTAL LIQUID TRITIUM RELEASE	1.76E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.25E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.00E+09

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION: LASALLE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
18	HITTMAN	BARNWELL SC
75	HITTMAN	BEATTY NV
10	HITTMAN	OAK RIDGE TN
9	HITTMAN	WALTZ MILL PA
6	KINDRICK	OAK RIDGE TN
1	MC GILL	BARNWELL SC
1	RAY TECH	CHANNON IL
4	RAY TECH	OAK RIDGE TN
1	U S ECOLOGY	HANFORD WA

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT	YEAR TOTAL
M3	3.73E+02
CI	3.36E+03
M3	5.52E+02
CI	2.08E+01
M3	
CI	
M3	
CI	

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:LIMERICK

LOCATION:21 MI NW OF PHILA., PA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:PHILADELPHIA ELEC.CO
DOCKET NO.:50-352   LICENSED POWER (MWT):1.65E+02
THERMAL POWER (MWH):2.19E+07   NET ELECTRIC POWER (MWH):6.67E+06
COMMERCIAL OPERATION:02/01/86   INITIAL CRITICALITY:12/22/84
COOLING WATER SOURCE:SCHUYLKILL RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
KR-85	1.28E-04
SR-89	4.13E-05
I-131	5.63E-03
I-133	3.68E-03
XE-133	1.07E+02
XE-133M	9.86E-02
XE-135	4.24E+01
XE-135M	2.03E+01
UNIDENTIFIED	5.06E-06

TOTAL AIRBORNE TRITIUM RELEASE   6.40E+01
TOTAL LIQUID TRITIUM RELEASE   0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	N/A
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	N/A

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
52	TRUCK
5	TRUCK
5	TRUCK

DESTINATION
BARNWELL SC (CNSI)
CHANNON IL (CNSI)
QUADREX, OAK RIDGE TN

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

AM-241	%	8.91E-05	2.51E-04
BA-140	%	1.26E-02	9.30E-02
C-14	%	2.27E-01	2.31E-01
CE-141	%	7.22E-05	
CM-243	%	6.65E-05	
CO-58	%	6.82E+00	2.40E+00
CO-60	%	4.16E+00	6.23E+00
CR-51	%	2.91E+01	4.90E+00
CS-134	%	1.65E-01	4.65E+00
CS-136	%		1.98E-03
CS-137	%	1.78E-01	5.33E+00
FE-55	%	3.94E+00	5.41E+00
FE-59	%	3.41E-02	
H-3	%	1.03E-01	5.81E-01
I-131	%	6.38E-01	2.48E+00
MN-54	%	1.03E+00	1.32E+00
NB-95	%	1.47E+00	1.89E-01
NI-63	%	4.87E-02	8.65E-02
PU-239	%	4.14E-06	5.45E-05
PU-241	%	8.39E-04	3.26E-03
RU-103	%	1.72E-01	
RU-106	%	1.01E+00	
SR-90	%	1.62E-02	7.42E-04
TC-99	%	8.57E-04	
ZN-65	%	5.01E+01	6.61E+01
ZR-95	%	8.01E-01	2.77E-03

B

C-14	%	9.59E-02	7.63E-03
CO-58	%	3.29E+00	4.19E+00
CO-60	%	5.43E+00	4.36E+00
CR-51	%	7.42E+00	3.21E+01
CS-134	%		1.04E+00
CS-137	%		1.04E+00
FE-55	%	5.09E+00	6.85E+00
H-3	%	5.12E+01	2.37E+01
MN-54	%	7.04E-01	1.06E+00

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:LIMERICK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
	NB-95	% 1.09E-02	
	NI-63	% 5.28E-03	3.11E-03
	PU-241	% 2.42E-04	1.87E-04
	SR-90	% 1.53E-02	1.25E-02
	ZN-65	% 2.66E+01	2.57E+01
	ZR-95	% 6.09E-02	

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	3.59E+02	
	CI	9.61E+02	
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	5.36E+02 *	
	CI	9.17E+00	
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3		
	CI		
D. OTHER	M3		
	CI		

*PRIOR TO VOLUME REDUCTION

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:MAINE YANKEE ATOMIC POWER
DOCKET NO.:50-309   LICENSED POWER (MWT):2.63E+03
THERMAL POWER (MWH):1.67E+07   NET ELECTRIC POWER (MWH):5.02E+06
COMMERCIAL OPERATION:12/28/72   INITIAL CRITICALITY:10/23/72
COOLING WATER SOURCE:BACK RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-58	2.76E-06
CO-60	1.85E-05
KR-85	1.56E+00
KR-85M	3.52E-03
KR-88	7.00E-05
CD-109	1.70E-06
I-131	4.44E-04
XE-131M	9.04E-02
I-133	1.08E-04
XE-133	6.71E+01
XE-133M	4.94E-01
XE-135	2.73E+00
CS-137	2.80E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.48E-02
MN-54	5.85E-04
FE-55	4.36E-02
CO-57	8.36E-05
CO-58	6.26E-02
FE-59	2.44E-04
CO-60	4.96E-02
SR-89	6.94E-03
SR-90	1.23E-04
ZR-NB-95	1.04E-03
MO-99	1.80E-05
TC-99M	2.59E-05
RU-103	5.86E-04
AG-110M	7.65E-03
SN-113	2.52E-04
SB-124	9.20E-02
SB-125	3.19E-02
I-131	2.22E-03
I-133	1.42E-05
XE-133	3.17E-02
CS-134	4.64E-03
XE-135	1.66E-03
CS-137	2.90E-02
BA-LA-140	1.28E-03
CE-141	6.74E-05
CE-144	4.64E-05

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:MAINE YANKEE

LOCATION:3.9 MI S WICASSETT, ME

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

TOTAL AIRBORNE TRITIUM RELEASE 6.42E+00
TOTAL LIQUID TRITIUM RELEASE 2.91E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	5.95E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.83E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:MAINE YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
16	TRUCKING OVER HIGHWAY
+ 24	TRUCKING OVER HIGHWAY

DESTINATION
CHEM-NUCLEAR BARNWELL SC
SEG, CHEM-NUCLEAR BARNWELL SC

+SEG PERFORMS SUPER COMPACTING OF DAW

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-58	%	3.00E+00	
CO-60	%	2.90E+01	2.30E+01
CS-134	%	6.00E+00	
CS-137	%	1.90E+01	
FE-55	%	3.00E+01	3.20E+01
MN-54	%	2.00E+00	
NI-63	%	7.00E+00	4.50E+01

B

CO-58	%	1.50E+01	1.10E+01
CO-60	%	1.80E+01	2.30E+01
CS-134	%	1.70E+01	3.00E+00
CS-137	%	3.50E+01	1.00E+01
FE-55	%	5.00E+00	2.70E+01
NI-63	%	8.00E+00	1.40E+01
SB-125	%		2.00E+00
ZR-95	%		5.00E+00

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT YEAR TOTAL

M3	2.04E+01
CI	3.85E+02
M3	1.17E+02 *
CI	5.12E+01
M3	
CI	
M3	
CI	

*VOLUME AFTER COMPACTION

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:MCGUIRE 1

LOCATION:17 MI N OF CHARLOTTE, NC

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:DUKE POWER COMPANY
DOCKET NO.:50-369   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):2.26E+07   NET ELECTRIC POWER (MWH):7.39E+06
COMMERCIAL OPERATION:12/01/81   INITIAL CRITICALITY:08/08/81
COOLING WATER SOURCE:LAKE NORMAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.60E-09
CL-38	6.07E-08
K-40	2.64E-05
AR-41	8.77E+00
CR-51	1.88E-06
MN-54	8.25E-07
CO-57	1.93E-06
CO-58	6.48E-05
CO-60	7.28E-05
BR-82	9.58E-08
KR-85	3.69E+01
KR-85M	4.92E+00
KR-87	7.05E-01
KR-88	4.64E+00
RB-88	1.70E-04
SR-89	1.03E-06
SR-92	4.63E-08
NB-95	5.58E-10
TC-99M	2.31E-08
RU-103	1.20E-07
I-131	5.58E-03
XE-131M	1.07E+01
I-132	1.20E-03
I-133	1.83E-03
XE-133	1.79E+03
XE-133M	2.44E+01
CS-134	4.73E-05
I-134	1.12E-07
I-135	6.91E-07
XE-135	7.09E+01
XE-135M	1.39E-02
CS-136	8.52E-06
CS-137	1.11E-04
CS-138	6.41E-07
XE-138	1.08E-03
BA-139	4.04E-07
CE-141	2.55E-10
PB-212	3.64E-07
BI-214	4.13E-05
PB-214	1.27E-05

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.00E-03
K-40	8.76E-04
AR-41	3.22E-03
CR-51	3.01E-01
MN-54	8.24E-02
FE-55	4.17E-01
MN-56	2.85E-06
CO-57	3.66E-03
CO-58	1.03E+00
FE-59	1.79E-02
CO-60	3.69E-01
ZN-65	2.96E-03
ZN-69M	8.62E-06
BR-82	5.85E-05
KR-85	8.72E-04
KR-85M	1.26E-03
RB-86	3.66E-05
KR-87	3.67E-03
KR-88	1.46E-05
RB-88	8.16E-04
SR-89	7.76E-05
SR-90	9.44E-06
SR-92	1.15E-03
NB-95	6.05E-02
ZR-95	3.66E-02
NB-97	4.87E-03
ZR-97	3.54E-05
MO-99	8.15E-04
TC-99M	3.23E-03
RU-103	3.31E-03
RU-106	3.94E-03
AG-110M	1.38E-02
SN-113	7.22E-03
CD-115	1.28E-04
IN-115M	3.73E-07
SB-122	2.59E-04
SB-124	7.48E-03
SB-125	6.71E-02
I-131	6.36E-02
XE-131M	1.97E-02
I-132	3.97E-04
I-133	7.66E-03
XE-133	6.99E+00
XE-133M	1.15E-01
CS-134	7.01E-03
I-134	2.34E-04
I-135	2.02E-02
XE-135	1.98E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:MCGUIRE 1

LOCATION:17 MI N OF CHARLOTTE, NC

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-135M	4.53E-04
CS-136	1.77E-04
CS-137	1.24E-02
CS-138	6.96E-03
BA-139	6.96E-05
BA-140	3.11E-04
LA-140	2.94E-03
CE-141	1.41E-03
CE-143	3.52E-04
CE-144	3.49E-03
W-187	7.43E-07
BI-214	8.71E-04
PB-214	1.88E-04
NP-239	2.51E-03

TOTAL AIRBORNE TRITIUM RELEASE	2.40E+01
TOTAL LIQUID TRITIUM RELEASE	5.29E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.95E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.30E+12

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:DUKE POWER COMPANY
DOCKET NO.:50-370   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):2.41E+07   NET ELECTRIC POWER (MWH):8.05E+06
COMMERCIAL OPERATION:03/01/84   INITIAL CRITICALITY:05/08/83
COOLING WATER SOURCE:LAKE NORMAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.60E-09
CL-38	6.07E-08
K-40	2.64E-05
AR-41	8.77E+00
CR-51	1.88E-06
MN-54	8.25E-07
CO-57	1.93E-06
CO-58	6.48E-05
CO-60	7.28E-05
BR-82	9.58E-08
KR-85	3.69E+01
KR-85M	4.92E+00
KR-87	7.05E-01
KR-88	4.64E+00
RB-88	1.70E-04
SR-89	1.03E-06
SR-92	4.63E-08
NB-95	5.58E-10
TC-99M	2.31E-08
RU-103	1.20E-07
I-131	5.58E-03
XE-131M	1.07E+01
I-132	1.20E-03
I-133	1.83E-03
XE-133	1.79E+03
XE-133M	2.44E+01
CS-134	4.73E-05
I-134	1.12E-07
I-135	6.91E-07
XE-135	7.09E+01
XE-135M	1.39E-02
CS-136	8.52E-06
CS-137	1.11E-04
CS-138	6.41E-07
XE-138	1.08E-03
BA-139	4.04E-07
CE-141	2.55E-10
PB-212	3.64E-07
BI-214	4.13E-05
PB-214	1.27E-05

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.00E-03
K-40	8.76E-04
AR-41	3.22E-03
CR-51	3.01E-01
MN-54	8.24E-02
FE-55	4.17E-01
MN-56	2.85E-06
CO-57	3.66E-03
CO-58	1.03E+00
FE-59	1.79E-02
CO-60	3.69E-01
ZN-65	2.96E-03
ZN-69M	8.62E-06
BR-82	5.85E-05
KR-85	8.72E-04
KR-85M	1.26E-03
RB-86	3.66E-05
KR-87	3.67E-03
KR-88	1.46E-05
RB-88	8.16E-04
SR-89	7.76E-05
SR-90	9.44E-06
SR-92	1.15E-03
NB-95	6.05E-02
ZR-95	3.66E-02
NB-97	4.87E-03
ZR-97	3.54E-05
MO-99	8.15E-04
TC-99M	3.23E-03
RU-103	3.31E-03
RU-106	3.94E-03
AG-110M	1.38E-02
SN-113	7.22E-03
CD-115	1.28E-04
IN-115M	3.73E-07
SB-122	2.59E-04
SB-124	7.48E-03
SB-125	6.71E-02
I-131	6.36E-02
XE-131M	1.97E-02
I-132	3.97E-04
I-133	7.66E-03
XE-133	6.99E+00
XE-133M	1.15E-01
CS-134	7.01E-03
I-134	2.34E-04
I-135	2.02E-02
XE-135	1.98E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-135M	4.53E-04
CS-136	1.77E-04
CS-137	1.24E-02
CS-138	6.96E-03
BA-139	6.96E-05
BA-140	3.11E-04
LA-140	2.94E-03
CE-141	1.41E-03
CE-143	3.52E-04
CE-144	3.49E-03
W-187	7.43E-07
BI-214	8.71E-04
PB-214	1.88E-04
NP-239	2.51E-03

TOTAL AIRBORNE TRITIUM RELEASE	2.40E+01
TOTAL LIQUID TRITIUM RELEASE	5.29E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.95E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.30E+12

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLJD EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
D			
CO-58	%	5.60E+00	5.60E+00
CO-60	%	3.61E+01	3.61E+01
FE-55	%	4.85E+01	4.85E+01
H-3	%	2.00E-01	2.00E-01
MN-54	%	2.50E+00	2.50E+00
NB-95	%	1.10E+00	1.10E+00
NI-63	%	5.30E+00	5.30E+00
PU-241	%	5.00E-02	5.00E-02
SR-90	%	2.00E-03	2.00E-03
TRU	%	2.00E-03	2.00E-03

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	2.80E+02
	CI	6.02E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.22E+02 *
	CI	1.62E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	0.00E+00
	CI	0.00E+00
D. OTHER	M3	1.46E+01
DEWATERED MECHANICAL FILTERS	CI	3.07E+01

*TOTAL VOLUME INCLUDES COMPACTED AND NON-COMPACTED TOTALS

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
+ 32	N/R	N/R

+DOES NOT INCLUDE BROKERED TOTALS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
A			
C-14	%	2.00E-01	1.98E-01
CE-144	%	1.61E-03	1.46E-02
CM-242	%	2.95E-03	2.53E-03
CO-57	%	1.48E-01	5.35E-01
CO-58	%	1.20E+01	1.18E+01
CO-60	%	3.73E+01	3.53E+01
CR-51	%	7.90E-02	2.12E-01
CS-134	%	7.68E+00	9.05E+00
CS-137	%	1.08E+01	1.79E+01
FE-55	%	1.08E+01	9.51E+00
FE-59	%	1.28E-02	1.16E-01
H-3	%	4.21E-01	3.11E+00
I-131	%	3.21E-04	2.91E-03
MN-54	%	3.81E+00	3.90E+00
NB-95	%	4.55E-05	2.45E-02
NI-63	%	1.66E+01	1.56E+01
PU-241	%	6.89E-02	6.30E-02
SB-122	%	5.90E-01	5.06E-01
SB-125	%	5.90E-02	5.06E-02
SR-90	%	2.95E-01	2.53E-01
TRU	%	6.90E-03	5.90E-03
ZR-95	%	3.43E-05	1.84E-02
B			
C-14	%	4.00E-02	4.00E-02
CO-58	%	2.51E+01	2.51E+01
CO-60	%	2.80E+01	2.80E+01
CR-51	%	1.32E+01	1.32E+01
CS-137	%	8.30E-01	8.30E-01
FE-55	%	2.04E+01	2.04E+01
MN-54	%	5.34E+00	5.34E+00
NB-95	%	2.23E+00	2.23E+00
NI-63	%	2.94E+00	2.94E+00
PU-241	%	3.60E-01	3.60E-01
ZR-95	%	1.68E+00	1.68E+00
D			
C-14	%	2.00E-01	2.00E-01
CE-144	%	5.00E-01	5.00E-01
CM-242	%	2.00E-03	2.00E-03

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:MILLSTONE 1

LOCATION:3.2 MI WSW NEW LONDON, CT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:NORTHEAST NUCLEAR ENERGY
DOCKET NO.:50-245   LICENSED POWER (MWT):2.01E+03
THERMAL POWER (MWH):1.70E+07   NET ELECTRIC POWER (MWH):5.54E+06
COMMERCIAL OPERATION:03/01/71   INITIAL CRITICALITY:10/26/70
COOLING WATER SOURCE:LONG ISLAND SOUND

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	7.28E-04
MN-54	6.01E-05
CO-58	4.03E-05
FE-59	6.00E-06
CO-60	8.83E-04
ZN-65	1.62E-03
KR-85	1.99E+02
KR-85M	4.82E+00
KR-87	3.15E+01
KR-88	2.51E+00
SR-89	5.79E-04
SR-90	3.67E-06
I-131	2.97E-03
I-133	1.45E-02
XE-133	4.05E+02
XE-135	5.32E+01
XE-135M	3.60E+01
CS-137	1.01E-04
XE-138	1.46E+02
BA-140	5.62E-04
LA-140	1.73E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.11E-03
CR-51	1.62E-03
MN-54	3.64E-02
FE-55	6.26E-02
CO-58	8.59E-04
FE-59	3.68E-05
CO-60	8.86E-01
ZN-65	8.55E-03
SR-89	6.05E-04
SR-90	1.81E-03
Y-93	2.09E-05
TC-99M	4.77E-04
RU-103	4.70E-06
I-131	1.28E-03
I-133	1.11E-03
XE-133	1.12E-03
CS-134	1.15E-03
XE-135	9.48E-04
CS-137	7.70E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:MILLSTONE 1

LOCATION:3.2 MI WSW NEW LONDON, CT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED

ACTIVITY (CI)

CE-144

6.85E-06

TOTAL AIRBORNE TRITIUM RELEASE 7.21E+01

TOTAL LIQUID TRITIUM RELEASE 3.78E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION) LITERS 1.39E+07

VOLUME OF DILUTION WATER USED DURING PERIOD LITERS 8.64E+11

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

INSTALLATION:MILLSTONE 1

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

	NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
	43	TRUCK(SOLE USE VEHICLE)	CHEM NUC, BARNWELL SC
#	6	TRUCK(SOLE USE VEHICLE)	CHEM-NUC, BARNWELL SC
	3	TRUCK(SOLE USE VEHICLE)	SEG, OAK RIDGE TN
#	3	TRUCK(SOLE USE VEHICLE)	US ECOLOGY, RICHLAND WA

#NO UNIT ASSIGNMENT, SHIPPED FROM BABCOCK & WILCOX AND CHARGED TO STATION.

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	1.91E+02
BOTTOMS, ETC.	CI	1.38E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	8.41E+01 *
EQUIPMENT, ETC.	CI	2.97E+00
C. IRRADIATED COMPONENTS, CONTROL	M3	3.96E+00
RODS, ETC.	CI	9.40E+04
D. OTHER	M3	
	CI	

*REPORTED VOLUME IS "AS BURIED" AND INCLUDES:

SEG: SUPERCOMPACTED 6.88E+01 M3 INTO 2.56E+01 M3

B&W: DECONTAMINATED UNKNOWN AMOUNT (1.63E+02 SENT TO B&W FROM ALL 3 UNITS)
INTO 1.62E+01 M3

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:NORTHEAST NUCLEAR ENERGY
DOCKET NO.:50-336   LICENSED POWER (MWT):2.70E+03
THERMAL POWER (MWH):1.81E+07   NET ELECTRIC POWER (MWH):5.73E+06
COMMERCIAL OPERATION:12/26/75   INITIAL CRITICALITY:10/17/75
COOLING WATER SOURCE:LONG ISLAND SOUND

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	<5.56E-07
CR-51	5.98E-06
MN-54	6.34E-06
CO-58	3.73E-04
CO-60	4.61E-05
KR-85	4.25E+00
KR-85M	1.56E-05
SR-89	<8.22E-07
SR-90	<4.82E-08
I-131	5.08E-02
XE-131M	2.45E+00
I-133	2.61E-02
XE-133	7.32E+02
XE-133M	1.71E+00
CS-134	1.29E-05
XE-135	1.29E+02
CS-137	1.62E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	<1.74E-03
NA-24	1.32E-03
AR-41	5.89E-04
CR-51	3.41E-01
MN-54	7.88E-02
FE-55	<2.68E-01
CO-57	1.03E-02
CO-58	4.16E+00
FE-59	1.00E-02
CO-60	1.92E+00
KR-85	1.21E-01
KR-85M	1.65E-03
SR-89	<6.89E-03
SR-90	<2.24E-03
SR-92	1.33E-02
NB-95	2.76E-02
ZR-95	1.28E-02
NB-97	5.77E-02
TC-99M	3.31E-05
RU-103	2.71E-03
RU-106	1.03E-02
AG-110M	3.51E-02
SB-124	8.54E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SB-125	1.06E-01
I-131	1.60E-01
XE-131M	9.07E-02
I-132	9.80E-04
I-133	2.20E-02
XE-133	3.77E+00
XE-133M	2.11E-02
CS-134	3.60E-01
I-135	1.65E-03
XE-135	1.14E-01
XE-135M	1.59E-03
CS-136	4.98E-03
CS-137	1.14E+00
BA-139	1.37E-03
BA-140	1.16E-02
LA-140	1.08E-02
LA-141	1.43E-02
CE-144	1.48E-04
PR-144	1.71E-02

TOTAL AIRBORNE TRITIUM RELEASE	1.04E+02
TOTAL LIQUID TRITIUM RELEASE	2.59E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.00E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.01E+12

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
12	TRUCK(SOLE USE VEHICLE)	CHEM NUC, BARNWELL SC
3	TRUCK(SOLE USE VEHICLE)	SEG, OAK RIDGE TN

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		3.95E+01
BOTTOMS, ETC.	CI		4.52E+01
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		1.19E+02 *
EQUIPMENT, ETC.	CI		5.38E+00
C. IRRADIATED COMPONENTS, CONTROL	M3		
RODS, ETC.	CI		
D. OTHER	M3		
	CI		

*REPORTED VOLUME IS "AS BURIED" AND INCLUDES:

SEG: SUPERCOMPACTED 1.30E+02 M3 INTO 2.29E+01 M3

B&W: DECONTAMINATED UNKNOWN AMOUNT (1.63E+02 M3 SENT TO B&W FROM ALL 3 UNITS)
INTO 5.64E+00 M3

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 3   TYPE:PWR   LICENSEE:NORTHEAST NUCLEAR ENERGY
DOCKET NO.:50-423   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):2.33E+07   NET ELECTRIC POWER (MWH):7.67E+06
COMMERCIAL OPERATION:04/23/86   INITIAL CRITICALITY:01/23/86
COOLING WATER SOURCE:LONG ISLAND SOUND

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	<8.73E-06
MN-54	5.27E-07
CO-58	3.11E-04
CO-60	1.56E-05
KR-85M	2.14E-03
Y-88	6.31E-07
SR-89	<6.96E-06
SR-90	<4.21E-06
I-131	9.45E-03
XE-131M	2.03E-01
I-133	4.45E-03
XE-133	7.77E+01
XE-133M	5.02E-01
XE-135	5.96E+00
CS-137	1.63E-05
ND-147	7.94E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	<1.30E-03
NA-24	1.86E-02
AR-41	6.81E-04
CR-51	3.57E-02
MN-54	3.91E-01
FE-55	2.42E-01
CO-57	5.97E-03
CO-58	8.01E-01
FE-59	2.09E-02
CO-60	6.17E-01
ZN-65	2.02E-03
KR-85	8.29E-03
KR-85M	3.39E-03
KR-87	1.90E-03
RB-88	1.84E-03
Y-88	1.46E-04
SR-89	6.18E-04
SR-90	<1.26E-04
SR-92	1.42E-02
NB-95	5.71E-02
ZR-95	2.12E-02
NB-97	7.25E-02
MO-99	8.85E-03
TC-99M	5.14E-03

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
RU-106	2.72E-03
AG-110M	3.33E-02
SB-124	3.95E-03
SB-125	2.01E-02
I-131	2.66E-01
XE-131M	2.67E-03
I-132	1.35E-02
I-133	4.93E-02
XE-133	1.15E-01
CS-134	1.58E-01
I-134	1.78E-03
I-135	1.07E-03
XE-135	4.74E-02
XE-135M	5.00E-02
CS-136	7.99E-03
CS-137	2.29E-01

TOTAL AIRBORNE TRITIUM RELEASE 7.16E+01

TOTAL LIQUID TRITIUM RELEASE 5.47E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.03E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.63E+12

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:MILLSTONE 3

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
14	TRUCK(SOLE USE VEHICLE)	CHEM NUC, BARNWELL SC
2	TRUCK(SOLE USE VEHICLE)	SEG, OAK RIDGE TN

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

D. OTHER

UNIT YEAR TOTAL

M3	7.33E+01
CI	5.31E+02
M3	8.97E+01 *
CI	2.84E+00
M3	
CI	
M3	
CI	

*REPORTED VOLUME IS "AS BURIED" AND INCLUDES:

SEG: SUPERCOMPACTED 5.86E+01 M3 INTO 4.47E+01 M3

B&W: DECONTAMINATED UNKNOWN AMOUNT (1.63E+02 SENT TO B&W FROM ALL 3 UNITS)
INTO 4.08E+00 M3

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:MONTICELLO

LOCATION:23 MI SE ST. CLOUD, MN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:NORTHERN STATES POWER
DOCKET NO.:50-263   LICENSED POWER (MWT):1.67E+03
THERMAL POWER (MWH):1.43E+07   NET ELECTRIC POWER (MWH):4.57E+06
COMMERCIAL OPERATION:06/30/71   INITIAL CRITICALITY:12/10/70
COOLING WATER SOURCE:MISSISSIPPI RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	4.64E-05
MN-54	1.30E-05
CO-58	8.59E-07
FE-59	4.75E-06
CO-60	2.02E-04
ZN-65	7.56E-07
KR-83M	1.27E+01
KR-85	1.69E+02
KR-85M	1.27E+01
KR-87	6.40E+01
KR-88	4.15E+01
KR-89	1.11E+03
SR-89	1.03E-03
KR-90	3.75E+01
SR-90	5.10E-06
RU-103	4.26E-07
I-131	4.31E-02
XE-131M	8.21E+00
I-133	2.12E-01
XE-133	1.62E+03
XE-133M	7.96E+00
I-135	1.93E-01
XE-135	6.20E+01
XE-135M	8.62E+01
CS-137	6.47E-04
XE-137	1.45E+03
XE-138	1.08E+03
XE-139	1.11E+02
BA-140	3.51E-03
CE-141	1.65E-05

TOTAL AIRBORNE TRITIUM RELEASE   8.16E+01
TOTAL LIQUID TRITIUM RELEASE   0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	N/A
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	N/A

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:MONTICELLO

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	RAIL	US ECOLOGY RICHLAND WA
9	TRUCK	CHEM-NUCLEAR BARNWELL SC
3	TRUCK	US ECOLOGY RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

BA-140	%	5.46E-01
CO-58	%	1.07E+00
CO-60	%	3.47E+01
CR-51	%	2.40E+00
CS-134	%	2.98E+00
CS-137	%	1.37E+01
FE-55	%	2.62E+01
I-131	%	5.74E-01
MN-54	%	4.61E+00
SR-89	%	2.30E+00
SR-90	%	8.77E-03
ZN-65	%	8.68E+00

B

BA-140	%	7.45E-02
CO-58	%	6.97E-01
CO-60	%	3.38E+02
CR-51	%	1.47E+00
CS-134	%	3.73E-03
CS-137	%	1.33E+00
FE-55	%	3.76E+01
FE-59	%	1.49E-01
MN-54	%	6.59E+00
SR-89	%	1.03E+00
SR-90	%	1.02E-01
ZN-65	%	2.65E+00

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT YEAR TOTAL

M3	5.21E+01
CI	2.78E+02
M3	9.57E+01
CI	1.44E+01
M3	
CI	
M3	
CI	

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:NINE MILE POINT 1

LOCATION:8 MI NE OSWEGO, NY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:NIAGARA MOHAWK POWER
DOCKET NO.:50-220   LICENSED POWER (MWT):1.85E+03
THERMAL POWER (MWH):0.00E+00   NET ELECTRIC POWER (MWH):0.00E+00
COMMERCIAL OPERATION:12/01/69   INITIAL CRITICALITY:09/05/69
COOLING WATER SOURCE:LAKE ONTARIO

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	1.08E-05
FE-55	2.08E-04
CO-60	1.29E-03
KR-85	2.11E-04
SR-89	3.14E-05
SR-90	1.02E-05
XE-127	8.50E-08
XE-133	1.47E+01
XE-135	3.31E+00
CS-137	3.37E-04

TOTAL AIRBORNE TRITIUM RELEASE   3.96E+00
TOTAL LIQUID TRITIUM RELEASE   0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	N/A
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.58E+10

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:NINE MILE POINT 1

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
* 40	N/R	BARNWELL SC (VOL RED)
28	TRUCK	CHEM-NUC BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A			
	C-14	%	1.12E+00
	CO-58	%	1.09E+00
	CO-60	%	4.98E+01
	CS-134	%	7.40E-01
	CS-137	%	3.76E+01
	FE-55	%	4.45E+00
	MN-54	%	2.27E+00
	NI-63	%	1.46E+00
	OTHER	%	2.59E+00
	ZN-65	%	1.25E+00
B			
	AG-110M	%	6.17E+00
	CO-58	%	1.37E+00
	CO-60	%	2.28E+01
	CR-51	%	1.16E+00
	CS-134	%	1.78E+00
	CS-137	%	6.54E+01
	FE-55	%	8.40E+00
	MN-54	%	8.40E-01
	NI-63	%	4.43E+00
	OTHER	%	1.48E+01
	SB-125	%	7.80E-01
	ZN-65	%	9.90E-01
D			
	CO-58	%	1.61E+00
	CO-60	%	1.11E+00
	CS-134	%	4.23E-01
	CS-137	%	5.51E+01
	FE-55	%	2.61E+00
	MN-54	%	3.48E+01
	OTHER	%	4.27E+00
	SB-125	%	2.03E+00
		%	1.15E-01
		%	1.57E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:NINE MILE POINT 1

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)   JAN-JUNE   JULY-DEC

D		
ZN-65	8	4.95E-01

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	1.23E+02
BOTTOMS, ETC.	CI	3.00E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	8.31E+01
EQUIPMENT, ETC.	CI	6.71E+00
C. IRRADIATED COMPONENTS, CONTROL	M3	0.00E+00
RODS, ETC.	CI	0.00E+00
D. OTHER	M3	6.55E+01 *
DAW(SENT FOR VOL REDUCTION)	CI	4.14E-01 *

*DAW SHIPPED OFFSITE FOR PROCESSING & BURIAL BY VENDOR FACILITIES.

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:NINE MILE POINT 2

LOCATION:8 MI NE OSWEGO, NY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:BWR   LICENSEE:NIAGARA MOHAWK POWER
DOCKET NO.:50-410   LICENSED POWER (MWT):3.32E+03
THERMAL POWER (MWH):8.32E+06   NET ELECTRIC POWER (MWH):2.51E+06
COMMERCIAL OPERATION:04/05/88   INITIAL CRITICALITY:05/23/87
COOLING WATER SOURCE:LAKE ONTARIO

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	5.98E+00
CR-51	2.88E-04
MN-54	4.76E-05
CO-58	9.48E-05
CO-60	5.51E-05
ZN-65	1.07E-04
KR-85	2.06E-04
KR-85M	3.30E-01
KR-87	7.57E-01
KR-88	4.75E-01
SR-89	2.67E-04
SR-90	5.50E-07
SR-91	1.84E-05
MO-TC-99	7.11E-05
I-131	2.53E-05
I-133	2.32E-04
XE-133	3.05E-05
XE-135	8.49E-01
XE-135M	2.97E+00
CS-137	2.52E-06
XE-137	8.39E+00
XE-138	2.05E+01
BA-LA-140	7.32E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	6.21E-02
CR-51	1.08E+00
MN-54	3.67E-01
FE-55	0.00E+00
CO-58	7.65E-01
FE-59	1.82E-01
CO-60	4.24E-01
NI-65	9.41E-04
ZN-65	1.90E-01
AS-76	1.82E-03
MO-99	5.56E-04
TC-99M	5.24E-04
XE-133	7.80E-04
XE-135	3.15E-04
W-187	2.00E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:NINE MILE POINT 2

LOCATION:8 MI NE OSWEGO, NY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

TOTAL AIRBORNE TRITIUM RELEASE 8.66E+00
TOTAL LIQUID TRITIUM RELEASE 7.92E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.10E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.17E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 46
MODE OF TRANSPORTATION TRUCK

DESTINATION
BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS 0
MODE OF TRANSPORTATION N/A

DESTINATION
N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-58	%	2.30E+01	1.02E+01
CO-60	%	1.00E+01	8.42E+00
CR-51	%	7.00E+00	1.84E+01
FE-55	%	3.10E+01	3.24E+01
FE-59	%		1.58E+00
MN-54	%	1.50E+01	7.56E+00
NI-63	%		2.71E-01
OTHERS	%	5.00E+00	1.80E+00
ZN-65	%	9.00E+00	1.94E+01

B

CO-58	%		7.78E+00
CO-60	%		2.29E+01
FE-55	%		3.45E+00
FE-59	%		3.13E+00
H-3	%		8.87E+00
MN-54	%		1.89E+01
NI-63	%		5.32E-01
OTHERS	%		1.00E+00
ZN-65	%		3.44E+01

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT YEAR TOTAL

M3	3.24E+02
CI	3.88E+02
M3	5.35E+01
CI	1.07E-02
M3	
CI	
M3	
CI	

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE:PWR	LICENSEE:VIRGINIA ELECTRIC &POWER
DOCKET NO.:50-338		LICENSED POWER (MWT):2.89E+03
THERMAL POWER (MWH):2.20E+07		NET ELECTRIC POWER (MWH):6.90E+06
COMMERCIAL OPERATION:06/06/78		INITIAL CRITICALITY:04/05/78
COOLING WATER SOURCE:LAKE ANNA		
UNIT NUMBER: 2	TYPE:PWR	LICENSEE:VIRGINIA ELECTRIC &POWER
DOCKET NO.:50-339		LICENSED POWER (MWT):2.89E+03
THERMAL POWER (MWH):2.50E+07		NET ELECTRIC POWER (MWH):7.88E+06
COMMERCIAL OPERATION:12/14/80		INITIAL CRITICALITY:06/12/80
COOLING WATER SOURCE:LAKE ANNA		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	8.56E-04
MN-54	2.07E-06
FE-55	7.38E-06
CO-58	7.61E-06
CO-60	7.04E-05
KR-85	3.64E+00
KR-85M	2.96E-02
KR-87	3.71E-04
KR-88	4.80E-04
RB-88	4.07E-06
NB-95	5.75E-10
AG-110M	1.44E-07
SB-122	1.92E-05
I-131	1.56E-03
TE-131M	5.33E-09
XE-131M	1.95E+00
I-132	6.65E-06
I-133	1.21E-02
XE-133	4.74E+02
XE-133M	5.82E-01
CS-134	1.54E-04
I-135	1.20E-05
XE-135	2.60E+00
CS-137	4.94E-04
CS-138	9.19E-05
CE-143	1.32E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	6.61E-03
AR-41	4.20E-05
MN-54	2.24E-03
CO-58	1.67E-02
CO-60	1.34E-01
KR-85M	1.08E-04
SR-85	5.99E-05
SR-92	1.84E-04
NB-95	3.48E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:NORTH ANNA

LOCATION:40 MI NW RICHMOND, VA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ZR-95	4.27E-04
ZR-97	2.88E-03
TC-99M	1.98E-03
RU-RH-106	1.42E-02
AG-110M	1.11E-01
SB-122	8.90E-05
SB-124	3.08E-04
SB-125	6.23E-02
TE-129	2.81E-04
TE-129M	2.94E-04
I-131	1.21E-02
XE-131M	9.45E-02
I-132	1.83E-04
I-133	2.35E-02
XE-133	9.73E+00
XE-133M	7.62E-02
CS-134	8.18E-03
I-135	1.25E-02
XE-135	3.84E-02
XE-135M	9.20E-03
CS-137	1.93E-02
BA-139	1.91E-04
CE-143	6.58E-05

TOTAL AIRBORNE TRITIUM RELEASE	9.44E+01
TOTAL LIQUID TRITIUM RELEASE	1.94E+03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.38E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.10E+12

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:NORTH ANNA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
15	TRUCK	BARNWELL SC
8	TRUCK	OAK RIDGE TN

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE   JULY-DEC

A

AG-110M	%		1.14E+00
CO-58	%	2.39E+00	9.22E+00
CO-60	%	4.57E+01	1.45E+01
CS-134	%	3.60E+00	8.77E+00
CS-137	%	1.02E+01	1.60E+01
FE-55	%	1.80E+01	1.99E+01
MN-54	%	1.77E+00	2.20E+00
NI-63	%	1.78E+01	7.96E+00
PU-241	%		2.69E+00
SB-125	%		1.60E+01

B

AG-110M	%		2.20E+00
CO-58	%	1.56E+01	5.55E+00
CO-60	%	2.72E+01	4.12E+01
CR-51	%	2.33E+00	
CS-134	%	5.63E+00	2.44E+00
CS-137	%	1.44E+01	3.76E+00
FE-55	%	2.12E+01	3.24E+01
H-3	%	1.44E+00	
MN-54	%	3.10E+00	2.18E+00
NB-95	%	3.63E+00	
NI-63	%	2.76E+00	8.54E+00
ZR-95	%	2.49E+00	

D

CE-144	%	7.90E+00	1.10E+01
CO-60	%	9.90E-01	1.50E+00
CS-134	%	8.29E+00	1.24E+01
CS-137	%	4.04E+01	6.30E+01
FE-55	%	8.23E+00	1.22E+01
H-3	%	3.22E+01	

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:NORTH ANNA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		1.45E+02 *
BOTTOMS, ETC.	CI		7.68E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		1.25E+02 *
EQUIPMENT, ETC.	CI		2.65E+00
C. IRRADIATED COMPONENTS, CONTROL	M3		0.00E+00
RODS, ETC.	CI		0.00E+00
D. OTHER	M3		2.54E+01 *
CONTAMINATED OIL	CI		5.78E-02

*VOLUME FOR TYPE A,B,& D WASTE AFTER VOL. RED. ARE 1.10E+2 M3, 1.08E+2 M3,
& 2.97E+0 M3, RESPECTIVELY.

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE:PWR	LICENSEE:DUKE POWER
DOCKET NO.:50-269		LICENSED POWER (MWT):2.57E+03
THERMAL POWER (MWH):2.21E+07		NET ELECTRIC POWER (MWH):7.19E+06
COMMERCIAL OPERATION:07/15/73		INITIAL CRITICALITY:04/19/73
COOLING WATER SOURCE:KEOWEE LAKE		
UNIT NUMBER: 2	TYPE:PWR	LICENSEE:DUKE POWER
DOCKET NO.:50-270		LICENSED POWER (MWT):2.57E+03
THERMAL POWER (MWH):1.72E+07		NET ELECTRIC POWER (MWH):5.54E+06
COMMERCIAL OPERATION:09/09/74		INITIAL CRITICALITY:11/11/73
COOLING WATER SOURCE:KEOWEE LAKE		
UNIT NUMBER: 3	TYPE:PWR	LICENSEE:DUKE POWER
DOCKET NO.:50-287		LICENSED POWER (MWT):2.57E+03
THERMAL POWER (MWH):1.80E+07		NET ELECTRIC POWER (MWH):5.97E+06
COMMERCIAL OPERATION:12/16/74		INITIAL CRITICALITY:09/05/74
COOLING WATER SOURCE:KEOWEE LAKE		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.05E-07
AR-41	5.12E+00
CR-51	4.28E-05
MN-54	8.00E-06
CO-57	2.87E-07
CO-58	1.19E-04
CO-60	2.06E-04
KR-85	1.69E+03
KR-85M	9.65E+00
KR-87	1.53E+00
KR-88	8.79E+00
RB-88	5.67E-02
RB-89	1.35E-05
SR-89	1.50E-02
SR-90	3.03E-07
SR-92	1.33E-06
NB-95	2.49E-06
ZR-95	9.26E-07
NB-97	3.91E-06
TC-99M	2.45E-06
RU-103	3.33E-05
RU-106	3.48E-05
AG-110M	8.48E-06
SB-122	3.51E-07
SB-125	4.67E-06
I-131	8.29E-02
XE-131M	3.72E+02
I-132	1.46E-03
I-133	1.91E-02
XE-133	2.34E+04
XE-133M	1.87E+02
CS-134	5.90E-04
I-134	1.87E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-135	4.70E-03
XE-135	1.87E+02
XE-135M	1.26E+00
CS-136	6.82E-06
CS-137	2.10E-03
CS-138	4.82E-03
LA-140	1.33E-08
CE-141	2.02E-07
CE-143	3.78E-05
CE-144	6.84E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.13E-03
AR-41	7.02E-05
CR-51	2.39E-01
MN-54	8.38E-03
FE-55	8.42E-02
CO-57	1.16E-03
CO-58	6.27E-01
FE-59	3.04E-03
CO-60	1.21E-01
KR-85	3.38E-02
KR-85M	6.43E-05
RB-88	2.41E-04
SR-89	6.08E-04
SR-90	1.59E-04
SR-92	9.19E-03
NB-95	4.90E-02
ZR-95	3.03E-02
NB-97	5.37E-02
MO-99	2.18E-03
TC-99M	6.13E-03
RU-103	2.70E-02
RU-106	1.14E-02
AG-110M	3.24E-01
SB-122	3.01E-03
SB-124	1.13E-01
SB-125	9.94E-01
SB-126	1.77E-03
I-131	1.27E-01
XE-131M	6.89E-02
I-132	1.76E-03
I-133	2.95E-02
XE-133	6.57E+00
XE-133M	4.82E-02
CS-134	4.04E-02
XE-135	3.53E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:OCONEE

LOCATION:30 MI W GREENVILLE, SC

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-136	1.51E-03
CS-137	8.81E-02
CS-138	1.81E-03
BA-139	4.83E-02
BA-140	5.66E-04
LA-140	1.65E-02
CE-141	6.45E-03
CE-144	2.05E-02
W-187	1.99E-04
NP-239	4.03E-03

TOTAL AIRBORNE TRITIUM RELEASE	4.60E+01
TOTAL LIQUID TRITIUM RELEASE	7.10E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.36E+09
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.84E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS   MODE OF TRANSPORTATION
+   51   N/R

DESTINATION
N/R

+DOES NOT INCLUDE BROKERED TOTALS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

AG-110M	%	1.09E+00	2.02E-01
BA-140	%	2.29E-03	
C-14	%	3.42E-03	6.88E-04
CO-57	%		1.00E-01
CO-58	%	2.19E+01	1.48E+01
CO-60	%	1.99E+00	1.83E+00
CR-51	%	9.97E-01	5.80E-02
CS-134	%	2.68E+01	3.55E+01
CS-136	%	2.00E-01	1.97E-01
CS-137	%	3.62E+01	3.92E+01
FE-55	%	3.00E+00	3.22E+00
I-131	%	1.19E+00	4.99E-01
LA-140	%	2.29E-03	
MN-54	%	3.02E-01	7.03E-01
NB-95	%	1.99E-01	2.05E-02
NI-63	%	4.96E+00	2.73E+00
PU-241	%		9.66E-02
RU-103	%	9.89E-01	3.41E-03
SB-122	%		3.86E-01
SB-125	%	5.93E-01	1.27E-01
SR-90	%		2.90E-01
TE-125M	%		3.41E-03
XE-131M	%	4.57E-03	1.38E-05
XE-133	%	1.03E-02	1.38E-04
ZR-95	%	9.89E-02	6.84E-03

B

AG-110M	%	2.42E+00	2.40E+00
C-14	%	8.00E-01	8.00E-01
CO-58	%	4.61E+00	4.60E+00
CO-60	%	1.43E+01	1.43E+01
CS-134	%	9.43E+00	9.40E+00
CS-137	%	2.99E+01	2.99E+01
FE-55	%	2.55E+01	2.55E+01
H-3	%	2.80E-01	3.00E-01
MN-54	%	1.92E+00	1.90E+00
NI-63	%	9.74E+00	9.72E+00
PU-241	%	1.07E+00	1.10E+00
SR-90	%	3.00E-02	

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
	TRU	% 9.85E-03	
C			
	CO-58	% 8.30E+00	
	CO-60	% 4.81E+01	
	FE-55	% 1.92E+01	
	H-3	% 4.60E-01	
	MN-54	% 2.10E+00	
	NI-59	% 1.30E-01	
	NI-63	% 1.76E+01	
	SB-125	% 4.00E+00	
D			
	AG-110M	% 2.60E+00	3.80E+00
	C-14	% 1.10E+00	8.00E-01
	CO-58	% 7.60E+00	1.62E+01
	CO-60	% 1.50E+01	2.22E+01
	CS-134	% 2.70E+00	2.90E+00
	CS-137	% 3.52E+01	8.40E+00
	FE-55	% 1.97E+01	2.21E+01
	I-131	%	2.00E-01
	MN-54	% 2.60E+00	4.70E+00
	NI-63	% 1.33E+01	1.78E+01
	SB-125	% 5.60E-01	9.00E-01

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	3.57E+02
	CI	2.88E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	3.14E+02 *
	CI	2.68E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	4.88E+00
	CI	1.11E+04
D. OTHER	M3	4.70E+01
DEWATERED MECHANICAL FILTERS	CI	1.31E+02

*TOTAL VOLUME INCLUDES COMPACTED AND NON-COMPACTED TOTALS

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:JERSEY CENTRAL POWER & LIGHT
DOCKET NO.:50-219   LICENSED POWER (MWT):1.93E+03
THERMAL POWER (MWH):1.09E+07   NET ELECTRIC POWER (MWH):3.54E+06
COMMERCIAL OPERATION:12/01/69   INITIAL CRITICALITY:05/03/69
COOLING WATER SOURCE:BARNEGAT BAY

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	1.72E-05
MN-54	5.42E-04
CO-60	1.43E-04
KR-85M	3.40E+02
KR-87	7.72E+02
KR-88	8.86E+02
SR-89	5.40E-03
SR-90	3.13E-05
TC-99M	3.70E-03
I-131	5.28E-02
I-133	2.34E-01
XE-133	9.00E+02
I-135	2.00E-01
XE-135	1.79E+03
XE-135M	1.61E+02
XE-138	2.04E+02
BA-140	5.60E-04
LA-140	2.87E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	4.90E-03
MN-54	6.62E-04
CO-58	1.18E-03
CO-60	1.37E-02
SR-89	8.40E-04
SR-90	2.08E-05
TC-99M	4.14E-04
I-131	5.38E-05
XE-133	2.21E-03
CS-134	3.77E-04
XE-135	3.21E-03
CS-137	3.96E-03
LA-140	6.59E-04

TOTAL AIRBORNE TRITIUM RELEASE   1.25E+01
TOTAL LIQUID TRITIUM RELEASE   1.62E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.76E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.28E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS

38

7

MODE OF TRANSPORTATION

TRUCK

TRUCK

DESTINATION

BARNWELL SC

OAK RIDGE TN (SEG)

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	%	2.62E-01	4.43E-01
CM-242	%		2.00E-03
CO-58	%	6.88E-01	2.29E+00
CO-60	%	3.61E+01	2.93E+01
CR-51	%	9.84E-01	4.67E+00
CS-134	%	1.31E+01	1.17E+01
CS-137	%	2.93E+01	2.53E+01
FE-55	%	1.56E+01	1.76E+01
H-3	%	1.42E-02	3.32E+00
MN-54	%	2.71E+00	3.10E+00
NI-59	%		3.30E-02
NI-63	%	2.17E-01	2.01E-01
PU-241	%	5.73E-02	1.16E-01
SR-89	%	5.84E-02	
SR-90	%	4.82E-02	1.00E-01

B

C-14	%		2.00E-03
CO-58	%	4.92E+00	
CO-60	%	3.16E+01	3.02E+01
CR-51	%		1.09E+00
CS-134	%	2.92E+00	4.32E+00
CS-137	%	1.04E+01	1.39E+01
FE-55	%	4.51E+01	4.66E+01
MN-54	%	4.45E+00	3.83E+00
SR-90	%		9.50E-02

C

C-14	%	1.39E-02	
CM-242	%	6.62E-09	
CO-60	%	4.59E+01	
FE-55	%	4.43E+01	
H-3	%	1.59E+00	
NB-94	%	1.65E-04	
NI-59	%	6.50E-02	
NI-63	%	7.89E+00	
PU-241	%	1.38E-05	
TC-99	%	1.28E-04	

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)	JAN-JUNE	JULY-DEC
D		
C-14	%	5.80E-02
CO-58	%	6.10E-02
CO-60	%	5.95E+01
CR-51	%	1.79E+00
CS-134	%	2.45E+00
CS-137	%	2.10E+01
FE-55	%	1.46E+01
H-3	%	2.18E-01
MN-54	%	7.10E-02
NI-63	%	4.80E-02
PU-241	%	1.00E-03

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.59E+02	
	CI	1.29E+03	
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	1.55E+01 *	
	CI	1.01E+01 *	
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	7.40E-01	
	CI	4.97E+03	
D. OTHER OTHER WASTE	M3	5.00E+00	
	CI	1.90E+01	

*INCLUDES 1.42 M3, 6.73E+0 CURIES SENT TO SEG FOR VOLUME REDUCTION.

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:CONSUMERS POWER
DOCKET NO.:50-255   LICENSED POWER (MWT):2.53E+03
THERMAL POWER (MWH):1.14E+07   NET ELECTRIC POWER (MWH):3.44E+06
COMMERCIAL OPERATION:12/31/71   INITIAL CRITICALITY:05/24/71
COOLING WATER SOURCE:LAKE MICHIGAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	9.10E-01
CR-51	1.74E-05
MN-54	5.71E-06
CO-58	6.88E-05
CO-60	9.62E-05
SE-75	2.42E-04
KR-85	2.65E+00
KR-85M	8.06E-01
KR-87	1.79E+00
KR-88	2.07E+00
SR-89	2.47E-06
SR-90	2.30E-06
NB-95	4.84E-06
I-131	2.02E-02
XE-131M	6.95E-01
I-132	7.10E-04
I-133	4.64E-03
XE-133	2.40E+03
XE-133M	7.14E-01
CS-134	1.05E-07
I-135	5.04E-04
XE-135	4.84E+00
XE-135M	6.55E+00
CS-137	9.90E-06
XE-138	4.44E+00
UNIDENTIFIED	2.67E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	5.74E-04
MN-54	4.89E-04
CO-58	6.83E-03
CO-60	8.16E-03
RB-88	2.98E-03
SR-89	2.57E-03
SR-90	6.98E-04
NB-95	3.78E-05
I-131	4.57E-04
CS-134	6.09E-04
CS-137	2.09E-02
UNIDENTIFIED	5.37E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:PALISADES

LOCATION:5 MI S SOUTH HAVEN, MI

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

TOTAL AIRBORNE TRITIUM RELEASE 4.17E+00

TOTAL LIQUID TRITIUM RELEASE 2.83E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	6.51E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.12E+11

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: PALISADES

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
7	CASK	CHEM NUC, BARNWELL SC
2	VAN	CHEM NUC, BARNWELL SC
10	VAN	US ECOLOGY, RICHLAND WA

TYPE OF WASTE

	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	6.25E+01	
	CI	4.88E+01	
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	1.17E+02	*
	CI	7.00E+00	
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	8.27E-01	
	CI	1.25E+03	
D. OTHER	M3	7.08E+00	
FILTERS	CI	7.30E+01	

*VOLUME AFTER COMPACTION

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE: PWR   LICENSEE: ARIZONA NUCLEAR PWR PROJECT
DOCKET NO.: 50-528   LICENSED POWER (MWT): 3.80E+03
THERMAL POWER (MWH): 2.03E+07   NET ELECTRIC POWER (MWH): 6.67E+06
COMMERCIAL OPERATION: 01/28/86   INITIAL CRITICALITY: 05/25/85
COOLING WATER SOURCE: SEWAGE TREATMENT

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	5.63E-01
MN-54	7.64E-06
CO-58	4.63E-05
FE-59	2.04E-06
CO-60	8.75E-05
BR-82	5.16E-05
KR-85	2.58E+01
KR-85M	4.26E-01
KR-87	7.21E-04
KR-88	3.49E-02
RB-88	4.21E-03
NB-95	7.33E-06
ZR-95	1.82E-06
RU-103	1.15E-06
SN-117M	1.23E-06
SB-124	2.41E-05
I-131	1.56E-03
XE-131M	6.99E+00
I-133	5.07E-04
XE-133	1.57E+03
XE-133M	6.22E+00
CS-134	2.31E-05
I-135	6.97E-04
XE-135	6.87E+01
CS-137	4.23E-05
CS-138	2.33E-03
XE-138	1.59E+02
BA-140	5.54E-06
CE-144	8.50E-06

TOTAL AIRBORNE TRITIUM RELEASE   4.23E+02
TOTAL LIQUID TRITIUM RELEASE   0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	N/A
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	N/A

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:ARIZONA NUCLEAR PWR PROJECT
DOCKET NO.:50-529   LICENSED POWER (MWT):3.80E+03
THERMAL POWER (MWH):2.07E+07   NET ELECTRIC POWER (MWH):6.75E+06
COMMERCIAL OPERATION:09/19/86   INITIAL CRITICALITY:04/18/86
COOLING WATER SOURCE:SEWAGE TREATMENT

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.73E+00
CR-51	4.02E-05
MN-54	9.01E-06
CO-58	3.54E-04
CO-60	1.16E-04
BR-82	1.10E-04
KR-85	4.39E+01
KR-85M	1.00E+00
KR-87	1.80E-02
KR-88	2.50E+00
RB-88	4.89E-02
SR-89	5.19E-08
NB-95	5.23E-05
ZR-95	1.93E-05
MO-99	4.26E-08
RU-103	1.13E-05
SB-122	3.97E-07
SB-124	5.56E-04
I-131	4.54E-02
XE-131M	5.50E+01
I-132	2.76E-06
I-133	6.67E-04
XE-133	2.81E+03
XE-133M	1.11E+01
CS-134	3.98E-05
I-135	1.14E-05
XE-135	4.16E+01
CS-137	4.93E-05
CS-138	4.36E-04
XE-138	4.04E-02
BA-139	1.95E-06
CE-141	7.19E-05
CE-144	2.52E-08

TOTAL AIRBORNE TRITIUM RELEASE 2.81E+02
TOTAL LIQUID TRITIUM RELEASE 0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	N/A
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	N/A

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:PALO VERDE 3

LOCATION:36 MI W OF PHOENIX, ARIZONA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 3   TYPE:PWR   LICENSEE:ARIZONA NUCLEAR PWR PROJECT
DOCKET NO.:50-530   LICENSED POWER (MWT):3.80E+03
THERMAL POWER (MWH):3.03E+07   NET ELECTRIC POWER (MWH):3.55E+04
COMMERCIAL OPERATION:01/08/88   INITIAL CRITICALITY:10/25/87
COOLING WATER SOURCE:SEWAGE TREATMENT

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	7.86E+00
CR-51	9.58E-07
BR-82	8.59E-05
KR-85	6.60E-02
KR-85M	1.09E-01
KR-88	3.08E-02
RB-88	2.20E-02
SB-122	7.59E-07
I-131	1.23E-04
XE-131M	2.43E-01
I-132	6.81E-06
I-133	1.28E-04
XE-133	1.23E+02
XE-133M	1.11E-01
I-135	1.11E-05
XE-135	4.15E+00
CS-138	2.55E-03
XE-138	1.82E-04

TOTAL AIRBORNE TRITIUM RELEASE   3.80E+02
TOTAL LIQUID TRITIUM RELEASE   0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	N/A
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	N/A

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
15	EXCLUSIVE USE TRUCK	BEATTY NV
30	EXCLUSIVE USE TRUCK	HANFORD WA
29	EXCLUSIVE USE TRUCK	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

AG-110M	%	8.10E-01	6.00E-03
BE-7	%		6.00E-06
C-14	%	2.60E-01	9.00E-02
CE-141	%	6.00E-03	
CE-144	%	2.40E-01	3.02E-01
CO-58	%	1.62E+01	3.75E+00
CO-60	%	7.06E+00	2.26E+01
CR-51	%	1.00E-03	
CS-134	%	2.02E+01	9.53E+00
CS-137	%	2.89E+01	1.87E+01
FE-55	%	8.50E+00	3.29E+01
H-3	%	2.20E-01	3.00E-01
I-131	%	1.26E+00	
MN-54	%	1.09E+00	1.96E+00
NB-95	%	8.00E-02	2.00E-02
NI-63	%	1.43E+00	1.61E+00
PU-239/240	%		1.00E-04
PU-241	%		4.00E-03
RU-106	%	2.00E-01	
SB-124	%	1.33E+01	7.97E+00
SB-125	%	1.60E-01	5.00E-03
SR-90	%	6.00E-02	5.00E-02
TC-99	%	4.00E-04	3.00E-04

B

AG-110M	%	2.00E-03	
C-14	%	3.05E+00	7.67E-01
CE-141	%	1.31E+00	5.49E-01
CE-144	%	5.74E+00	1.57E+00
CO-58	%	7.99E+00	7.95E+00
CO-60	%	5.40E+00	8.51E+00
CR-51	%	1.24E+01	6.93E+00

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
CS-134	%	5.16E+00	5.13E+00
CS-137	%	1.68E+01	1.68E+01
FE-55	%	1.22E+01	2.60E+01
FE-59	%	1.98E+00	1.13E+00
H-3	%	2.00E-01	1.83E-01
I-131	%	4.60E+00	2.49E-01
MN-54	%	1.05E+00	1.54E+00
NB-95	%	3.46E+00	2.48E+00
NI-63	%	4.20E-01	2.64E-01
RU-103	%		1.03E+00
SB-124	%	1.59E+01	1.74E+01
SR-90	%	9.00E-02	
TC-99	%	2.00E-03	1.00E-03
ZR-95	%	2.22E+00	1.66E+00

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	4.96E+02
	CI	7.62E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.82E+02
	CI	1.56E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: PEACH BOTTOM

LOCATION: 17.9 MI S LANCASTER, PA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2	TYPE: BWR	LICENSEE: PHILADELPHIA ELECTRIC
DOCKET NO.: 50-277		LICENSED POWER (MWT): 3.29E+03
THERMAL POWER (MWH): 0.00E+00		NET ELECTRIC POWER (MWH): 0.00E+00
COMMERCIAL OPERATION: 07/05/74		INITIAL CRITICALITY: 09/16/73
COOLING WATER SOURCE: CONOWINGO POND/SUSQUEHANNA RIVER		
UNIT NUMBER: 3	TYPE: BWR	LICENSEE: PHILADELPHIA ELECTRIC
DOCKET NO.: 50-278		LICENSED POWER (MWT): 3.29E+03
THERMAL POWER (MWH): 0.00E+00		NET ELECTRIC POWER (MWH): 0.00E+00
COMMERCIAL OPERATION: 12/23/74		INITIAL CRITICALITY: 08/07/74
COOLING WATER SOURCE: CONOWINGO POND/SUSQUEHANNA RIVER		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-57	5.18E-05
CO-60	4.80E-04
ZN-65	5.06E-04
SR-89	4.78E-05
SR-90	4.68E-05
CS-137	1.60E-04
UNIDENTIFIED	1.19E+03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	3.37E-04
MN-54	1.69E-05
FE-55	1.73E-02
CO-60	2.89E-02
ZN-65	3.47E-02
SR-89	2.70E-04
SR-90	5.71E-04
AG-110M	1.70E-04
CS-134	4.37E-02
CS-137	7.60E-02

TOTAL AIRBORNE TRITIUM RELEASE	7.04E+00
TOTAL LIQUID TRITIUM RELEASE	9.69E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.52E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	4.74E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: PEACH BOTTOM

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
# 7	TRUCK	BABCOCK & WILCOX
69	TRUCK	BARNWELL SC (CNSI)
+ 86	TRUCK	QUADREX, OAK RIDGE TN

#SHIPPED FROM BABCOCK & WILCOX AFTER VOLUME REDUCTION.

+SHIPPED FROM QUADREX AFTER VOLUME REDUCTION

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	2.03E+02
	CI	1.07E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	6.22E+02 *
	CI	7.72E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	1.31E+01
FILTERS	CI	3.95E+01

*VOLUME INCLUDES 199.42M3 SHIPPED TO BURIAL SITE AFTER VOL. RED.

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:PERRY

LOCATION:7 MI NE OF PAINESVILLE, OHIO

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE:BWR	LICENSEE:CLEVELAND ELEC ILLUMINATING CO
DOCKET NO.:50-440		LICENSED POWER (MWT):3.58E+03
THERMAL POWER (MWH):2.23E+07		NET ELECTRIC POWER (MWH):7.23E+06
COMMERCIAL OPERATION:11/18/87		INITIAL CRITICALITY:06/06/86
COOLING WATER SOURCE:LAKE ERIE		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.03E+00
KR-85M	5.26E+01
KR-87	2.84E+00
KR-88	1.77E+01
SR-89	9.03E-04
SR-90	1.35E-04
I-131	4.51E-02
XE-131M	2.66E+00
I-132	6.64E-05
I-133	3.35E-02
XE-133	7.88E+02
XE-133M	1.46E+01
I-135	4.93E-04
XE-135	2.49E+02
XE-135M	1.18E+02
XE-137	7.97E-01
XE-138	6.68E+00

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.49E-04
CR-51	1.37E-01
MN-54	2.11E-02
FE-55	3.89E-03
MN-56	3.93E-04
CO-58	8.86E-03
FE-59	5.96E-03
CO-60	2.34E-02
AS-76	4.26E-04
SR-89	1.15E-03
SR-92	5.15E-05
TC-99M	1.28E-04
AG-110M	2.61E-03
SB-124	2.37E-05
I-131	2.28E-03
I-133	1.13E-04
XE-133	1.20E-02
XE-133M	8.67E-05
XE-135	1.53E-03
XE-135M	1.36E-04
CS-137	9.21E-05
LA-140	4.59E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:PERRY

LOCATION:7 MI NE OF PAINESVILLE, OHIO

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

TOTAL AIRBORNE TRITIUM RELEASE 4.71E+00
TOTAL LIQUID TRITIUM RELEASE 6.12E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.32E+10
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.41E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: PERRY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS

MODE OF TRANSPORTATION

DESTINATION

35

TRUCK

BARNWELL SC

7

TRUCK

RICHLAND WA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

AG-110M	%	6.49E-01	8.35E-01
C-14	%	4.35E-04	4.35E-01
CE-141	%	9.00E-03	9.80E-02
CE-144	%	4.98E-01	6.27E-01
CM-242	%		8.18E-08
CM-243/244	%		1.01E-08
CO-57	%	3.30E-02	2.20E-02
CO-58	%	1.04E+01	7.49E+00
CO-60	%	7.97E+00	2.62E+01
CR-51	%	4.53E+01	1.75E+01
CS-134	%	6.00E-03	7.73E-01
CS-137	%	1.48E-01	2.90E+00
FE-55	%	6.83E+00	2.56E-01
FE-59	%	1.90E+00	3.89E+00
H-3	%	3.32E-01	8.15E+00
I-129	%	4.40E-05	3.74E-04
MN-54	%	2.25E+01	2.84E+01
NB-94	%	1.15E-04	1.47E-06
NB-95	%	1.93E-01	2.81E-01
NI-59	%	6.00E-03	
NI-63	%	3.11E-01	5.08E-01
PU-238	%	5.82E-08	7.69E-09
PU-239/240	%	1.24E-07	4.22E-07
PU-241	%	1.74E+00	1.40E-02
PU-242	%		7.11E-08
RU-106	%		3.02E-01
SB-124	%	1.05E-01	3.41E-01
SB-125	%	7.50E-02	3.50E-06
SR-90	%	5.00E-03	1.70E-02
TC-99	%	1.00E-03	2.00E-03
ZN-65	%	7.86E-01	8.57E-01
ZR-95	%	2.99E-01	5.60E-02

B

AG-110M	%		1.37E+00
C-14	%		1.00E-03
CE-144	%		4.58E-01
CO-58	%		1.69E+01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: PERRY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
	CO-60	%	1.37E+01
	CR-51	%	2.74E+01
	CS-137	%	1.07E-01
	FE-55	%	1.59E-01
	FE-59	%	4.88E+00
	H-3	%	2.00E-03
	MN-54	%	3.17E+01
	NB-95	%	2.44E+00
	NI-63	%	1.83E-01
	SB-124	%	6.70E-01
	SR-90	%	2.88E-06
	ZN-65	%	3.10E-02

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	2.16E+02
	CI	5.54E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.80E+02 *
	CI	4.86E+00
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

*TOTAL VOLUME INCLUDES 253.7 M3 SENT FOR COMPACTION (26.15 M3 BURIED)

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION: PILGRIM

LOCATION: 25 MI SE BOSTON, MA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE: BWR   LICENSEE: BOSTON EDISON
DOCKET NO.: 50-293   LICENSED POWER (MWT): 2.00E+03
THERMAL POWER (MWH): 0.00E+00   NET ELECTRIC POWER (MWH): 0.00E+00
COMMERCIAL OPERATION: 12/01/72   INITIAL CRITICALITY: 06/16/72
COOLING WATER SOURCE: CAPE COD BAY

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	3.21E-04
CS-137	4.95E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	1.37E-04
FE-55	2.26E-03
CO-60	8.82E-03
SR-90	1.45E-05
CS-134	3.78E-04
CS-137	1.59E-02
UNIDENTIFIED	8.10E-03

TOTAL AIRBORNE TRITIUM RELEASE   1.60E-01
TOTAL LIQUID TRITIUM RELEASE   5.72E-01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.77E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.38E+09

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION: PILGRIM

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS:

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
25	TRACTOR-TRAILER-VAN	BARNWELL SC
6	TRACTOR-TRAILER	BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A			
	C-14	%	3.00E-02 <1.00E-02
	CM-242	%	6.00E-03 <1.00E-02
	CO-60	%	3.76E+01 6.00E+01
	CS-134	%	1.66E+00 1.06E+00
	CS-137	%	4.35E+01 1.31E+01
	FE-55	%	1.32E+01 1.65E+01
	H-3	%	8.40E-02 1.00E-02
	I-129	%	6.00E-03 <1.00E-02
	MN-54	%	1.45E+00 7.74E+00
	NI-63	%	2.36E+00 1.43E+00
	PU-241	%	2.40E-02 8.00E-02
	SR-90	%	5.40E-02 9.00E-02
	TC-99	%	6.00E-03 <1.00E-02
	TRU	%	6.00E-03 <1.00E-02
B			
	C-14	%	9.00E-02
	CM-242	%	<1.00E-02
	CO-60	%	3.54E+01
	CS-134	%	1.37E+00
	CS-137	%	3.46E+01
	FE-55	%	2.37E+01
	H-3	%	8.10E-01
	I-129	%	1.00E-02
	MN-54	%	1.44E+00
	NI-63	%	1.81E+00
	PU-241	%	3.80E-01
	SR-90	%	4.10E-01
	TC-99	%	4.00E-02
	TRU	%	1.00E-02

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: PILGRIM

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		1.02E+02
BOTTOMS, ETC.	CI		2.17E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		1.70E+02 *
EQUIPMENT, ETC.	CI		2.09E+00
C. IRRADIATED COMPONENTS, CONTROL	M3		
RODS, ETC.	CI		
D. OTHER	M3		
	CI		

*AFTER VOLUME REDUCTION PROCESS

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:WISCONSIN ELECTRIC POWER COMPANY
DOCKET NO.:50-266   LICENSED POWER (MWT):1.52E+03
THERMAL POWER (MWH):1.17E+07   NET ELECTRIC POWER (MWH):3.83E+06
COMMERCIAL OPERATION:12/21/70   INITIAL CRITICALITY:11/02/70
COOLING WATER SOURCE:LAKE MICHIGAN
UNIT NUMBER: 2   TYPE:PWR   LICENSEE:WISCONSIN ELECTRIC POWER COMPANY
DOCKET NO.:50-301   LICENSED POWER (MWT):1.52E+03
THERMAL POWER (MWH):1.14E+07   NET ELECTRIC POWER (MWH):3.72E+06
COMMERCIAL OPERATION:10/01/72   INITIAL CRITICALITY:05/30/72
COOLING WATER SOURCE:LAKE MICHIGAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	5.11E-06
F-18	3.87E-05
NA-24	4.29E-04
AR-41	1.96E+00
MN-54	4.86E-05
CO-57	1.13E-08
CO-58	3.59E-05
CO-60	3.64E-04
ZN-65	9.27E-06
KR-85	9.84E-01
KR-85M	7.31E-01
KR-87	1.48E+00
KR-88	1.69E+00
RB-88	4.00E-06
SR-89	3.70E-06
SR-90	4.30E-06
NB-95	6.25E-08
ZR-95	3.56E-09
NB-97	1.60E-08
MO-99	2.71E-08
TC-99M	2.20E-07
AG-110M	2.31E-07
SN-113	4.80E-10
SB-125	9.39E-08
I-131	5.43E-04
I-132	4.78E-04
TE-132	3.07E-06
I-133	1.53E-03
XE-133	6.04E+01
XE-133M	3.35E-01
CS-134	7.27E-05
I-135	9.18E-05
XE-135	3.53E+00
XE-135M	2.54E+00
CS-137	6.74E-04
CS-138	1.26E-07
XE-138	7.19E+00

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	7.56E-04
NA-24	3.82E-02
CR-51	5.31E-05
MN-54	1.54E-04
CO-57	5.07E-05
CO-58	6.81E-03
CO-60	2.04E-02
SR-89	2.68E-03
SR-90	3.50E-04
NB-95	1.61E-04
NB-97	1.06E-05
ZR-97	1.74E-05
MO-99	3.70E-05
TC-99M	3.30E-05
RU-103	5.86E-05
RU-106	1.04E-04
CD-109	1.31E-04
AG-110M	9.85E-04
SN-113	3.21E-04
SB-124	2.34E-04
SB-125	1.00E-03
I-131	1.40E-03
TE-131	7.98E-05
I-132	1.02E-03
TE-132	7.19E-06
I-133	1.21E-02
CS-134	4.96E-04
CS-134M	3.59E-04
I-134	2.28E-04
I-135	4.48E-04
CS-137	8.63E-03
BA-139	2.47E-04
BA-140	6.13E-05
CE-144	4.76E-04
W-187	3.41E-05

TOTAL AIRBORNE TRITIUM RELEASE	1.26E+02
TOTAL LIQUID TRITIUM RELEASE	3.57E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.03E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.90E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: POINT BEACH

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS

23

MODE OF TRANSPORTATION

N/R

DESTINATION

BARNWELL SC

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

D. OTHER
DECON SOLUTION

UNIT YEAR TOTAL

M3 1.72E+01

CI 5.74E+02

M3 1.37E+02

CI 2.81E+00

M3

CI

M3 4.03E+01

CI 8.42E+01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE:PWR	LICENSEE:NORTHERN STATES POWER
DOCKET NO.:50-282		LICENSED POWER (MWT):1.65E+03
THERMAL POWER (MWH):1.23E+07		NET ELECTRIC POWER (MWH):3.82E+06
COMMERCIAL OPERATION:12/16/73		INITIAL CRITICALITY:12/01/73
COOLING WATER SOURCE:MISSISSIPPI RIVER		
UNIT NUMBER: 2	TYPE:PWR	LICENSEE:NORTHERN STATES POWER
DOCKET NO.:50-306		LICENSED POWER (MWT):1.65E+03
THERMAL POWER (MWH):1.26E+07		NET ELECTRIC POWER (MWH):3.89E+06
COMMERCIAL OPERATION:12/21/74		INITIAL CRITICALITY:12/17/74
COOLING WATER SOURCE:MISSISSIPPI RIVER		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
K-40	1.88E-05
CO-58	3.79E-08
CO-60	2.22E-06
KR-85	1.23E-01
SR-89	6.60E-05
SR-90	2.40E-06
CD-109	4.81E-06
I-131	1.20E-06
I-133	2.00E-05
XE-133	1.89E-02
XE-133M	6.36E-06
XE-135	5.14E-04
CS-137	6.97E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	8.87E-05
NA-24	1.85E-05
K-40	2.44E-05
AR-41	1.78E-06
SC-47	5.67E-04
CR-51	1.64E-03
MN-54	3.99E-04
FE-55	2.25E-01
CO-57	2.13E-06
CO-58	8.47E-03
FE-59	3.07E-03
CO-60	4.01E-03
ZN-65	3.44E-05
KR-85M	2.65E-06
SR-89	2.28E-03
SR-90	6.41E-05
SR-92	1.10E-05
NB-95	3.03E-04
ZR-95	4.53E-05
NB-97	6.95E-05
ZR-97	4.14E-05

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:PRAIRIE ISLAND

LOCATION:26 MI SE MINNEAPOLIS, MN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
RH-105	9.51E-06
AG-110M	2.02E-03
SN-113	1.24E-03
SB-122	8.85E-05
SB-124	1.94E-03
SB-125	3.49E-03
XE-133	5.91E-03
XE-135	5.93E-04
CS-137	2.22E-06
CS-138	1.44E-05

TOTAL AIRBORNE TRITIUM RELEASE	1.50E+02
TOTAL LIQUID TRITIUM RELEASE	4.05E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.88E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.12E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:PRAIRIE ISLAND

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	TRUCK	BARNWELL SC
1	TRUCK	QUADREX RECYCLE CENTER
6	TRUCK	RICHLAND WA
4	TRUCK	SCIENTIFIC ECOLOGY GROUP

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	%	1.00E-01
CO-60	%	3.58E+01
CS-134	%	6.40E+00
CS-137	%	2.52E+01
FE-55	%	1.06E+01
H-3	%	5.00E-01
MN-54	%	2.00E-01
NI-63	%	2.06E+01
SB-122	%	5.00E-01

B

C-14	%	3.80E+00	3.80E+00
CO-58	%	8.00E-01	8.00E-01
CO-60	%	7.90E+00	7.90E+00
FE-55	%	2.87E+01	2.87E+01
H-3	%	4.05E+01	4.05E+01
NI-63	%	1.60E+01	1.60E+01
SB-125	%	7.00E-01	7.00E-01

D

AG-110M	%	7.00E-01
C-14	%	3.70E+00
CO-60	%	1.70E+01
CS-134	%	5.00E-01
CS-137	%	1.40E+00
FE-55	%	4.46E+01
H-3	%	2.54E+01
NI-63	%	4.80E+00
SB-125	%	9.00E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: PRAIRIE ISLAND

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3		2.83E+01
	CI		1.35E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3		2.40E+01
	CI		1.79E+00
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3		0.00E+00
	CI		0.00E+00
D. OTHER	M3		4.62E+00
FILTER MEDIA	CI		1.68E+00

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE:BWR	LICENSEE:COMMONWEALTH ED&IOWA-ILLINOIS GAS&ELEC
DOCKET NO.:50-265		LICENSED POWER (MWT):2.51E+03
THERMAL POWER (MWH):1.83E+07		NET ELECTRIC POWER (MWH):5.66E+06
COMMERCIAL OPERATION:02/18/73		INITIAL CRITICALITY:10/18/71
COOLING WATER SOURCE:MISSISSIPPI RIVER		
UNIT NUMBER: 2	TYPE:BWR	LICENSEE:COMMONWEALTH ED&IOWA-ILLINOIS GAS&ELEC
DOCKET NO.:50-265		LICENSED POWER (MWT):2.51E+03
THERMAL POWER (MWH):1.36E+07		NET ELECTRIC POWER (MWH):4.18E+06
COMMERCIAL OPERATION:03/10/73		INITIAL CRITICALITY:04/26/72
COOLING WATER SOURCE:MISSISSIPPI RIVER		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	2.53E-03
MN-54	4.18E-04
CO-58	1.51E-04
CO-60	6.78E-03
ZN-65	3.06E-05
KR-88	1.69E+00
SR-89	3.85E-04
SR-90	3.70E-06
MO-99	1.82E-03
AG-110M	9.59E-06
I-131	6.07E-03
I-133	3.56E-02
XE-133	1.72E+00
I-135	9.14E-02
XE-135	3.56E-01
CS-137	7.75E-04
BA-140	2.91E-04
LA-140	9.70E-04
HF-181	8.76E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	3.57E-04
CR-51	1.78E-02
MN-54	1.81E-03
FE-55	3.21E-03
CO-58	1.52E-03
CO-60	1.77E-02
ZN-65	2.42E-04
AS-76	4.05E-05
SR-89	7.26E-04
SR-90	2.12E-04
MO-99	3.11E-05
RU-105	8.26E-05
AG-110M	1.61E-03
I-131	2.11E-05
I-133	1.79E-05
XE-133	3.09E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:QUAD-CITIES

LOCATION:20 MI NE MOLINE, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-134	1.83E-04
XE-135	1.53E-03
CS-137	9.41E-03
LA-140	4.86E-05

TOTAL AIRBORNE TRITIUM RELEASE	4.50E+01
TOTAL LIQUID TRITIUM RELEASE	7.28E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.69E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.50E+12

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:QUAD-CITIES

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	AJ METLER	BARNWELL SC
5	AJ METLER	SCIENTIFIC ECOLOGY GROUP
51	CNSI	BARNWELL SC
1	CNSI	US ECOLOGY
11	HACKE	AJ METLER
3	HACKE	US ECOLOGY
6	KINDRICKS	US ECOLOGY

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT YEAR TOTAL

M3	9.25E+02
CI	6.26E+02
M3	
CI	
M3	
CI	
M3	
CI	

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:SACRAMENTO MUNICIPAL UTILITY
DOCKET NO.:50-312   LICENSED POWER (MWT):2.77E+03
THERMAL POWER (MWH):9.47E+06   NET ELECTRIC POWER (MWH):2.81E+06
COMMERCIAL OPERATION:04/17/75   INITIAL CRITICALITY:09/16/74
COOLING WATER SOURCE:FOLSOM CANAL

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.37E-02
MN-54	2.18E-06
CO-60	3.40E-05
KR-85	2.01E+00
KR-85M	2.95E+00
SR-85	1.58E-06
KR-87	4.84E-03
KR-88	2.38E+00
RB-88	1.88E-04
I-131	1.98E-04
XE-131M	1.53E+01
I-133	4.19E-05
XE-133	1.46E+03
XE-133M	9.66E+00
XE-135	2.53E+01
XE-135M	1.99E-04
CS-137	7.83E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	2.56E-05
CO-58	8.17E-06
CO-60	1.22E-03
SR-90	1.87E-05
MO-99	3.00E-04
RU-106	2.13E-05
I-131	9.04E-04
I-133	6.96E-05
XE-133	6.64E-04
CS-134	4.41E-04
XE-135	4.70E-06
CS-136	3.90E-06
CS-137	2.78E-03

TOTAL AIRBORNE TRITIUM RELEASE   1.75E+01
TOTAL LIQUID TRITIUM RELEASE   1.01E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	5.69E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.72E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	TRUCK(SOLE USE VEHICLE)	BEATTY NV
3	TRUCK(SOLE USE VEHICLE)	HANFORD RICHLAND WA
26	TRUCK(SOLE USE VEHICLE)	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A			
CO-60	%		4.65E+00
CS-134	%		6.39E+00
CS-137	%		3.08E+01
FE-55	%		9.86E+00
H-3	%		3.64E+01
NI-63	%		9.86E+00
B			
AG-110M	%	1.33E+00	
C-14	%	8.32E-01	1.14E+00
CO-58	%	1.33E+00	
CO-60	%	1.01E+01	1.58E+01
CS-134	%	8.81E+00	2.88E+00
CS-137	%	3.46E+01	1.08E+01
FE-55	%	2.13E+01	3.35E+01
H-3	%	1.18E+00	
NI-63	%	1.99E+01	3.40E+01
SB-125	%	1.13E+00	
TE-125M	%	2.51E-01	
D			
CO-60	%	1.49E+01	
CS-134	%	8.20E+00	
CS-137	%	7.69E+01	

TYPE OF WASTE

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	2.42E+02
BOTTOMS, ETC.	CI	7.10E+00
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	9.91E+01
EQUIPMENT, ETC.	CI	5.52E+01
C. IRRADIATED COMPONENTS, CONTROL	M3	0.00E+00
RODS, ETC.	CI	0.00E+00
D. OTHER	M3	4.88E+00*
DAW(PROCESSING FACILITY)	CI	2.15E-01

*NOTE:PROC. FACILITY RECEIVED 73.66M3 OF MSR & CHEVRONS FOR DECONTAMINATION & DISPOSAL.

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:RIVER BEND

LOCATION:24 MI NNW OF BATON ROUGE, LA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:GULF STATES UTILITIES CO
DOCKET NO.:50-458   LICENSED POWER (MWT):2.89E+03
THERMAL POWER (MWH):2.25E+07   NET ELECTRIC POWER (MWH):7.25E+06
COMMERCIAL OPERATION:06/16/86   INITIAL CRITICALITY:10/31/85
COOLING WATER SOURCE:MISSISSIPPI RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	3.09E-04
CO-58	6.72E-06
CO-60	3.89E-05
SR-89	1.47E-05
I-131	4.78E-04
I-133	4.76E-03
XE-135	2.05E+00

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	4.79E-01
MN-54	1.99E-02
FE-55	1.69E-02
CO-58	6.80E-03
FE-59	2.26E-03
CO-60	3.29E-02
ZN-65	2.38E-03
AS-76	1.87E-03
ZR-NB-95	7.16E-06
NB-97	2.03E-03
MO-99	8.89E-04
TC-99M	9.18E-04
RH-105	2.73E-05
AG-110M	4.58E-04
SB-122	3.73E-05
SB-124	7.39E-03
XE-133	6.17E-03
XE-133M	1.18E-05
XE-135	5.83E-03
CE-144	1.69E-04
W-187	3.09E-04

TOTAL AIRBORNE TRITIUM RELEASE   2.88E+00
TOTAL LIQUID TRITIUM RELEASE   9.65E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.41E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.84E+09

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:RIVER BEND

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS

45

MODE OF TRANSPORTATION

TRUCK EXCLUSIVE USE

DESTINATION

CNSI BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS

0

MODE OF TRANSPORTATION

N/A

DESTINATION

N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

AG-110M	%	4.72E-02	6.23E-02
AM-241	%	1.48E-04	9.35E-05
C-14	%	2.97E-01	3.63E-01
CM-242	%	1.81E-04	1.20E-04
CM-244	%	1.44E-04	1.13E-04
CO-57	%	1.66E-02	1.98E-02
CO-58	%	4.52E+00	7.59E+00
CO-60	%	4.91E+01	2.79E+01
CR-51	%	3.63E+00	3.26E+01
FE-55	%	1.07E+01	1.09E+01
FE-59	%	5.65E-01	5.96E-01
H-3	%	1.31E-02	2.55E-02
I-131	%		1.23E-04
LA-140	%		1.95E-08
MN-54	%	2.55E+01	1.67E+01
MO-99	%		3.52E-07
NA-24	%		1.03E-05
NB-95	%	5.15E-02	6.01E-02
NI-63	%	1.03E+00	2.39E-01
PU-238	%	3.24E-04	2.04E-04
PU-239	%	2.38E-04	1.77E-04
PU-241	%	8.83E-03	5.05E-03
SB-124	%	1.35E-01	1.15E-01
SN-113	%	1.23E-02	
ZN-65	%	4.37E+00	2.75E+00
ZR-95	%		4.28E-02

B

AM-241	%	5.89E-02	
C-14	%	1.01E-01	
CO-58	%	9.64E-04	2.80E-01
CO-60	%	2.78E+01	2.61E+01
CR-51	%	7.09E-03	
FE-55	%	5.92E+01	6.03E+01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:RIVER BEND

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
	FE-59	% 1.45E-03	
	MN-54	% 9.98E+00	1.02E+01
	NI-63	% 3.93E-01	3.00E-02
	PU-241	% 2.17E-04	
	ZN-65	% 2.51E+00	3.14E+00

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	2.63E+02
	CI	3.49E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	4.26E+01
	CI	9.96E-01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:CAROLINA POWER &LIGHT
DOCKET NO.:50-261   LICENSED POWER (MWT):2.30E+03
THERMAL POWER (MWH):1.06E+07   NET ELECTRIC POWER (MWH):3.18E+06
COMMERCIAL OPERATION:03/07/71   INITIAL CRITICALITY:09/20/70
COOLING WATER SOURCE:ROBINSON IMPOUNDMENT

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	4.75E+00
CR-51	8.02E-07
MN-54	5.20E-08
CO-57	5.13E-09
CO-58	2.39E-06
CO-60	2.22E-05
KR-85	1.15E+02
KR-85M	4.65E+00
KR-87	1.56E-01
KR-88	2.76E-01
NB-95	4.63E-08
ZR-95	2.63E-08
I-131	1.07E-03
XE-131M	4.48E+00
I-133	6.82E-04
XE-133	8.38E+02
XE-133M	6.59E+00
CS-134	1.87E-08
XE-135	6.04E+01
XE-135M	7.77E-02
CS-137	2.06E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	9.48E-05
AR-41	4.48E-05
CR-51	1.91E-02
MN-54	1.00E-02
FE-55	4.95E-01
CO-57	6.16E-04
CO-58	1.61E-01
FE-59	9.93E-04
CO-60	1.42E-01
ZN-65	4.26E-05
KR-85	6.40E-02
KR-85M	2.35E-03
KR-88	6.18E-04
RB-88	6.45E-03
SR-90	2.96E-05
SR-92	1.19E-06
NB-95	9.30E-04
ZR-95	1.58E-04
NB-97	1.55E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
TC-99M	1.51E-04
RU-106	1.19E-04
AG-110M	1.25E-02
SN-113	4.55E-05
SB-124	3.93E-02
SB-125	6.55E-02
XE-127	3.87E-05
I-131	4.21E-04
XE-131M	3.32E-01
I-133	5.54E-05
XE-133	3.20E+01
XE-133M	3.86E-01
CS-134	2.07E-03
XE-135	2.04E-01
CS-137	5.06E-03
CS-138	2.74E-04
BA-139	3.66E-04
CE-139	6.50E-05
CE-144	6.41E-11

TOTAL AIRBORNE TRITIUM RELEASE	7.66E+00
TOTAL LIQUID TRITIUM RELEASE	5.36E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	7.55E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	8.38E+11

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:H.B.ROBINSON

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 38
MODE OF TRANSPORTATION
SOLE USE VEHICLE

DESTINATION
BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS 0
MODE OF TRANSPORTATION
N/A

DESTINATION
N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14,H-3,CS-137	%	8.60E-02	
C-14,H-3,SR-90	%	1.40E-01	
CO-58	%	5.76E+00	4.05E+00
CO-60	%	1.16E+01	1.59E+01
CS-134	%	1.71E+01	7.86E+00
CS-137	%	2.38E+01	1.28E+01
FE-55	%	2.18E+01	3.94E+00
H-3,C-14,SR-90	%		2.56E-01
MN-54	%	1.58E+00	
NI-63	%	1.81E+01	5.52E+01

B

C-14,CS-134	%	5.56E-01	
CO-58	%	1.78E+01	
CO-60	%	1.12E+01	4.80E+01
CR-51	%	4.25E+00	
CS-137	%	2.35E+00	
FE-55	%	8.33E+00	3.29E+01
FE-59	%	1.46E+00	
H-3	%	4.87E+01	
H-3,CR-51,CO-58,NB-95,ZR-95,AG-110M,CS-137	%		2.58E+00
MN-54	%	1.95E+00	1.16E+00
NI-63	%	3.44E+00	1.54E+01

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
D. OTHER

UNIT YEAR TOTAL

M3	2.27E+01
CI	3.71E+02
M3	6.15E+01 *
CI	4.99E+00
M3	
CI	
M3	
CI	

*VOLUME BURIED; 4.98E+1 M3 OF VOL. BURIED IS RESULT OF COMPACTION OF 3.49E2M3 BY SEG

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:PSE&G
DOCKET NO.:50-272   LICENSED POWER (MWT):3.34E+03
THERMAL POWER (MWH):2.32E+07   NET ELECTRIC POWER (MWH):7.41E+06
COMMERCIAL OPERATION:06/30/77   INITIAL CRITICALITY:12/11/76
COOLING WATER SOURCE:DELAWARE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	7.51E-03
CO-58	3.66E-05
CO-60	1.42E-03
KR-85	1.10E+00
KR-85M	3.58E-01
I-131	6.73E-04
XE-131M	7.85E+00
XE-133	5.00E+02
XE-133M	9.90E-01
XE-135	1.90E+01
XE-135M	2.37E-04
CS-137	5.69E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	1.02E-03
F-18	1.73E-01
NA-24	1.38E-02
CR-51	2.38E-02
MN-54	9.98E-02
FE-55	2.79E-01
CO-57	3.95E-03
CO-58	1.25E+00
FE-59	2.66E-04
CO-60	2.76E-01
ZN-65	5.49E-04
KR-85M	6.01E-04
KR-88	2.74E-04
RB-88	1.05E-03
Y-88	4.98E-05
SR-89	8.70E-03
SR-90	1.02E-03
SR-92	1.97E-05
Y-93	1.46E-04
NB-95	1.53E-02
ZR-95	1.23E-02
NB-97	2.44E-02
ZR-97	1.37E-02
MO-99	1.57E-03
TC-99M	4.75E-03
RU-103	1.61E-03
TC-104	9.94E-04
RH-105	6.39E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
RH-106	3.77E-04
RU-106	3.77E-04
AG-110M	4.96E-03
SN-113	4.41E-05
SB-122	5.47E-03
SB-124	6.31E-02
SB-125	9.32E-02
SB-126	9.93E-05
I-131	5.53E-02
XE-131M	5.05E-02
I-132	9.72E-03
TE-132	1.62E-05
BA-133	3.77E-04
I-133	2.80E-02
XE-133	8.77E+00
XE-133M	9.46E-02
CS-134	1.30E-01
I-134	1.10E-02
I-135	1.68E-02
XE-135	9.13E-02
XE-135M	1.50E-03
CS-136	9.31E-05
CS-137	1.34E-01
CS-138	7.68E-02
BA-140	2.80E-04
LA-140	3.89E-04
CE-141	1.33E-03
LA-141	7.75E-03
CE-144	1.89E-02
PR-144	3.12E-02
W-187	1.25E-02

TOTAL AIRBORNE TRITIUM RELEASE	4.00E+02
TOTAL LIQUID TRITIUM RELEASE	6.33E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.22E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.56E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:PSE&G
DOCKET NO.:50-311   LICENSED POWER (MWT):3.34E+03
THERMAL POWER (MWH):1.90E+07   NET ELECTRIC POWER (MWH):5.97E+06
COMMERCIAL OPERATION:10/13/81   INITIAL CRITICALITY:08/08/80
COOLING WATER SOURCE:DELAWARE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.55E-02
CO-57	1.99E-07
CO-58	7.05E-05
CO-60	2.72E-05
KR-85	1.82E+00
KR-85M	3.08E+00
KR-87	5.66E-01
KR-88	4.15E+00
TE-125M	6.82E-06
I-131	8.80E-04
XE-131M	2.65E+00
XE-133	1.12E+03
XE-133M	6.08E+00
XE-135	3.43E+01
XE-135M	4.99E+00
CS-137	6.66E-06
CE-141	1.25E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	2.69E-03
F-18	1.75E-01
NA-24	1.04E-02
AR-41	5.32E-05
CR-51	3.17E-03
MN-54	1.74E-01
FE-55	2.46E-01
MN-56	3.22E-03
CO-57	3.52E-03
CO-58	1.32E+00
FE-59	2.93E-05
CO-60	2.97E-01
KR-85M	1.08E-03
KR-88	6.63E-04
RB-88	2.64E-03
Y-88	8.42E-05
SR-89	7.00E-03
SR-90	8.13E-04
SR-92	3.50E-04
Y-93	1.45E-04
NB-95	6.55E-03
NB-95M	1.10E-04
ZR-95	3.15E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NB-97	6.92E-03
MO-99	1.19E-04
TC-99M	3.28E-03
TC-101	7.79E-05
RU-103	1.37E-03
RU-105	6.47E-05
AG-110M	1.04E-02
HG-113	1.99E-05
SN-113	1.03E-04
SB-122	3.70E-03
SB-124	5.48E-02
SB-125	9.24E-02
I-131	1.35E-01
XE-131M	2.43E-02
I-132	4.68E-02
TE-132	1.48E-04
BA-133	2.60E-04
I-133	8.83E-02
XE-133	5.80E+00
XE-133M	5.19E-02
CS-134	9.53E-02
I-134	3.49E-02
I-135	1.90E-02
XE-135	9.41E-02
XE-135M	1.35E-01
CS-136	2.20E-03
CS-137	1.08E-01
CS-138	1.98E-02
BA-140	1.57E-03
LA-140	1.03E-03
CE-141	1.74E-03
LA-141	2.05E-03
CE-144	2.24E-03
W-187	6.37E-04
NP-239	3.88E-03

TOTAL AIRBORNE TRITIUM RELEASE	3.70E+02
TOTAL LIQUID TRITIUM RELEASE	3.68E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.27E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.50E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
11	TRUCK	BARNWELL SC
7	TRUCK	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	§	1.00E-02
CE-144	§	5.40E-01
CO-58	§	5.88E+00
CO-60	§	9.23E+00
CS-134	§	1.04E+01
CS-137	§	1.12E+01
FE-55	§	3.25E+01
I-129, PU-238, PU-239, PU-240, SR-90, TC-99, AM-241, CM-242, CM-243	§	9.00E-02
MN-54	§	1.14E+00
NI-63	§	2.86E+01
PU-241	§	1.99E+01
SB-124	§	1.00E-02
SB-125	§	2.00E-02
SR-90	§	1.02E+00
TC-99	§	2.00E-02
ZN-65	§	6.00E-02
	§	1.20E-01

B

C-14	§	2.00E-02
CO-58	§	7.87E+01
CO-60	§	9.04E+00
CS-134	§	1.67E+00
CS-137	§	1.54E+00
FE-55	§	1.15E+00
I-129	§	1.00E-02
MN-54	§	1.74E+00
NI-63	§	6.07E+00
SB-125	§	9.00E-02
TC-99	§	1.00E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		1.11E+02
BOTTOMS, ETC.	CI		3.67E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		2.48E+02
EQUIPMENT, ETC.	CI		1.29E+01
C. IRRADIATED COMPONENTS, CONTROL	M3		
RODS, ETC.	CI		
D. OTHER	M3		
	CI		

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:SAN ONOFRE 1

LOCATION:2.5 MI S SAN CLEMENTE, CA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1 TYPE:PWR LICENSEE:SOUTHERN CA EDISON&SAN DIEGO GAS&ELEC
DOCKET NO.:50-206 LICENSED POWER (MWT):1.35E+03
THERMAL POWER (MWH):4.52E+06 NET ELECTRIC POWER (MWH):1.37E+06
COMMERCIAL OPERATION:01/01/68 INITIAL CRITICALITY:06/14/67
COOLING WATER SOURCE:PACIFIC OCEAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	5.79E-03
CR-51	1.05E-06
MN-54	2.21E-06
CO-58	6.46E-05
CO-60	5.48E-06
BR-82	1.01E-04
KR-85	1.15E+01
KR-85M	3.70E+00
KR-87	2.54E-01
KR-88	1.15E+00
RB-88	2.48E-03
SR-89	3.41E-07
SR-90	1.26E-08
I-131	1.03E-02
XE-131M	3.92E+00
I-132	3.88E-03
I-133	1.07E-03
XE-133	2.85E+03
XE-133M	2.67E+01
CS-134	1.91E-04
I-135	5.34E-04
XE-135	8.83E+01
XE-135M	1.12E-03
CS-137	2.41E-04
CS-138	5.87E-03
BA-140	4.52E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	4.24E-03
MN-54	5.25E-04
FE-55	4.13E-03
CO-57	3.91E-05
CO-58	5.17E-02
FE-59	1.81E-04
CO-60	2.24E-02
ZN-65	4.12E-05
KR-85	2.11E-01
KR-85M	3.60E-05
SR-89	3.51E-05
SR-90	1.01E-04
NB-95	1.88E-04
ZR-95	3.11E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MO-99	1.04E-03
TC-99M	5.02E-04
RU-103	4.97E-04
RU-106	6.15E-04
AG-110M	2.41E-04
SN-113	1.57E-05
SB-124	8.23E-04
SB-125	3.87E-04
I-131	1.72E-01
XE-131M	9.47E-02
I-132	4.43E-05
TE-132	5.47E-05
I-133	7.40E-02
XE-133	1.42E+01
XE-133M	8.40E-02
CS-134	1.59E-01
I-135	3.62E-02
XE-135	2.13E-03
CS-136	4.07E-03
CS-137	1.79E-01
CS-138	2.08E-04
BA-140	5.66E-04
LA-140	1.43E-04
CE-141	7.79E-05
CE-144	4.77E-04
NP-239	6.88E-04

TOTAL AIRBORNE TRITIUM RELEASE	2.05E+01
TOTAL LIQUID TRITIUM RELEASE	1.53E+03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.21E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.82E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
C-14	%	7.35E-03	2.82E-03
CO-58	%	1.09E+00	1.81E+00
CO-60	%	6.37E+00	6.75E+00
CR-51	%		3.50E-01
CS-134	%	3.81E+00	6.05E+00
CS-137	%	1.68E+01	1.31E+01
FE-55	%	2.01E+01	1.66E+01
FE-59	%		5.67E-03
H-3	%	4.21E+01	4.59E+01
I-129	%	1.54E-01	3.21E+00
I-131	%	2.72E+00	
MN-54	%	5.63E-01	1.95E+00
NI-63	%	4.80E+00	2.27E+00
PU-241	%	1.17E+00	3.38E-02
SR-90	%	1.19E-01	6.00E-03
TC-99	%	2.55E-01	1.95E+00
D			
C-14	%	1.28E-03	7.69E-03
CO-57	%		3.85E-02
CO-58	%	3.14E-02	5.63E-01
CO-60	%	1.38E-01	2.98E+01
CS-134	%	1.08E-01	1.57E-01
CS-136	%		2.78E-01
CS-137	%	3.42E-01	8.97E-01
FE-55	%	4.09E-01	9.57E+00
H-3	%	9.87E+01	5.36E+01
I-129	%	3.12E-03	8.55E-04
I-131	%	7.72E-02	
MN-54	%	1.62E-02	
NI-59	%		1.21E-01
NI-63	%	1.04E-01	4.03E+00
PU-241	%	4.51E-02	1.05E+00
SR-90	%		1.27E-01
TC-99	%	5.19E-03	8.55E-04

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	0.00E+00
	CI	0.00E+00
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.89E+01
	CI	2.70E+00
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	N/A
	CI	N/A
D. OTHER	M3	1.91E+00
ABSORBED LIQ, SAND, RUBBLE, WASTE	CI	1.37E+00

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2	TYPE:PWR	LICENSEE:SOUTHERN CA EDISON&SAN DIEGO GAS&ELEC
DOCKET NO.:361		LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):2.75E+07		NET ELECTRIC POWER (MWH):9.00E+06
COMMERCIAL OPERATION:08/08/83		INITIAL CRITICALITY:07/26/82
COOLING WATER SOURCE:PACIFIC OCEAN		
UNIT NUMBER: 3	TYPE:PWR	LICENSEE:SOUTHERN CA EDISON&SAN DIEGO GAS&ELEC
DOCKET NO.:362		LICENSED POWER (MWT):3.39E+03
THERMAL POWER (MWH):1.89E+07		NET ELECTRIC POWER (MWH):6.13E+06
COMMERCIAL OPERATION:04/01/84		INITIAL CRITICALITY:08/29/83
COOLING WATER SOURCE:PACIFIC OCEAN		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	4.71E-06
AR-41	1.73E+01
CR-51	1.14E-04
MN-54	1.14E-04
CO-57	8.38E-11
CO-58	1.31E-03
CO-60	6.08E-04
BR-82	1.55E-04
KR-85	1.60E+01
KR-85M	3.26E+01
KR-87	6.04E+00
KR-88	8.55E+00
RB-88	2.51E-02
SR-89	7.22E-08
SR-90	2.99E-09
SR-92	1.01E-06
Y-92	1.77E-06
NB-95	1.69E-04
NB-95M	3.16E-06
ZR-95	3.28E-05
NB-97	7.24E-04
MO-99	1.12E-05
TC-99M	1.14E-05
RU-103	1.22E-06
SN-113	3.51E-06
I-131	7.49E-02
XE-131M	1.54E+01
I-132	4.50E-04
TE-132	2.49E-07
I-133	1.62E-02
XE-133	4.69E+03
XE-133M	6.34E+00
CS-134	6.69E-06
I-135	1.87E-03
XE-135	3.18E+02
XE-135M	3.23E+00
CS-136	2.94E-07
CS-137	2.44E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-138	4.83E-03
XE-138	9.86E-01
BA-139	1.23E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	3.88E-04
AR-41	7.67E-06
CR-51	1.40E-02
MN-54	2.15E-02
FE-55	2.77E-02
CO-57	6.69E-04
CO-58	2.36E-01
FE-59	8.36E-04
CO-60	2.19E-02
ZN-65	1.38E-05
BR-84	4.35E-05
KR-85	1.48E-02
KR-85M	6.79E-05
RB-88	2.73E-04
SR-89	1.08E-02
SR-90	6.72E-05
Y-92	1.04E-05
NB-95	1.09E-02
NB-95M	1.52E-05
ZR-95	5.71E-03
NB-97	8.00E-05
MO-99	1.17E-02
TC-99M	1.19E-02
RU-103	4.20E-04
RU-106	7.83E-04
AG-110M	2.39E-03
SN-113	6.39E-04
SB-124	3.52E-03
SB-125	2.10E-02
I-131	4.86E-01
XE-131M	1.29E-01
I-132	1.26E-05
TE-132	1.55E-04
I-133	1.15E-01
XE-133	1.70E+01
XE-133M	2.10E-01
CS-134	5.56E-02
XE-135	1.02E-01
CS-136	5.20E-03
CS-137	1.19E-01
BA-139	1.07E-04
BA-140	4.60E-03

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

INSTALLATION:SAN ONOFRE 2-3

LOCATION:2.5 MI S SAN CLEMENTE, CA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
LA-140	3.89E-03
CE-141	6.43E-05
CE-143	1.93E-05
CE-144	1.43E-03

TOTAL AIRBORNE TRITIUM RELEASE	1.89E+01
TOTAL LIQUID TRITIUM RELEASE	6.43E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.28E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.77E+12

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
A			
C-14	%	1.99E-05	2.34E-04
CE-141	%		1.22E-02
CE-144	%	2.19E-02	1.02E-02
CM-242	%	1.46E-07	6.41E-04
CO-57	%		2.86E-02
CO-58	%	1.81E+00	3.10E+00
CO-60	%	2.08E+00	2.15E+00
CS-134	%	3.21E+01	3.38E+01
CS-137	%	5.48E+01	5.08E+01
FE-55	%	5.69E+00	5.70E+00
H-3	%	2.52E-02	1.21E-02
I-129	%	2.53E-04	8.24E-04
I-131	%		7.46E-04
MN-54	%	2.13E+00	2.30E+00
NB-95	%		8.93E-03
NI-63	%	1.37E+00	1.86E+00
PU-241	%	1.24E-02	1.41E-02
SB-125	%		2.79E-02
SR-89	%	9.93E-02	1.12E-01
SR-90	%	8.24E-02	7.53E-02
TC-99	%	4.59E-04	1.40E-03
B			
C-14	%	7.79E-03	4.62E-01
CM-242	%	1.40E+00	6.84E-01
CO-58	%		6.55E-01
CO-60	%		1.92E+00
CS-134	%	3.34E+01	2.13E+01
CS-136	%		1.13E+00
CS-137	%	3.23E+01	2.99E+01
FE-55	%	1.92E+01	1.92E+01
H-3	%	5.68E+00	1.74E+01
I-129	%	1.39E-01	1.05E-01
I-131	%	1.55E+00	1.31E+00
MN-54	%		3.18E-01
NB-94	%	1.46E-01	
NB-95	%		1.17E-01
NI-63	%	4.27E+00	3.69E+00
PU-241	%	1.60E+00	1.53E+00
SB-125	%		2.84E-02
SR-90	%		1.41E-02
TC-99	%	3.40E-01	1.34E-02
ZR-95	%		2.75E-02

N/A=NOT APPLICABLE

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N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)   JAN-JUNE   JULY-DEC

D		
C-14	%	7.34E-03
CS-134	%	1.19E+01
CS-137	%	1.37E+01
FE-55	%	8.13E+00
H-3	%	6.60E+01
I-129	%	5.93E-02
TC-99	%	1.42E-01

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	6.99E+01
	CI	2.54E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	1.87E+02
	CI	1.01E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	N/A
	CI	N/A
D. OTHER	M3	2.76E+00
FLTRS, SLUDGE, SAND, RUBBLE, TRASH	CI	1.64E-01

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	TRI-STATE (TRUCK/CASK)	BARNWELL SC
11	TRI-STATE (TRUCK/CASK)	RICHLAND WA
11	TRI-STATE (TRUCK/TRAILER)	BEATTY NV
1	TRI-STATE (TRUCK/TRAILER)	RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

D			
C-14	%	6.42E-02	1.97E-03
CO-58	%		2.88E+00
CO-60	%		3.78E+00
CS-134	%	5.73E+00	8.03E-01
CS-137	%	6.57E+00	2.07E+00
FE-55	%	3.91E+00	1.28E+01
FE-59	%		1.24E-01
H-3	%	8.26E+01	6.28E+01
I-129	%	2.75E-02	1.97E-03
MN-54	%		9.61E-01
NB-95	%		1.50E+00
NI-63	%	8.62E-01	1.14E+01
PU-241	%		1.09E-01
RU-103	%		1.13E-01
SB-125	%		1.44E-02
TC-99	%	6.42E-02	1.97E-03
ZN-65	%		9.08E-02
ZR-95	%		5.29E-01

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

D. OTHER
FLTRS, SLUDGE, SAND/RUBBLE, TRASH

UNIT YEAR TOTAL

M3 N/A

CI N/A

M3 N/A

CI N/A

M3 N/A

CI N/A

M3 4.24E-01

CI 1.63E-01

N/A=NOT APPLICABLE

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N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:TENNESSEE VALLEY AUTHORITY
DOCKET NO.:50-327   LICENSED POWER (MWT):2.82E+03
THERMAL POWER (MWH):5.16E+05   NET ELECTRIC POWER (MWH):6.71E+04
COMMERCIAL OPERATION:07/01/81   INITIAL CRITICALITY:07/05/80
COOLING WATER SOURCE:TENNESSEE RIVER
UNIT NUMBER: 2   TYPE:PWR   LICENSEE:TENNESSEE VALLEY AUTHORITY
DOCKET NO.:50-328   LICENSED POWER (MWT):2.82E+03
THERMAL POWER (MWH):1.26E+07   NET ELECTRIC POWER (MWH):3.88E+06
COMMERCIAL OPERATION:06/01/82   INITIAL CRITICALITY:11/05/81
COOLING WATER SOURCE:TENNESSEE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.49E-01
CO-57	3.83E-07
CO-60	1.47E-04
KR-85	2.01E+00
KR-85M	1.75E-01
KR-88	1.48E-02
SR-89	1.03E-06
SR-90	6.63E-07
TC-99M	8.20E-07
I-131	3.63E-05
XE-131M	1.09E+00
XE-133	2.16E+02
XE-133M	2.13E+00
XE-135	3.67E+00
CS-137	3.81E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.35E-07
CR-51	2.87E-05
MN-54	1.65E-03
FE-55	7.32E-02
CO-57	5.95E-05
CO-58	7.99E-05
CO-60	2.45E-01
KR-85	2.68E-03
KR-85M	2.67E-06
RB-86	9.71E-05
SR-89	4.58E-04
SR-90	3.30E-04
Y-91M	1.88E-08
NB-95	3.60E-06
NB-97	1.77E-06
ZR-97	6.83E-05
TC-99M	1.07E-04
AG-110M	1.88E-04
SB-125	2.19E-02
I-131	1.62E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: SEQUOYAH

LOCATION: DAISY, TN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-131M	9.79E-04
TE-132	2.20E-06
I-133	6.15E-05
XE-133	1.68E-01
XE-133M	9.60E-04
CS-134	2.74E-02
XE-135	5.83E-04
XE-135M	9.19E-02
CS-137	7.50E-02
BA-139	1.50E-06
CE-143	3.92E-06
CE-144	1.92E-05

TOTAL AIRBORNE TRITIUM RELEASE	1.37E+01
TOTAL LIQUID TRITIUM RELEASE	2.01E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.66E+09
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	4.56E+09

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
28	MOTOR FREIGHT	BARNWELL SC
6	MOTOR FREIGHT	US ECOLOGY, RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	%	1.01E+00	4.91E-01
CO-57	%	2.10E-02	2.53E-02
CO-58	%		2.68E-01
CO-60	%	5.93E+01	5.15E+01
CS-134	%	1.33E+00	2.69E+00
CS-137	%	2.85E+00	6.05E+00
FE-55	%	9.09E+00	7.30E+00
H-3	%	3.52E-01	5.94E-01
I-129	%	7.65E-03	1.54E-02
K-40	%	1.18E-02	1.42E-02
MN-54	%	1.63E-01	2.84E-01
NI-59	%	1.07E-01	1.22E-01
NI-63	%	2.48E+01	2.50E+01
PU-238	%	2.53E-04	1.25E-04
PU-239	%	9.22E-05	1.11E-04
PU-241	%	1.09E-02	9.11E-03
SB-125	%	1.17E-02	8.72E-02
SR-90	%	1.12E+00	1.77E+00
TC-99	%	5.76E-03	3.83E+00
ZN-65	%	1.35E-02	

B

C-14	%	2.37E-01	2.37E-01
CO-58	%	8.34E+01	8.16E+00
CO-60	%	8.16E+00	4.10E+00
CR-51	%	1.26E+00	1.26E+00
FE-55	%		8.34E+01
H-3	%	9.23E-03	9.24E-03
I-129	%	2.78E-04	7.11E-05
NI-63	%	4.11E+00	2.80E+00
TC-99	%	2.80E+00	2.77E-04

D

AM-241	%		7.76E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
D			
C-14	%	1.80E-01	1.18E-02
CM-244	%		4.24E-04
CO-60	%	1.51E+01	6.06E+01
CS-137	%		1.58E+00
FE-55	%	1.66E+01	1.28E+01
H-3	%	6.18E+01	1.21E-01
I-129	%	3.60E-07	1.49E-02
MN-54	%	1.21E+00	4.34E+00
NI-63	%	5.08E+00	2.03E+01
PU-238	%		1.50E-03
PU-239	%		4.40E-04
PU-241	%		1.32E-01
PU-242	%		1.48E-04
SR-90	%		1.21E-01
TC-99	%	7.42E-07	1.53E-02

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.13E+02
	CI	4.45E+01
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	4.88E+02
	CI	1.33E+02
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	0.00E+00
	CI	0.00E+00
D. OTHER	M3	6.78E+00
DEWATERED MECHANICAL FILTERS	CI	1.14E+02

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:SHOREHAM

LOCATION:BROOKHAVEN, NY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:LONG ISLAND LIGHTING CO
DOCKET NO.:50-322   LICENSED POWER (MWT):1.22E+02
THERMAL POWER (MWH):0.00E+00   NET ELECTRIC POWER (MWH):0.00E+00
COMMERCIAL OPERATION: INITIAL CRITICALITY:02/07/85
COOLING WATER SOURCE:LONG ISLAND SOUND

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-58	1.98E-05

TOTAL AIRBORNE TRITIUM RELEASE   0.00E+00
TOTAL LIQUID TRITIUM RELEASE   0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.31E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	8.86E+08

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:SHOREHAM

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION			DESTINATION	
NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION		BARNWELL SC	
3	TRUCK			
ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)			JAN-JUNE	JULY-DEC
A				
AG-110M			%	3.90E+00
CE-141			%	2.70E-02
CE-144			%	1.09E+00
CO-57			%	1.76E-01
CO-58			%	2.86E+00
CO-60			%	2.97E+01
CR-51			%	1.60E+01
CS-137			%	4.44E-01
FE-55			%	2.42E+01
FE-59			%	1.48E+00
H-3			%	3.40E+00
MN-54			%	7.04E+00
NI-59			%	2.10E-02
NI-63			%	1.15E+00
PU-241			%	3.69E+00
SB-124			%	1.36E-01
SR-90			%	8.00E-03
ZN-65			%	4.79E+00
D				
C-14			%	1.60E-02
CE-144			%	2.77E-01
CO-57			%	3.20E-02
CO-58			%	1.93E+00
CO-60			%	7.27E+00
CR-51			%	4.72E+01
CS-137			%	1.16E-01
FE-55			%	3.22E+01
FE-59			%	3.52E+00
H-3			%	1.33E+00
MN-54			%	1.35E+00
NB-95			%	1.39E+00
NI-63			%	5.96E-01
PU-241			%	6.91E-01
SB-124			%	1.32E-01
SR-90			%	1.20E-02
ZN-65			%	1.37E+00
ZR-95			%	6.35E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: SHOREHAM

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		3.13E+01
BOTTOMS, ETC.	CI		5.16E-03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		0.00E+00
EQUIPMENT, ETC.	CI		0.00E+00
C. IRRADIATED COMPONENTS, CONTROL	M3		
RODS, ETC.	CI		
D. OTHER	M3		3.13E+01
FILTER MEDIA	CI		1.34E-02

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:SOUTH TEXAS 1

LOCATION:12 MI SSW OF BAY CITY, TX

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:HOUSTON LIGHTING & POWER
DOCKET NO.:50-498   LICENSED POWER (MWT):3.82E+03
THERMAL POWER (MWH):8.81E+06   NET ELECTRIC POWER (MWH):2.79E+06
COMMERCIAL OPERATION:08/25/88   INITIAL CRITICALITY:03/08/88
COOLING WATER SOURCE:MAIN COOLING RESERVOIR

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	7.59E+02
KR-85M	1.71E-01
KR-87	2.20E-01
KR-88	3.22E-01
I-131	8.18E-04
I-133	2.56E-04
XE-133	9.56E+01
XE-133M	5.90E-02
XE-135	1.28E+00
XE-135M	4.67E-02
UNIDENTIFIED	3.36E-02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	4.23E-05
CR-51	1.94E-02
MN-54	3.29E-03
CO-58	1.45E-01
FE-59	1.12E-03
CO-60	3.33E-03
NB-95	3.62E-03
ZR-95	3.69E-03
ZR-97	6.21E-06
MO-99	7.99E-05
TC-99M	9.93E-05
I-131	5.02E-03
I-133	7.82E-05
XE-133	2.50E+00
XE-135	2.97E-03
W-187	2.20E-05
UNIDENTIFIED	3.98E-02

TOTAL AIRBORNE TRITIUM RELEASE   1.72E+01
TOTAL LIQUID TRITIUM RELEASE   1.99E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.07E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	4.20E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:FLORIDA POWER & LIGHT
DOCKET NO.:50-335   LICENSED POWER (MWT):2.56E+03
THERMAL POWER (MWH):1.97E+07   NET ELECTRIC POWER (MWH):6.25E+06
COMMERCIAL OPERATION:12/21/76   INITIAL CRITICALITY:04/22/76
COOLING WATER SOURCE:ATLANTIC OCEAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.04E+00
KR-85M	5.27E+00
KR-87	1.67E-01
KR-88	6.71E+00
I-131	6.40E-03
XE-131M	1.17E-02
I-132	4.28E-02
I-133	4.28E-02
XE-133	1.20E+03
XE-133M	5.47E+00
XE-135	2.03E+02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.23E-04
AR-41	2.75E-05
CR-51	1.77E-02
MN-54	1.30E-03
FE-55	3.29E-02
CO-57	4.80E-06
CO-58	6.13E-02
FE-59	3.28E-05
CO-60	4.92E-02
SR-90	8.19E-04
Y-90	8.19E-04
NB-95	7.43E-03
ZR-95	3.90E-03
NB-97	2.39E-03
TC-99M	2.64E-05
RU-103	6.32E-04
AG-110M	1.48E-03
SN-113	3.48E-04
SB-122	8.72E-04
SB-124	1.42E-02
SB-125	2.98E-02
I-131	7.79E-03
XE-131M	4.93E-03
I-132	6.00E-05
TE-132	1.13E-04
I-133	8.64E-04
XE-133	6.64E-01
XE-133M	7.16E-03
CS-134	1.10E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:ST. LUCIE 1

LOCATION:8 MI S FT. PIERCE, FL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-134	4.36E-05
XE-135	8.74E-03
CS-137	1.74E-02
LA-140	1.14E-03
CE-141	5.55E-05
W-187	5.45E-05

TOTAL AIRBORNE TRITIUM RELEASE 1.46E+02

TOTAL LIQUID TRITIUM RELEASE 2.75E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.08E+08

VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.90E+12

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:FLORIDA POWER & LIGHT
DOCKET NO.:50-389   LICENSED POWER (MWT):2.70E+03
THERMAL POWER (MWH):2.35E+07   NET ELECTRIC POWER (MWH):7.41E+06
COMMERCIAL OPERATION:08/08/83   INITIAL CRITICALITY:06/02/83
COOLING WATER SOURCE:ATLANTIC OCEAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.88E+00
KR-85	9.60E-01
KR-85M	7.45E+01
KR-87	3.71E-01
KR-88	3.19E+01
RB-88	1.27E+00
I-131	2.85E-02
XE-131M	3.47E+00
I-133	3.89E-02
XE-133	8.01E+03
XE-133M	8.70E+01
XE-135	9.50E+02
CS-137	3.04E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.23E-04
AR-41	2.75E-05
CR-51	1.77E-02
MN-54	1.30E-03
FE-55	3.29E-02
CO-57	4.80E-06
CO-58	6.13E-02
FE-59	3.28E-05
CO-60	4.92E-02
SR-90	2.67E-05
Y-90	2.67E-05
NB-95	7.43E-03
ZR-95	3.90E-03
NB-97	2.39E-03
TC-99M	2.64E-05
RU-103	6.32E-04
AG-110M	1.48E-03
SN-113	3.48E-04
SB-122	8.72E-04
SB-124	1.42E-02
SB-125	2.98E-02
I-131	7.27E-03
XE-131M	4.93E-03
I-132	6.00E-05
TE-132	1.13E-04
I-133	8.64E-04
XE-133	6.64E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:ST. LUCIE 2

LOCATION:8 MI S FT. PIERCE, FL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-133M	7.16E-03
CS-134	1.01E-02
I-134	4.36E-05
XE-135	8.05E-03
CS-137	1.60E-02
LA-140	1.14E-03
CE-141	5.55E-05
W-187	5.45E-05

TOTAL AIRBORNE TRITIUM RELEASE 8.55E+01

TOTAL LIQUID TRITIUM RELEASE 2.75E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	6.14E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.90E+12

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:ST. LUCIE 1&2

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS
97

MODE OF TRANSPORTATION
SOLE USE TRUCK

DESTINATION
BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS
0

MODE OF TRANSPORTATION
N/A

DESTINATION
N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-58	%	2.55E+01	2.15E+01
CO-60	%	4.87E+00	1.21E+01
CR-51	%	8.59E-01	
CS-134	%	2.60E+01	1.93E+01
CS-137	%	3.46E+01	3.46E+01
FE-55	%	1.48E+00	1.75E+00
I-131	%	6.42E-01	5.80E-01
MN-54	%	1.33E+00	1.59E+00
NB-95	%	8.18E-01	
NI-63	%	2.41E+00	7.70E+00

B

C-14	%	4.40E-01	
CE-144	%	3.80E-01	
CO-58	%	1.53E+01	5.65E+00
CO-60	%	2.44E+01	1.70E+01
CR-51	%	7.90E-01	1.40E+00
CS-134	%	9.33E+00	1.47E+01
CS-137	%	2.57E+01	3.89E+01
FE-55	%	1.07E+01	9.65E+00
H-3	%	5.84E+00	1.32E+00
MN-54	%	1.42E+00	1.43E+00
NB-95	%	1.74E+00	4.06E+00
NI-63	%	2.73E+00	1.88E+00
SB-125	%		8.20E-01
ZR-95	%	1.22E+00	2.57E+00

C

CO-58	%	1.73E+01	8.38E+00
CO-60	%	1.61E+01	2.96E+01
FE-55	%	4.16E+01	5.00E+01
H-3	%		5.50E-01
MN-54	%	2.19E+01	7.75E+00
NI-63	%	3.20E+00	2.24E+00
ZR-95	%		9.70E-01

D

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
D			
CO-58	%	3.46E-01	1.28E+00
CO-60	%	8.28E+01	6.33E+01
CS-134	%		2.07E+00
CS-137	%	4.00E-01	5.46E+00
FE-55	%	1.08E+01	1.99E+01
MN-54	%	3.28E+00	3.27E+00
NI-63	%	1.27E+00	2.34E+00
SB-125	%	4.79E-01	7.30E-01

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	4.38E+01
	CI	9.53E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	3.59E+02 *
	CI	2.68E+01 *
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	3.25E+00
	CI	1.19E+04
D. OTHER	M3	6.12E+01 +
NON-COMPRESSIBLE METAL (DAW)	CI	1.01E+00 +

*INCLUDES MATERIAL SHIPPED TO A VENDOR FOR VOL. RED.(3.36E+2 M3, 2.82E+0 CI.)BEFORE BURIAL.
+MATERIAL THAT COULD NOT BE RECYCLED BY THE VENDOR & REQUIRED DISPOSAL.

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:SOUTH CAROLINA ELECTRIC & GAS CO.
DOCKET NO.:50-395   LICENSED POWER (MWT):2.77E+03
THERMAL POWER (MWH):1.61E+07   NET ELECTRIC POWER (MWH):5.05E+06
COMMERCIAL OPERATION:01/01/84   INITIAL CRITICALITY:10/22/82
COOLING WATER SOURCE:MONTICELLO RESERVOIR

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.73E-01
CO-58	1.10E-05
KR-85	4.09E+00
KR-85M	2.03E+00
KR-87	5.25E-03
KR-88	2.91E+00
RB-88	8.44E-03
I-131	2.28E-03
XE-131M	1.52E+00
I-132	2.30E-04
I-133	1.13E-03
XE-133	2.97E+02
XE-133M	1.06E+00
CS-134	3.46E-06
I-134	2.10E-06
I-135	1.05E-04
XE-135	2.27E+01
CS-136	6.90E-06
CS-137	2.25E-05
CS-138	2.75E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	9.67E-06
NA-24	2.66E-04
AR-41	1.20E-04
CR-51	2.76E-02
MN-54	1.72E-02
FE-55	6.12E-02
NI-56	5.62E-06
CO-57	8.98E-04
CO-58	2.34E-01
FE-59	1.83E-03
CO-60	7.16E-02
ZN-65	6.49E-04
SE-75	3.79E-05
KR-85	1.59E-03
KR-85M	4.17E-03
KR-87	9.22E-05
KR-88	2.86E-03
RB-88	1.03E-02
ZR-NB-95	1.72E-02
ZR-97	1.49E-06

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MO-99	4.90E-04
TC-99M	1.10E-03
RU-103	1.16E-03
RU-105	6.26E-05
RU-106	9.77E-04
AG-110M	1.76E-04
SN-113	3.66E-04
SB-124	5.69E-03
SB-125	1.79E-02
I-130	2.56E-04
I-131	4.66E-02
XE-131M	4.16E-02
I-132	1.18E-02
I-133	2.47E-02
XE-133	3.70E+00
XE-133M	4.57E-02
CS-134	1.01E-01
I-134	4.55E-03
I-135	1.64E-02
XE-135	7.13E-02
CS-136	3.21E-03
CS-137	7.18E-02
CS-138	7.05E-04
BA-LA-140	2.23E-03
CE-141	3.14E-04
CE-144	1.59E-03
NP-239	6.16E-06

TOTAL AIRBORNE TRITIUM RELEASE	1.51E+00
TOTAL LIQUID TRITIUM RELEASE	7.55E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.98E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.73E+12

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:SUMMER

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
51	TRUCK	BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE   JULY-DEC

A

CO-58	%	7.57E+00
CO-60	%	2.19E+01
CS-134	%	1.40E+00
CS-137	%	1.10E+00
FE-55	%	5.19E+01
H-3	%	7.03E+00
MN-54	%	2.64E+00
NI-63	%	4.69E+00

B

C-14	%	1.42E+00
CO-58	%	2.14E+01
CO-60	%	7.55E+00
CR-51	%	3.69E+00
CS-134	%	5.99E+00
CS-137	%	5.10E+00
FE-55	%	4.56E+01
H-3	%	3.41E+00
MN-54	%	1.14E+00
NB-95	%	1.23E+00

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

UNIT	YEAR TOTAL
M3	5.08E+01
CI	1.05E+02

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3	1.10E+02 *
CI	1.70E+01

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3	
CI	

D. OTHER

M3	
CI	

*VOLUME INCLUDES COMPACTED AND NON-COMPACTED WASTE (3.58E+2 M3 PRIOR TO RED.)

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE:PWR	LICENSEE:VIRGINIA ELECTRIC &POWER
DOCKET NO.:50-280		LICENSED POWER (MWT):2.44E+03
THERMAL POWER (MWH):8.45E+06		NET ELECTRIC POWER (MWH):2.69E+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 NO.:50-281		LICENSED POWER (MWT):2.44E+03
THERMAL POWER (MWH):1.16E+07		NET ELECTRIC POWER (MWH):3.57E+06
COMMERCIAL OPERATION:05/01/73		INITIAL CRITICALITY:03/07/73
COOLING WATER SOURCE:JAMES RIVER		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.22E+00
CR-51	1.45E-04
MN-54	1.11E-04
CO-57	8.60E-06
CO-58	5.22E-03
CO-60	1.90E-03
SE-75	5.65E-08
KR-85	4.13E+00
KR-85M	1.88E-01
KR-87	9.31E-03
KR-88	1.50E-02
RB-88	2.16E-03
SR-89	1.68E-06
SR-90	2.59E-07
NB-95	7.56E-06
AG-110M	2.63E-10
SB-125	2.04E-05
I-131	9.57E-03
XE-131M	1.97E+00
I-132	1.09E-03
TE-132	2.38E-06
I-133	4.70E-03
XE-133	3.53E+02
XE-133M	6.03E-01
CS-134	8.79E-04
I-134	9.19E-06
I-135	4.17E-04
XE-135	4.56E+00
XE-135M	6.41E-03
CS-137	2.33E-03
CS-138	6.24E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-22	3.71E-06
NA-24	6.66E-04
AR-41	2.56E-04
CR-51	1.61E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	1.11E-02
FE-55	2.83E-01
CO-57	6.98E-04
CO-58	3.38E-01
FE-59	6.61E-03
CO-60	4.42E-01
ZN-65	8.88E-05
KR-85M	8.76E-05
KR-88	1.40E-04
SR-92	5.87E-06
NB-95	1.21E-02
ZR-95	6.18E-03
MO-99	1.48E-04
TC-99M	1.91E-04
RU-103	3.71E-03
AG-110M	7.31E-03
SB-124	4.01E-02
SB-125	3.67E-01
I-131	8.36E-02
XE-131M	8.07E-02
I-132	7.70E-04
TE-132	7.96E-04
I-133	1.57E-03
XE-133	4.78E+00
XE-133M	1.98E-02
CS-134	1.36E-01
I-134	4.16E-05
I-135	5.81E-05
XE-135	4.22E-02
XE-135M	1.75E-04
CS-136	5.42E-04
CS-137	4.97E-01
CS-138	1.80E-05
BA-140	8.86E-03
LA-140	3.10E-03
CE-141	4.63E-05
CE-144	1.21E-04
ND-147	2.56E-05
NP-239	3.80E-05

TOTAL AIRBORNE TRITIUM RELEASE 2.79E+01

TOTAL LIQUID TRITIUM RELEASE 4.94E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.58E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.53E+12

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: SURRY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
15	TRUCK	BARNWELL SC
+ 22	TRUCK	OAK RIDGE TN

+22 SHIPMENTS SENT TO WASTE/PROCESSOR FOR VOLUME REDUCTION.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CO-58	%	3.35E+00	6.59E+00
CO-60	%	4.26E+01	2.26E+01
CS-134	%	6.93E+00	1.38E+01
CS-137	%	2.44E+01	4.36E+01
FE-55	%	6.17E+00	3.82E+00
MN-54	%		1.13E+00
NI-63	%	1.35E+01	6.88E+00
SB-125	%	1.48E+00	

B

CO-58	%		1.28E+00
CO-60	%	5.13E+01	4.82E+01
CS-134	%	2.16E+00	2.82E+00
CS-137	%	7.49E+00	8.93E+00
FE-55	%	2.82E+01	3.00E+01
NI-63	%	8.82E+00	8.44E+00

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT	YEAR TOTAL
M3	4.65E+01
CI	1.79E+02
M3	6.83E+02 *
CI	1.59E+01
M3	
CI	
M3	
CI	

*VOLUME IS NOT ACTUAL VOLUME BURIED. (2.97E+2M3 AFTER VOL. RED.)

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:SUSQUEHANNA

LOCATION:7 MI NE OF BERWICK, PA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1 TYPE:BWR LICENSEE:PENNSYLVANIA POWER & LIGHT CO.
DOCKET NO.:50-387 LICENSED POWER (MWT):3.29E+03
THERMAL POWER (MWH):2.65E+07 NET ELECTRIC POWER (MWH):8.41E+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 CO.
DOCKET NO.:50-388 LICENSED POWER (MWT):3.29E+03
THERMAL POWER (MWH):1.87E+07 NET ELECTRIC POWER (MWH):5.90E+06
COMMERCIAL OPERATION:02/12/85 INITIAL CRITICALITY:05/08/84
COOLING WATER SOURCE:SUSQUEHANNA RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	7.37E-04
MN-54	2.74E-04
CO-58	3.95E-05
CO-60	5.50E-05
SR-89	7.81E-07
I-131	7.07E-04
XE-133	7.25E+01

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	5.02E-03
CR-51	4.44E-02
MN-54	1.93E-02
FE-55	1.37E-02
CO-58	1.73E-04
FE-59	3.70E-04
CO-60	9.24E-03
ZN-65	6.90E-04
AS-76	1.85E-05
AG-110M	1.09E-03
XE-133	4.63E-04
CS-134	4.18E-04
XE-135	6.03E-04
CS-137	4.01E-04

TOTAL AIRBORNE TRITIUM RELEASE 2.05E+01
TOTAL LIQUID TRITIUM RELEASE 1.45E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.39E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.31E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:SUSQUEHANNA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 217
MODE OF TRANSPORTATION TRUCK

DESTINATION
BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS 0
MODE OF TRANSPORTATION N/A

DESTINATION
N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	%	5.20E-01	5.50E-02
CO-58	%	1.34E+00	1.63E+00
CO-60	%	9.93E+00	1.40E+01
CR-51	%	6.31E+00	3.05E+00
CS-134	%		1.50E-02
FE-55	%	6.51E+01	5.96E+01
FE-59	%	8.60E-01	3.78E-01
H-3	%	2.00E-02	1.25E-02
MN-54	%	1.31E+01	1.58E+01
NI-63	%	4.70E-01	6.67E-01
PU-241	%	7.00E-02	6.00E-03
ZN-65	%	2.29E+00	4.78E+00

B

CO-58	%	1.99E+00	2.00E+00
CO-60	%	9.00E+00	9.94E+00
CR-51	%	4.99E+00	4.99E+00
FE-55	%	6.38E+01	6.46E+01
MN-54	%	1.40E+01	1.40E+01
TC-99	%	2.20E+00	4.63E-01
ZN-65	%	4.01E+00	4.00E+00

TYPE OF WASTE

- A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
- B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
- C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
- D. OTHER

UNIT YEAR TOTAL

M3	6.28E+02
CI	2.64E+03
M3	7.03E+02
CI	1.04E+01
M3	
CI	
M3	
CI	

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:METROPOLITAN ED&JERSEY CENTRAL PWR&LGHT
DOCKET NO.:50-289   LICENSED POWER (MWT):2.57E+03
THERMAL POWER (MWH):1.69E+07   NET ELECTRIC POWER (MWH):5.47E+06
COMMERCIAL OPERATION:09/02/74   INITIAL CRITICALITY:06/05/74
COOLING WATER SOURCE:SUSQUEHANNA RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.24E+00
CR-51	2.35E-07
CO-58	9.92E-07
KR-85	8.64E+00
KR-85M	1.34E+00
KR-87	5.57E-04
KR-88	1.10E-01
NB-95	1.38E-08
AG-110M	4.34E-08
I-131	1.26E-03
XE-131M	1.18E+01
I-132	3.31E-06
I-133	7.70E-04
XE-133	1.79E+03
XE-133M	1.44E+01
I-135	1.12E-03
XE-135	3.60E+01
XE-135M	1.38E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.93E-03
MN-54	7.76E-05
FE-55	7.61E-03
CO-58	2.29E-02
FE-59	1.77E-05
CO-60	6.23E-04
SR-89	2.24E-05
SR-90	3.54E-06
NB-95	3.01E-04
ZR-95	1.14E-04
RU-103	6.44E-06
AG-110M	1.54E-03
SB-125	2.18E-04
I-131	1.93E-03
XE-133	6.76E-02
XE-133M	4.01E-04
CS-134	3.02E-03
XE-135	7.42E-04
CS-136	6.60E-05
CS-137	6.25E-03
LA-140	2.72E-05

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:THREE MILE ISLAND 1

LOCATION:10 MI SE HARRISBURG, PA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

TOTAL AIRBORNE TRITIUM RELEASE 6.03E+00

TOTAL LIQUID TRITIUM RELEASE 3.02E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.86E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.68E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:THREE MILE ISLAND 1

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	TRACTOR-CASK(CNSI 8-120B)	BARNWELL SC
1	TRACTOR-CASK(HN-100 SERIES3)	BARNWELL SC
2	TRACTOR-CASK (HN-200)	BARNWELL SC
3	TRACTOR-CASK(NUPAC 14/190M)	HANFORD-RICHLAND WA
1	TRACTOR-CLOSED VAN	BARNWELL SC
1	TRACTOR-CLOSED VAN	HANFORD-RICHLAND WA
* 1	TRACTOR-CLOSED VAN	SEG-OAK RIDGE TN
14	TRACTOR-FLATBED	HANFORD-RICHLAND WA
* 1	TRACTOR-FLATBED	QUADREX RECYCLE-OAK RIDGE TN

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A			
	CO-58	% 3.35E+01	6.33E+01
	CS-134	% 1.80E+01	1.29E+01
	CS-137	% 2.98E+01	1.59E+01
	NI-63	% 7.40E+00	3.98E+00
B			
	CO-58	%	4.88E+01
	CR-51	%	4.91E+00
	CS-137	%	1.32E+01
	FE-55	%	5.55E+00
	NI-63	%	9.36E+00

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	1.24E+02
BOTTOMS, ETC.	CI	6.90E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	1.13E+02
EQUIPMENT, ETC.	CI	2.46E+00
C. IRRADIATED COMPONENTS, CONTROL	M3	
RODS, ETC.	CI	
D. OTHER	M3	
	CI	

*MATERIAL SENT TO WASTE PROCESSOR FOR VOLUME REDUCTION.

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:THREE MILE ISLAND 2*

LOCATION:10 MI SE HARRISBURG, PA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:PWR   LICENSEE:METROPOLITAN ED&JERSEY CENTRAL PWR&LGHT
DOCKET NO.:50-320   LICENSED POWER (MWT):2.77E+03
THERMAL POWER (MWH):0.00E+00   NET ELECTRIC POWER (MWH):0.00E+00
COMMERCIAL OPERATION:12/30/78   INITIAL CRITICALITY:03/28/78
COOLING WATER SOURCE:SUSQUEHANNA RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
KR-85	4.40E-01
SR-90	6.30E-08
CS-137	9.61E-06
UNIDENTIFIED	5.81E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-90	6.04E-04
CS-134	3.65E-06
CS-137	5.18E-04

TOTAL AIRBORNE TRITIUM RELEASE   1.14E+01
TOTAL LIQUID TRITIUM RELEASE   5.49E-03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	5.84E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.70E+10

* INCLUDING EPICOR II

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
2	TRACTOR-CASK(CNSI 21-300)	BARNWELL SC
24	TRACTOR-CASK(CNSI 8-120B)	BARNWELL SC
12	TRACTOR-CASK (HN-200)	BARNWELL SC
16	TRACTOR-CASK (HN-200)	HANFORD-RICHLAND WA
21	TRACTOR-CASK(NUPAC 14/190M)	HANFORD-RICHLAND WA
2	TRACTOR-CLOSED VAN	BARNWELL SC
8	TRACTOR-CLOSED VAN	HANFORD-RICHLAND WA
8	TRACTOR-FLATBED	HANFORD-RICHLAND WA
+ 7	TRACTOR-FLATBED	SEG-OAK RIDGE TN

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
9	RAIL CAR-NUPAC 125B	INEL-SCOVILLE ID
12	RAIL CASK-NUPAC 125B	INEL-SCOVILLE ID

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CS-134	%	8.26E-01
CS-137	% 2.26E+01	4.69E+01
PM-147	% 5.98E+00	8.62E+00
SB-125	% 1.06E+00	
SR-90	% 6.71E+01	4.12E+01

B

CS-134	% 2.95E-01	2.87E-01
CS-137	% 1.52E+01	1.48E+01
PM-147	% 2.72E-01	8.43E-01
PU-241	%	3.49E-01
SR-90	% 8.31E+01	8.28E+01
TC-99	% 2.83E-01	

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3 1.73E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	CI 6.53E+03
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3 7.44E+02 @
D. OTHER	CI 6.51E+02
	M3
	CI
	M3
	CI

*INCLUDING EPICOR II

+MATERIAL SENT TO WASTE PROCESSOR FOR VOLUME REDUCTION
@VOLUME PRE-COMPACTION

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:PORTLAND GENERAL ELECTRIC
DOCKET NO.:50-344   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):1.98E+07   NET ELECTRIC POWER (MWH):6.34E+06
COMMERCIAL OPERATION:05/20/76   INITIAL CRITICALITY:12/15/75
COOLING WATER SOURCE:COLUMBIA RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	8.46E-01
CO-58	1.85E-04
CO-60	4.27E-06
KR-85	2.73E+00
KR-85M	3.55E-01
KR-87	9.72E-02
KR-88	1.17E-01
SR-89	1.74E-05
SR-90	7.29E-06
NB-95	3.15E-06
MO-99	1.08E-08
I-131	2.88E-03
XE-131M	2.51E+00
I-132	2.25E-07
I-133	1.02E-03
XE-133	3.84E+02
XE-133M	1.36E+00
CS-134	2.18E-08
I-135	7.01E-06
XE-135	6.45E+00
XE-135M	7.13E-01
CS-137	5.48E-08
XE-137	2.06E-01
XE-138	2.54E-01
BA-140	7.75E-09
ND-147	3.60E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	2.04E-02
MN-54	1.27E-03
FE-55	7.50E-02
CO-57	5.02E-05
CO-58	2.53E-02
FE-59	6.76E-04
CO-60	3.51E-02
SR-89	2.20E-03
SR-90	3.79E-04
NB-95	6.02E-03
ZR-95	3.28E-03
MO-99	1.46E-05
TC-99M	1.54E-05
RU-103	2.63E-03

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:TROJAN

LOCATION:35 MI NW PORTLAND, OR

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
RU-106	1.81E-02
AG-110M	1.91E-03
SN-113	3.06E-04
SB-125	3.22E-03
I-131	2.64E-04
XE-131M	1.64E-03
XE-133	3.72E-02
XE-133M	1.56E-05
CS-134	3.12E-04
XE-135	1.41E-04
CS-137	7.92E-04
LA-140	2.38E-04
CE-141	2.01E-04
CE-144	2.93E-03
UNIDENTIFIED	4.39E-06

TOTAL AIRBORNE TRITIUM RELEASE	6.44E+01
TOTAL LIQUID TRITIUM RELEASE	3.75E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.46E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.39E+10

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:TROJAN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 13
MODE OF TRANSPORTATION
EXCLUSIVE TRUCK

DESTINATION
US ECOLOGY-RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS 0
MODE OF TRANSPORTATION
N/A

DESTINATION
N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A			
AG-110M	%		6.00E-02
C-14	%	7.00E-02	3.00E+00
CE-144	%	7.00E-02	3.00E-01
CM-242	%		4.00E-02
CO-57	%		4.00E-02
CO-58	%	8.64E+00	7.30E+00
CO-60	%	3.01E+01	1.33E+01
CR-51	%		4.00E-02
CS-134	%	7.30E+00	1.22E+00
CS-137	%	1.28E+01	2.91E+00
FE-55	%	1.21E+01	2.46E+01
H-3	%	5.80E-01	3.12E+01
MN-54	%	1.63E+00	5.90E-01
NB-95	%		3.00E-02
NI-63	%	2.56E+01	1.00E+01
PU-238	%		2.00E-02
PU-239/240	%		3.00E-02
PU-241	%	2.20E-01	2.77E+00
RU-106	%		1.95E+00
SB-125	%	2.40E-01	4.80E-01
SR-89	%	1.40E-01	5.00E-02
SR-90	%	4.80E-01	4.00E-02
ZR-95	%		6.00E-02
B			
AG-110M	%	8.60E-01	
C-14	%	9.00E-02	1.06E+01
CE-144	%	1.56E+00	1.37E+00
CO-58	%	8.21E+00	5.25E+00
CO-60	%	3.14E+01	1.13E+01
CR-51	%		3.00E-01
CS-134	%	9.00E-02	8.00E-02
CS-137	%	3.50E-01	6.10E-01
FE-55	%	3.35E+01	2.46E+01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:TROJAN

. EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
H-3	%	2.33E+00	3.19E+01
MN-54	%	1.21E+00	1.06E+00
NB-95	%	3.50E-01	2.30E-01
NI-63	%	1.63E+01	5.17E+00
PU-239/240	%		8.00E-02
PU-241	%	1.81E+00	3.35E+00
RU-103	%		1.50E-01
RU-106	%	3.50E-01	3.04E+00
SB-125	%	1.21E+00	1.50E-01
ZR-95	%	4.30E-01	7.60E-01

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	9.35E+01	
	CI	4.27E+02	
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	1.55E+02	
	CI	5.86E+00	
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3		
	CI		
D. OTHER	M3		
	CI		

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 3   TYPE: PWR   LICENSEE: FLORIDA POWER & LIGHT
DOCKET NO.: 50-250   LICENSED POWER (MWT): 2.20E+03
THERMAL POWER (MWH): 1.14E+07   NET ELECTRIC POWER (MWH): 3.45E+06
COMMERCIAL OPERATION: 12/14/72   INITIAL CRITICALITY: 10/20/72
COOLING WATER SOURCE: CLOSED CYCLE CANAL

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	8.44E-01
CR-51	1.24E-05
MN-54	2.62E-06
CO-58	1.99E-05
CO-60	1.70E-05
BR-82	6.22E-04
KR-85	1.38E+00
KR-85M	5.98E-01
KR-87	8.26E-03
KR-88	4.00E-02
SR-89	2.13E-06
I-131	3.90E-03
XE-131M	1.56E+01
I-133	4.23E-03
XE-133	1.20E+03
XE-133M	6.94E+00
CS-134	2.06E-05
I-135	1.97E-03
XE-135	1.87E+01
CS-136	6.06E-06
CS-137	6.13E-05
BA-140	2.93E-05
LA-140	1.90E-06
CE-144	1.20E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.48E-05
CR-51	7.82E-03
MN-54	1.50E-02
FE-55	4.65E-02
CO-57	3.34E-06
CO-58	2.61E-02
FE-59	5.03E-04
CO-60	1.84E-01
ZN-65	1.70E-05
KR-85	1.04E-02
KR-85M	2.84E-04
SR-89	1.95E-04
SR-90	5.25E-05
NB-95	2.23E-04
ZR-95	6.21E-05
NB-97	3.34E-06

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MO-99-TC-99M	4.85E-04
RU-103	6.96E-05
AG-110M	2.14E-03
SN-117M	3.99E-05
SB-124	2.58E-03
SB-125	1.82E-02
I-131	2.30E-03
XE-131M	5.42E-03
I-133	2.55E-04
XE-133	3.92E-01
XE-133M	3.83E-03
CS-134	4.56E-03
XE-135	5.40E-04
XE-135M	1.61E-05
CS-136	7.29E-03
CS-137	1.04E-02
BA-139	2.84E-04
CE-139	1.11E-06
LA-140	2.15E-03

TOTAL AIRBORNE TRITIUM RELEASE	2.01E+02
TOTAL LIQUID TRITIUM RELEASE	2.99E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	7.73E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.95E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 4   TYPE:PWR   LICENSEE:FLORIDA POWER & LIGHT
DOCKET NO.:50-251   LICENSED POWER (MWT):2.20E+03
THERMAL POWER (MWH):1.06E+07   NET ELECTRIC POWER (MWH):3.26E+06
COMMERCIAL OPERATION:09/07/73   INITIAL CRITICALITY:06/11/73
COOLING WATER SOURCE:CLOSED CYCLE CANAL

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.91E+01
CR-51	1.24E-05
MN-54	2.62E-06
CO-58	1.99E-05
CO-60	1.68E-05
BR-82	6.22E-04
KR-85	1.51E+00
KR-85M	6.36E-01
KR-87	7.30E-03
KR-88	7.68E-02
SR-89	2.13E-06
I-131	3.85E-03
XE-131M	1.38E+01
I-133	4.22E-03
XE-133	1.23E+03
XE-133M	7.51E+00
CS-134	2.06E-05
I-135	1.97E-03
XE-135	1.94E+01
CS-136	6.06E-06
CS-137	6.11E-05
BA-140	2.93E-05
LA-140	1.90E-06
CE-144	1.20E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.48E-05
CR-51	7.82E-03
MN-54	1.50E-02
FE-55	4.65E-02
CO-57	3.34E-06
CO-58	2.61E-02
FE-59	5.03E-04
CO-60	1.84E-01
ZN-65	1.70E-05
KR-85	1.04E-02
KR-85M	2.84E-04
SR-89	1.95E-04
SR-90	5.25E-05
NB-95	2.23E-04
ZR-95	6.21E-05
NB-97	3.34E-06

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MO-99-TC-99M	4.85E-04
RU-103	6.96E-05
AG-110M	2.14E-03
SN-117M	3.99E-05
SB-124	2.58E-03
SB-125	1.82E-02
I-131	1.45E-03
XE-131M	5.42E-03
I-133	6.28E-05
XE-133	3.92E-01
XE-133M	3.83E-03
CS-134	4.56E-03
XE-135	5.40E-04
XE-135M	1.61E-05
CS-136	7.29E-03
CS-137	1.04E-02
BA-139	2.84E-04
CE-139	1.11E-06
LA-140	2.15E-03

TOTAL AIRBORNE TRITIUM RELEASE	2.01E+02
TOTAL LIQUID TRITIUM RELEASE	2.99E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	7.73E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.95E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:TURKEY POINT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
10	SOLE USE TRUCK	BARNWELL SC
+ 12	SOLE USE TRUCK	OAK RIDGE TN

+SHIPPED TO WASTE PROCESSOR FOR VOLUME REDUCTION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-58	%	2.00E+00	2.00E+00
CO-60	%	5.40E+01	5.40E+01
CS-134	%	3.00E+00	3.00E+00
CS-137	%	9.00E+00	9.00E+00
FE-55	%	1.70E+01	1.70E+01
I-131	%	3.00E+00	3.00E+00
MN-54	%	1.00E+00	1.00E+00
NI-63	%	9.00E+00	9.00E+00
SB-125	%	1.00E+00	1.00E+00

B

C-14	%		1.40E+01
CO-58	%	7.00E+00	
CO-60	%	3.80E+01	5.60E+01
CS-137	%		1.00E+00
FE-55	%	4.10E+01	1.20E+01
H-3	%		3.00E+00
MN-54	%	2.00E+00	1.00E+00
NB-95	%	1.00E+00	
NI-63	%	7.00E+00	1.00E+01
SB-125	%	1.00E+00	1.00E+00
TRU	%	1.00E+00	

D

AG-110M	%		6.00E+00
CO-60	%		5.10E+01
CS-137	%	1.00E+02	3.10E+01
FE-55	%		8.00E+00
MN-54	%		1.00E+00
NI-63	%		3.00E+00

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	3.37E+01
	CI	7.04E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	5.39E+01 *
	CI	4.61E-01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	0.00E+00
	CI	0.00E+00
D. OTHER	M3	1.99E+01 *
NON-COMPRESSIBLE METAL WASTE	CI	2.54E-01

*TYPE B & D WASTE IS VOL. BURIED (5.57E2 M3 & 1.09E2 M3 RESPECTIVELY, BEFORE REDUCTION)

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:VERMONT YANKEE

LOCATION:5 MI S BRATTLEBORO, VT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:BWR   LICENSEE:VERMONT YANKEE NUCLEAR POWER
DOCKET NO.:50-271   LICENSED POWER (MWT):1.59E+03
THERMAL POWER (MWH):1.30E+07   NET ELECTRIC POWER (MWH):4.11E+06
COMMERCIAL OPERATION:11/30/72   INITIAL CRITICALITY:03/24/72
COOLING WATER SOURCE:CONNECTICUT RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	9.82E-05
CO-58	9.78E-07
CO-60	2.54E-03
ZN-65	7.99E-05
SR-89	1.12E-04
SR-90	4.61E-06
I-131	3.47E-03
I-133	4.97E-03
CS-134	2.78E-05
CS-137	2.21E-04

TOTAL AIRBORNE TRITIUM RELEASE   4.39E+01
TOTAL LIQUID TRITIUM RELEASE   0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	0.00E+00
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	0.00E+00

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:VERMONT YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS
20

MODE OF TRANSPORTATION
TRUCK

DESTINATION
BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

AG-110M	%	9.99E-01	7.58E-01
C-14	%	5.73E-02	7.47E-02
CO-58	%	2.20E+00	1.13E+00
CO-60	%	1.93E+01	1.99E+01
CR-51	%	1.02E+00	4.25E-01
CS-134	%	9.98E+00	5.63E+00
CS-137	%	1.42E+01	1.31E+01
CU-242	%		6.17E-05
FE-55	%	1.05E+01	2.38E+01
FE-59	%	3.22E-01	1.62E-01
H-3	%	1.12E-01	1.03E-01
I-129	%	1.43E-02	5.14E-03
I-131	%		2.51E-02
MN-54	%	7.22E+00	5.21E+00
NB-95	%	5.83E-01	1.27E-01
NI-63	%	6.63E-01	2.32E+00
PU-241	%		7.57E-02
SR-90	%	2.53E-01	5.21E-02
SR-92	%	7.15E-02	
TC-99	%	8.32E-01	8.90E-03
TRANSURANICS	%		1.35E-03
ZN-65	%	3.14E+01	2.72E+01
ZR-95	%	2.31E-01	2.58E-03

B

C-14	%		1.25E-02
CO-58	%	9.60E-02	5.33E-02
CO-60	%	5.37E+01	4.91E+01
CS-134	%	2.59E-01	3.46E-01
CS-137	%	6.86E+00	5.05E+00
CU-242	%		1.83E-04
FE-55	%	3.41E+01	4.00E+01
H-3	%	2.69E-01	3.30E-01
I-129	%		1.67E-03
MN-54	%	2.22E+00	2.56E+00
PU-241	%	6.40E-02	2.49E-01
SR-90	%		5.90E-02
TC-99	%	2.10E-02	1.54E-02
TRANSURANICS	%		1.20E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:VERMONT YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
B			
	ZN-65	% 2.30E+00	2.16E+00
	ZR-95	% 9.20E-02	4.97E-02

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	7.52E+01
	CI	4.17E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	9.82E+01 *
	CI	7.65E+00
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

*AFTER COMPACTION

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:VOGTLE

LOCATION:25 MI SSE OF AUGUSTA, GA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:GEORGIA POWER
DOCKET NO.:50-424   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):2.18E+07   NET ELECTRIC POWER (MWH):6.79E+06
COMMERCIAL OPERATION:06/01/87   INITIAL CRITICALITY:03/09/87
COOLING WATER SOURCE:SAVANNAH RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	5.28E-07
BE-7	6.58E-06
AR-41	3.16E+01
CO-58	1.49E-06
KR-85	6.37E-05
KR-85M	1.13E-04
KR-88	3.79E-04
I-131	9.45E-06
I-133	4.84E-05
XE-133	7.75E+01
XE-133M	5.44E-02
XE-135	6.28E+00

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	8.25E-04
NA-24	3.90E-03
CR-51	2.62E-01
MN-54	4.72E-02
FE-55	1.97E-01
CO-57	2.26E-03
CO-58	9.48E-01
FE-59	3.20E-02
CO-60	5.19E-02
NI-65	1.73E-05
ZN-65	1.41E-03
KR-85M	1.31E-05
RB-86	2.29E-05
KR-88	3.64E-04
Y-92	1.54E-05
NB-95	3.10E-02
ZR-95	1.99E-02
NB-97	1.09E-05
ZR-97	1.51E-05
MO-99	1.03E-03
TC-99M	1.24E-03
RU-103	3.34E-05
RU-105	3.73E-05
SB-122	1.19E-03
SB-124	2.28E-02
SB-125	1.60E-02
TE-129M	2.94E-03
I-131	2.75E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:VOGTLE

LOCATION:25 MI SSE OF AUGUSTA, GA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-131M	8.63E-03
I-132	1.89E-04
TE-132	4.60E-05
I-133	4.75E-03
XE-133	8.56E-01
XE-133M	6.11E-03
I-135	1.39E-03
XE-135	1.66E-02
XE-135M	1.03E-03
CS-137	1.55E-04
BA-139	3.59E-05
LA-140	5.87E-04
PR-144	1.66E-03
HF-181	1.79E-03
W-187	2.59E-03

TOTAL AIRBORNE TRITIUM RELEASE	8.33E+01
TOTAL LIQUID TRITIUM RELEASE	3.90E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	8.50E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.11E+09

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:VOGTLE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
4	TRACTOR AND SHIELDED CASE	BARNWELL SC
3	TRACTOR TRAILER	SEG OAK RIDGE TN

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0	N/A	N/A

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE   JULY-DEC

A			
	CO-58	%	6.67E+01
	FE-55	%	7.90E+00
	OTHERS	%	2.56E+01
B			
	CO-58	%	3.81E+01
	FE-55	%	2.57E+01
	OTHERS	%	3.62E+01

TYPE OF WASTE

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
D. OTHER

UNIT	YEAR TOTAL
M3	2.08E+01
CI	2.53E+01
M3	2.64E+01 *
CI	1.72E-01
M3	
CI	
M3	
CI	

*VOLUME AFTER REDUCTION BY SEG (1.77E+2 M3 PRIOR TO REDUCTION)

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 3   TYPE:PWR   LICENSEE:LOUISIANA POWER & LIGHT
DOCKET NO.:50-382   LICENSED POWER (MWT):3.39E+03
THERMAL POWER (MWH):1.87E+07   NET ELECTRIC POWER (MWH):6.00E+06
COMMERCIAL OPERATION:09/24/85   INITIAL CRITICALITY:03/04/85
COOLING WATER SOURCE:MISSISSIPPI RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	1.88E-04
AR-41	5.26E-01
CR-51	6.56E-05
MN-54	8.88E-06
CO-57	1.11E-07
CO-58	1.39E-04
CO-60	3.46E-05
KR-85	1.29E+01
KR-85M	3.60E-01
KR-88	1.57E-01
NB-95	5.30E-05
ZR-95	2.34E-05
RU-103	1.45E-07
RU-106	1.99E-06
I-131	8.69E-04
XE-131M	1.75E+01
I-133	5.51E-06
XE-133	5.08E+03
XE-133M	5.12E+00
CS-134	2.95E-07
XE-135	1.88E+02
CS-137	4.13E-06
HG-203	4.03E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	1.20E-05
NA-24	1.41E-03
AR-41	1.29E-05
CR-51	6.43E-02
MN-54	7.52E-03
FE-55	1.27E-01
CO-57	7.18E-04
CO-58	5.12E-01
FE-59	8.20E-03
CO-60	3.97E-02
ZN-65	1.68E-04
KR-85	1.45E-01
KR-85M	4.65E-03
KR-87	8.88E-04
KR-88	5.61E-03
RB-88	8.75E-02
SR-89	4.40E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-90	1.13E-05
SR-92	3.27E-04
NB-95	2.78E-02
ZR-95	1.62E-02
NB-97	1.76E-03
ZR-97	3.29E-04
MO-99	1.04E-03
TC-99M	1.06E-03
RU-103	2.19E-03
RU-106	1.93E-03
AG-110M	1.03E-02
SN-113	1.09E-02
SB-122	1.70E-02
SB-124	5.21E-02
SB-125	1.20E-01
SB-127	1.10E-03
I-131	1.00E-01
XE-131M	4.11E-01
I-132	3.92E-04
TE-132	8.63E-04
I-133	4.35E-03
XE-133	4.79E+01
XE-133M	2.85E-01
CS-134	6.68E-02
XE-135	1.35E-01
CS-136	3.75E-04
CS-137	1.05E-01
CS-138	3.12E-03
BA-139	4.64E-03
CE-139	1.38E-05
BA-140	2.38E-05
LA-140	6.45E-03
CE-141	3.51E-04
CE-144	1.41E-03
W-187	7.88E-04
NP-239	4.87E-03

TOTAL AIRBORNE TRITIUM RELEASE 2.46E+02
TOTAL LIQUID TRITIUM RELEASE 5.03E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.14E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.80E+11

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION:WATERFORD

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
3	TRUCK	BARNWELL SC
11	TRUCK	BEATTY NV
2	TRUCK	OAK RIDGE TN

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	%	4.00E-02	1.72E-01
CO-58	%	1.54E+01	8.75E+00
CO-60	%	3.77E+00	2.87E+00
CS-134	%	2.33E+01	2.94E+01
CS-137	%	4.45E+01	4.73E+01
FE-55	%	3.69E+00	2.99E+00
H-3	%	7.00E-02	1.80E-02
I-131	%	3.00E-01	
MN-54	%	3.03E+00	1.97E+00
NI-63	%	5.64E+00	6.44E+00
PU-241	%		3.00E-03
SR-90	%		7.70E-02

B

C-14	%	1.70E-01	6.00E-02
CO-58	%	2.05E+01	4.28E+01
CO-60	%	3.62E+00	3.30E+00
CS-134	%	1.83E+01	1.36E+01
CS-137	%	4.03E+01	2.43E+01
FE-55	%	9.53E+00	8.97E+00
I-131	%	3.48E+00	1.94E+00
MN-54	%	2.06E+00	1.76E+00
NI-63	%	2.15E+00	3.46E+00

C

C-14	%		3.00E-03
CO-58	%		4.55E+00
CO-60	%		7.25E+01
FE-55	%		1.50E+01
MN-54	%		1.91E+00
NI-59	%		4.40E-02
NI-63	%		5.51E+00

D

C-14	%		4.60E-02
CO-58	%		1.61E+00
CO-60	%		1.38E+01
CS-137	%		3.37E-01
FE-55	%		7.37E+01

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)	JAN-JUNE	JULY-DEC
D		
I-129	%	1.90E-02
MN-54	%	1.80E+00
NI-63	%	8.62E+00
PU-241	%	2.10E-02

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	3.09E+01	
	CI	5.33E+02	
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.46E+02 *	
	CI	5.86E+00	
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	7.36E-01	
	CI	3.85E+03	
D. OTHER	M3	3.41E+00	
DEWATERED FILTERS	CI	3.85E+01	

*VOLUME BEFORE COMPACTION (1.82E2 M3 AFTER COMPACTION)

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE:BWR   LICENSEE:WASHINGTON PUBLIC POWER SUPPLY SYSTEM
DOCKET NO.:50-397   LICENSED POWER (MWT):3.32E+03
THERMAL POWER (MWH):2.06E+07   NET ELECTRIC POWER (MWH):6.54E+06
COMMERCIAL OPERATION:12/13/84   INITIAL CRITICALITY:01/19/84
COOLING WATER SOURCE:COLUMBIA RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.87E-03
AR-41	6.18E-01
CR-51	1.54E-02
MN-54	7.00E-04
MN-56	9.30E-04
CO-58	2.73E-03
CO-60	6.81E-03
CU-64	1.44E-02
ZN-65	4.27E-02
ZN-69M	7.06E-04
AS-76	4.80E-05
BR-82	1.99E-05
KR-85	3.40E-02
KR-85M	4.39E+01
KR-87	1.66E+01
KR-88	5.20E+01
SR-89	8.81E-05
SR-90	1.88E-06
ZR-NB-95	1.31E-04
MO-99	1.20E-03
TC-99M	8.87E-03
AG-110M	4.20E-06
I-131	9.00E-02
XE-131M	6.23E+00
I-132	6.74E-03
I-133	4.02E-02
XE-133	5.64E+02
XE-133M	4.00E+01
CS-134	4.50E-04
I-135	1.36E-03
XE-135	1.15E+02
XE-135M	4.51E+01
CS-137	2.80E-04
CS-138	2.49E-01
XE-138	1.65E+01
BA-139	1.00E-02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.03E-03
MN-54	6.40E-05
FE-55	4.81E-05
CO-58	1.50E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:WNP-2

LOCATION:12 MI NW OF RICHLAND, WA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	9.98E-04
ZN-65	2.00E-03
SR-89	4.18E-05
SR-90	1.85E-06
ZR-NB-95	6.60E-05
AG-110M	7.80E-04
I-131	2.10E-04
XE-131M	1.90E-04
XE-133	1.09E-03
CS-134	2.89E-04
XE-135	7.75E-04
CS-137	3.74E-04

TOTAL AIRBORNE TRITIUM RELEASE	8.59E+00
TOTAL LIQUID TRITIUM RELEASE	1.38E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.21E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.67E+09

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
3	10-142 CASK	US ECOLOGY RICHLAND WA
14	14-170 CASK	US ECOLOGY RICHLAND WA
5	14-210H CASK	US ECOLOGY RICHLAND WA
11	14D-2.0 CASK	US ECOLOGY RICHLAND WA
10	FLAT BED TRAILER	US ECOLOGY RICHLAND WA
2	LN-142 CASK	US ECOLOGY RICHLAND WA
1	SHIELDED VAN	US ECOLOGY RICHLAND WA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-58	8	4.69E+00	2.85E+00
CO-60	8	1.62E+01	1.76E+01
CR-51	8	7.76E+00	9.38E+00
CS-134	8	2.22E+00	3.70E+00
CS-137	8	2.47E+00	4.53E+00
FE-55	8	3.01E+00	5.45E+00
MN-54	8	1.89E+00	1.65E+00
NB-95	8	3.08E+00	1.91E+00
ZN-65	8	5.46E+01	5.01E+01
ZR-95	8	1.73E+00	1.21E+00

B

CO-58	8	1.66E+00	8.46E-01
CO-60	8	3.37E+01	3.19E+01
CR-51	8	4.06E+00	
CS-134	8		4.71E-01
CS-137	8	3.36E-01	
FE-55	8	1.03E+01	1.98E+01
H-3	8	3.31E+00	4.13E-01
MN-54	8	1.45E+00	1.94E+00
NB-95	8	1.37E+00	7.92E-01
NI-63	8	1.94E+00	1.73E+00
SB-125	8		3.87E-01
ZN-65	8	3.82E+01	3.22E+01

D

CO-57	8	7.39E-02	
CO-60	8	7.65E+01	
MN-54	8	5.61E+00	
NI-63	8	6.90E-01	
ZN-65	8	1.70E+01	

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		2.45E+02
BOTTOMS, ETC.	CI		1.01E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		2.24E+02
EQUIPMENT, ETC.	CI		5.26E+00
C. IRRADIATED COMPONENTS, CONTROL	M3		
RODS, ETC.	CI		
D. OTHER	M3		8.50E-01
	CI		7.59E-02

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:KANSAS GAS & ELEC
DOCKET NO.:50-482   LICENSED POWER (MWT):3.41E+03
THERMAL POWER (MWH):2.01E+07   NET ELECTRIC POWER (MWH):6.66E+06
COMMERCIAL OPERATION:09/03/85   INITIAL CRITICALITY:05/22/85
COOLING WATER SOURCE:COOLING LAKE

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ALPHA	8.05E-08
AR-41	9.72E-01
CO-58	1.09E-05
CO-60	1.61E-05
KR-85	1.17E+00
KR-85M	7.66E-01
KR-87	2.82E-04
KR-88	1.10E+00
I-131	5.66E-05
XE-131M	4.09E+00
XE-133	7.57E+02
XE-133M	7.66E+00
XE-135	1.88E+01

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	4.19E-06
AR-41	1.80E-04
CR-51	1.97E-02
MN-54	1.21E-02
FE-55	7.66E-02
CO-57	7.04E-04
CO-58	1.47E-01
FE-59	8.69E-03
CO-60	6.32E-02
ZN-65	3.47E-04
KR-85	1.57E-01
KR-85M	6.08E-04
KR-88	2.87E-04
RB-88	4.22E-03
SR-89	2.79E-03
SR-90	3.18E-05
SR-92	1.75E-04
NB-95	5.30E-03
ZR-95	1.84E-03
NB-97	1.62E-03
MO-99	2.01E-03
TC-99M	3.62E-05
AG-110M	3.47E-03
SN-113	1.64E-03
SN-117M	3.22E-05
SB-124	2.04E-03
SB-125	1.79E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-131	1.41E-03
XE-131M	1.72E-01
I-133	4.43E-06
XE-133	8.05E+00
XE-133M	4.08E-02
CS-134	1.19E-03
I-134	3.67E-06
XE-135	1.27E-02
XE-135M	1.62E-03
CS-137	1.96E-03
CS-138	3.25E-04
BA-139	2.93E-05
LA-140	6.76E-05
CE-141	1.02E-04
CE-144	1.46E-03
HF-181	2.34E-04

TOTAL AIRBORNE TRITIUM RELEASE	1.46E+02
TOTAL LIQUID TRITIUM RELEASE	4.06E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	8.41E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.65E+10

N/A-NOT APPLICABLE
N/D-NOT DETECTED
N/R-NOT REPORTED

INSTALLATION:WOLF CREEK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
8	TRUCK
1	TRUCK

DESTINATION
BARNWELL SC
BEATTY NV

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

C-14	%	2.80E-02
CE-144	%	3.67E-01
CO-57	%	3.57E-01
CO-58	%	4.44E+01
CO-60	%	1.68E+01
CR-51	%	2.65E+00
CS-137	%	1.41E-01
FE-55	%	2.64E+01
FE-59	%	1.04E+00
H-3	%	2.03E-01
HF-181	%	8.60E-02
I-131	%	3.20E-01
MN-54	%	4.87E+00
NB-95	%	9.87E-01
NI-63	%	4.66E-01
SN-113	%	5.60E-02
SR-89	%	1.01E-01
SR-90	%	1.69E-04
ZR-95	%	7.36E-01

B

C-14	%	7.50E-02	5.70E-02
CO-57	%	3.15E+00	2.58E+00
CO-58	%	3.23E+01	3.88E+01
CO-60	%	2.15E+01	1.65E+01
CR-51	%	2.25E+00	7.88E+00
FE-55	%	3.34E+01	2.59E+01
FE-59	%	2.51E+00	4.42E+00
MN-54	%	4.77E+00	3.87E+00

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.
B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.
C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.
D. OTHER

M3	8.20E+00
CI	1.27E+03
M3	1.16E+02 *
CI	1.66E+00
M3	
CI	
M3	
CI	

*VOLUME AFTER COMPACTION

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE:PWR   LICENSEE:YANKEE ATOMIC ELECTRIC
DOCKET NO.:50-29   LICENSED POWER (MWT):6.00E+02
THERMAL POWER (MWH):4.03E+06   NET ELECTRIC POWER (MWH):1.12E+06
COMMERCIAL OPERATION:07/01/61   INITIAL CRITICALITY:08/19/60
COOLING WATER SOURCE:DEERFIELD RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
C-14	6.41E-01
AR-37	7.11E-01
AR-41	<8.64E-01
CR-51	<1.24E-05
MN-54	<2.26E-06
CO-58	<2.18E-06
FE-59	<4.48E-06
CO-60	6.98E-06
ZN-65	<4.84E-06
KR-85	4.10E+00
KR-85M	1.94E+00
KR-87	<1.69E+00
KR-88	<3.53E+00
SR-89	<9.84E-07
SR-90	<4.32E-07
ZR-NB-95	<3.51E-06
MO-99	<1.37E-05
RU-103	<1.67E-06
AG-110M	<1.92E-06
SB-124	<1.99E-06
I-131	5.04E-05
XE-131M	1.10E+00
I-133	1.61E-05
XE-133	1.02E+02
XE-133M	2.07E+00
CS-134	<1.78E-06
I-135	<1.49E-06
XE-135	3.89E+01
XE-135M	<4.75E+01
CS-137	1.50E-06
XE-138	<8.20E-01
BA-LA-140	<6.07E-06
CE-141	<1.69E-06
CE-144	<7.33E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
C-14	6.45E-02
CR-51	<1.01E-03
MN-54	<8.31E-05
FE-55	<4.07E-03
CO-58	<1.17E-04
FE-59	<2.35E-04

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	1.47E-04
ZN-65	<2.52E-04
SE-75	<1.39E-04
KR-85	<5.29E-02
SR-89	<7.97E-04
SR-90	<3.53E-04
ZR-NB-95	<2.02E-04
MO-99	<8.53E-04
TC-99M	<4.72E-05
RU-103	<1.27E-04
AG-110M	<1.19E-04
SB-124	<1.25E-04
SB-125	<3.63E-04
I-131	<5.23E-04
XE-131M	<9.62E-03
I-133	<1.07E-04
XE-133	<3.42E-01
XE-133M	<2.24E-03
CS-134	1.80E-03
XE-135	<1.62E-03
CS-136	<1.09E-04
CS-137	2.13E-03
BA-LA-140	<4.39E-04
CE-141	<1.79E-04
CE-144	<8.11E-04

TOTAL AIRBORNE TRITIUM RELEASE 4.58E+00

TOTAL LIQUID TRITIUM RELEASE 1.96E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.41E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.17E+11

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS
8

MODE OF TRANSPORTATION
TRUCK

DESTINATION
BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

A

CO-60	%		3.08E+00
CS-134	%		1.78E+01
CS-137	%		2.09E+01
FE-55	%		1.91E+01
H-3	%		3.51E+01
NB-95	%		1.40E+00
NI-63	%		1.64E+00

B

C-14	%	4.70E-02	
CO-60	%	3.93E+00	3.93E+00
CS-134	%	2.97E+01	2.97E+01
CS-137	%	3.23E+01	3.23E+01
FE-55	%	2.65E+01	2.65E+01
FE-59	%	1.58E+00	1.63E+00
MN-54	%	1.10E+00	1.11E+00
NB-95	%	2.69E+00	2.77E+00
NI-63	%	2.06E+00	2.05E+00

C

AG-110M	%		3.82E+01
CO-60	%		2.43E+01
FE-55	%		2.74E+01
NI-63	%		6.30E+00
SB-125	%		3.25E+00

D

CE-144	%		1.15E+00
CO-60	%		6.03E+00
CS-134	%		2.00E+01
CS-137	%		5.86E+01
FE-55	%		6.67E+00
MN-54	%		1.38E+00
NI-63	%		3.73E+00
SR-90	%		1.98E+00

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR
BOTTOMS, ETC.

M3 1.70E+01
CI 3.05E+00

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 9.81E+01 *
CI 1.15E+00

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3 3.25E+00
CI 8.81E+03

D. OTHER
DEWATERED SPENT RESIN

M3 3.40E+00
CI 4.08E+01

*VOLUME AFTER COMPACTION

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: ZION 1

LOCATION: 6 MI N WAUKEGAN, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1   TYPE: PWR   LICENSEE: COMMONWEALTH EDISON
DOCKET NO.: 50-295   LICENSED POWER (MWT): 3.25E+03
THERMAL POWER (MWH): 1.97E+07   NET ELECTRIC POWER (MWH): 6.34E+06
COMMERCIAL OPERATION: 12/31/73   INITIAL CRITICALITY: 06/19/73
COOLING WATER SOURCE: LAKE MICHIGAN

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	4.74E-04
CR-51	4.27E-02
MN-54	9.75E-03
FE-55	7.20E-02
CO-57	1.12E-03
CO-58	6.61E-01
FE-59	6.24E-03
CO-60	2.85E-01
KR-85M	2.00E-05
KR-88	2.70E-04
NB-95	1.15E-02
ZR-95	6.88E-03
MO-99	2.60E-05
RU-103	3.30E-05
AG-110M	8.30E-02
SN-113	7.20E-04
SB-124	2.86E-02
SB-125	1.29E-01
I-131	3.91E-03
XE-131M	1.89E-02
I-132	8.90E-03
I-133	2.80E-04
XE-133	2.33E+00
XE-133M	1.76E-02
CS-134	9.89E-02
I-135	5.80E-05
XE-135	1.32E-02
CS-136	5.20E-03
CS-137	1.26E-01
LA-140	1.24E-03
TOTAL LIQUID TRITIUM RELEASE	4.11E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.31E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.19E+12

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

INSTALLATION: ZION 2

LOCATION: 6 MI N WAUKEGAN, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2   TYPE: PWR   LICENSEE: COMMONWEALTH EDISON
DOCKET NO.: 50-304   LICENSED POWER (MWT): 3.25E+03
THERMAL POWER (MWH): 2.08E+07   NET ELECTRIC POWER (MWH): 6.65E+06
COMMERCIAL OPERATION: 09/17/74   INITIAL CRITICALITY: 12/24/73
COOLING WATER SOURCE: LAKE MICHIGAN

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.14E-03
AR-41	5.60E-06
CR-51	2.22E-01
MN-54	8.07E-03
FE-55	1.45E-03
CO-57	6.61E-04
CO-58	6.12E-01
FE-59	2.25E-02
CO-60	5.19E-01
BR-82	4.90E-05
KR-85M	4.90E-05
KR-88	5.40E-06
RB-88	1.80E-04
NB-95	3.54E-02
ZR-95	2.28E-02
MO-99	8.30E-05
TC-99M	2.90E-04
RU-103	3.08E-03
AG-110M	1.26E-01
SN-113	9.17E-03
SN-117M	1.45E-03
SB-124	3.67E-02
SB-125	1.70E-01
I-131	1.94E-02
XE-131M	1.05E-02
I-132	1.08E-02
TE-132	1.80E-03
I-133	4.54E-03
XE-133	2.78E+00
XE-133M	1.71E-02
CS-134	4.72E-02
I-134	2.26E-03
I-135	2.40E-04
XE-135	1.18E-02
CS-136	3.53E-03
CS-137	7.68E-02
BA-140	1.20E-05
LA-140	1.72E-03
PR-144	1.30E-02
TOTAL LIQUID TRITIUM RELEASE	5.58E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	9.75E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.20E+12

N/A-NOT APPLICABLE

N/D-NOT DETECTED

N/R-NOT REPORTED

INSTALLATION:ZION 1&2

LOCATION:6 MI N WAUKEGAN, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	TYPE:PWR	LICENSEE:COMMONWEALTH EDISON
DOCKET NO.:50-295		LICENSED POWER (MWT):3.25E+03
THERMAL POWER (MWH):1.97E+07		NET ELECTRIC POWER (MWH):6.34E+06
COMMERCIAL OPERATION:12/31/73		INITIAL CRITICALITY:06/19/73
COOLING WATER SOURCE:LAKE MICHIGAN		
UNIT NUMBER: 2	TYPE:PWR	LICENSEE:COMMONWEALTH EDISON
DOCKET NO.:50-304		LICENSED POWER (MWT):3.25E+03
THERMAL POWER (MWH):2.08E+07		NET ELECTRIC POWER (MWH):6.65E+06
COMMERCIAL OPERATION:09/17/74		INITIAL CRITICALITY:12/24/73
COOLING WATER SOURCE:LAKE MICHIGAN		

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.03E-05
AR-41	1.04E-01
MN-54	1.90E-08
MN-56	1.30E-07
CO-58	5.77E-05
CO-60	1.51E-04
BR-82	3.01E-05
BR-84	6.20E-07
KR-85	3.40E+00
KR-85M	1.14E-02
KR-88	1.31E-02
RB-88	6.43E-03
SR-89	3.20E-07
NB-95	8.20E-09
ZR-95	2.50E-09
MO-99	4.57E-07
TC-99M	9.30E-08
AG-110M	2.10E-07
SN-113	1.30E-10
I-130	4.60E-08
I-131	1.15E-03
XE-131M	6.44E-01
I-132	1.65E-03
I-133	4.09E-04
XE-133	1.39E+03
XE-133M	3.56E-01
CS-134	1.94E-05
I-134	2.63E-04
I-135	1.82E-04
XE-135	5.53E+01
CS-136	1.09E-06
CS-137	2.26E-05
CS-138	3.94E-04
BA-139	5.90E-07
BA-140	1.64E-07
LA-140	2.02E-08
BA-142	8.10E-04
W-187	3.66E-07
TOTAL AIRBORNE TRITIUM RELEASE	3.69E+02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: ZION 1&2

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1988
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
33	CNSI	BARNWELL SC
2	CNSI	CHANNON IL
5	HITTMAN	SEG OAK RIDGE TN
1	METLER	RICHLAND WA

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.34E+02
	CI	2.34E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.24E+02*
	CI	1.57E+02
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	
	CI	

*VOLUME AFTER COMPACTION

N/A=NOT APPLICABLE
N/D=NOT DETECTED
N/R=NOT REPORTED

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11. ABSTRACT (200 words or less)

Releases of radioactive materials in airborne and liquid effluents from commercial light water reactors during 1988 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 1988 release data are summarized in tabular form. Data covering specific radionuclides are summarized.

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