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Radioactive Materials Released from Nuclear Power Plants

Annual Report 1981

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Prepared by J. Tichler, C. Benkovitz

Brookhaven National Laboratory

Prepared for
U.S. Nuclear Regulatory
Commission

MASTER

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Radioactive Materials Released from Nuclear Power Plants

Annual Report 1981

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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.

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ABSTRACT

Releases of radioactive materials in airborne and liquid effluents from commercial light water reactors during 1981 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 1981 release data are summarized in tabular form. Data covering specific radionuclides are summarized.

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1.0 Introduction

1.1 Purpose

This report, prepared annually by 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 1981. 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 Inspection and Enforcement, 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 71 licensed nuclear power plants that were declared by the utilities to be in commercial operation as of December 31, 1981. Data are included for several licensed facilities which are permanently or indefinitely shut down (Dresden 1, Humboldt Bay, Indian Point 1, Three Mile Island 2).

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, 1717 H Street, NW, 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. This variability will diminish as changes in the Technical Specification for each plant will require adoption of the reporting format of Regulatory Guide 1.21, "Measuring, Evaluating and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light Water Cooled Nuclear Power Plants," June 1974.

Data from prior years used in the comparison tables were obtained from the nine previous annual summaries.¹

¹"Report on Releases of Radioactivity in Effluents and Solid Wastes from Nuclear Power Plants for 1972," Directorate of Regulatory Operations, August 1973. "Summary of Radioactivity Releases in Effluents from Nuclear Power Plants During 1973," NUREG-75/001, January 1975. "Radioactive Materials Released from Nuclear Power Plants 1974," NUREG-0077, June 1976. "Radioactive Materials Released from Nuclear Power Plants 1975," NUREG-0218, March 1977. "Radioactive Materials Released from Nuclear Power Plants, 1976," NUREG-0367, March 1978. "Radioactive Materials Released from Nuclear Power Plants, 1977," NUREG-0521, January 1979. "Radioactive Materials Released from Nuclear Power Plants, 1978," NUREG/CR-1497, BNL-NUREG-51192, March, 1981. "Radioactive Materials Released from Nuclear Power Plants, 1979," NUREG/CR-2227, BNL-NUREG-51416, November 1981. "Radioactive Materials Released from Nuclear Power Plants, 1980, NUREG/CR-20107, BNL-NUREG-51581, Vol. 1, January 1983.

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 1981. Tables 5 through 8 list the total measured quantities of tritium and of mixed fission and activation products released in liquid effluents in each of the years.

2.2 Solid Waste

The total volumes, activity and the number of shipments of solid waste for each plant during 1981 are summarized in Tables 9 and 10. A comparison for the years 1972 through 1981 is made in Tables 11 and 12.

2.3 Energy Generation

Tables 15 and 16 present a summary of the thermal energy generated by each plant during 1981 and previous years from 1970. Tables 13 and 14 present a summary of net electrical energy generated by each plant during 1978-1981. 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 such as 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 1978-1981 are stored in a computerized data base. Individuals interested in obtaining the more detailed summaries should contact the Office of Management and Program Analysis of the Nuclear Regulatory Commission.

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

2.5 Notation

The following notation is used:

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

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

N/R = Not Reported

N/D = Not Detected

< may actually mean $\leq$

3.0 Summary

Nearly all of the radioactive material reported as being released in effluents is planned and results from normal operation or is the result of anticipated operational occurrences, i.e., unplanned releases of radioactive materials from miscellaneous actions such as equipment failure, operator error, or procedure error that are not of such consequence so 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.

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TABLE 1

AIRBORNE EFFLUENTS COMPARISON BY YEAR

BOILING WATER REACTORS		FISSION AND ACTIVATION GASES (TOTAL CURIES)								
FACILITY	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
BIG ROCK POINT	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					6.40E+04	9.24E+04	<8.05E+04	<1.66E+05	1.57E+05	<2.71E+05
BRUNSWICK						1.90E+02	1.90E+04	2.46E+05	9.14E+04	1.16E+05
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										
HUMBOLDT BAY	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
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	1.00E+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
OYSTER CREEK	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				<1.00E+03	<1.00E+00	1.30E+04	2.09E+05	7.11E+04	3.85E+04	1.90E+05
PILGRIM			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			1.32E+05	9.00E+05	9.50E+05	1.10E+05	3.36E+04	2.56E+04	3.24E+04	3.48E+04
VERMONT YANKEE			5.50E+04	1.80E+05	6.40E+04	4.08E+03	3.03E+03	3.35E+03	4.94E+03	<8.08E+03
FORT ST. VRAIN*										9.30E+01

TABLE 1

AIRBORNE EFFLUENTS COMPARISON BY YEAR

BOILING WATER REACTORS

FISSION AND ACTIVATION GASES (TOTAL CURIES)

FACILITY	1980	1981
BIG ROCK POINT	2.15E+04	1.97E+04
BROWNS FERRY	<1.66E+05	4.52E+04
BRUNSWICK	6.93E+04	5.22E+05
COOPER	5.03E+03	2.48E+03
DRESDEN 1	7.03E+01	N/D
DRESDEN 2-3	4.30E+04	3.74E+04
DUANE ARNOLD	2.70E+03	<4.87E+02
EDWIN I. HATCH 1	3.82E+04	2.77E+04
EDWIN I. HATCH 2	2.95E+02	2.06E+02
HUMBOLDT BAY	<4.40E-05	<4.40E-05
JAMES A. FITZPATRICK	7.68E+04	2.00E+05
LACROSSE	4.71E+03	5.03E+03
MILLSTONE 1	1.19E+04	1.43E+04
MONTICELLO	3.83E+03	3.74E+03
NINE MILE POINT	5.87E+02	6.10E+02
OYSTER CREEK	3.12E+04	5.28E+04
PEACH BOTTOM	1.53E+04	1.58E+04
PILGRIM	2.62E+04	<5.30E+03
QUAD-CITIES	2.15E+04	3.20E+04
VERMONT YANKEE	1.63E+03	<3.17E+03
FORT ST. VRAIN*	9.13E+01	4.34E+01

TABLE 2

AIRBORNE EFFLUENTS COMPARISON BY YEAR

PRESSURIZED WATER REACTORS

FISSION AND ACTIVATION GASES (TOTAL CURIES)

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							1.07E+00	4.73E+01	3.90E+02	1.75E+03
CALVERT CLIFFS						7.72E+03	9.40E+03	2.23E+04	2.76E+04	1.02E+04
CRYSTAL RIVER								3.35E+03	6.86E+03	7.26E+04
DAVIS-BESSE								1.27E+03	2.10E+03	<1.68E+03
DONALD C. COOK						2.64E+00	9.75E+02	3.80E+03	4.85E+04	1.09E+04
FORT CALHOUN				6.70E+01	3.03E+02	4.29E+02	1.94E+03	3.81E+03	1.36E+03	7.06E+02
H. B. ROBINSON		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
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									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										
MILLSTONE 2							1.57E+03	2.28E+03	7.64E+02	3.59E+02
NORTH ANNA									1.51E+04	6.28E+03
OCONEE				9.30E+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
POINT BEACH		<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				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						1.18E+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	<1.00E+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
SEQUOYAH										
ST. LUCIE							1.72E+03	2.54E+04	2.93E+04	1.54E+04
SURRY			<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				5.30E+02	4.66E+03	1.34E+04	1.56E+04	2.33E+04	2.35E+04	1.06E+04
YANKEE ROWE	<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				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

PRESSURIZED WATER REACTORS		FISSION AND ACTIVATION GASES (TOTAL CURIES)	
FACILITY	1980	1981	
ARKANSAS ONE 1	3.80E+04	3.73E+03	
ARKANSAS ONE 2	9.37E+03	4.35E+03	
BEAVER VALLEY	8.64E+01	8.06E+02	
CALVERT CLIFFS	2.96E+03	2.18E+03	
CRYSTAL RIVER	3.65E+04	3.96E+04	
DAVIS-BESSE	3.35E+03	1.01E+03	
DONALD C. COOK	3.76E+03	5.42E+03	
FORT CALHOUN	2.97E+02	1.22E+03	
H. B. ROBINSON	5.82E+02	5.13E+02	
HADDAM NECK	2.68E+03	1.83E+03	
INDIAN POINT 1-2	9.38E+03	9.13E+03	
INDIAN POINT 3	1.11E+03	6.57E+03	
JOSEPH M. FARLEY 1	1.92E+04	2.21E+02	
JOSEPH M. FARLEY 2		2.60E+00	
KEWAUNEE	1.22E+02	1.18E+02	
MAINE YANKEE	3.87E+03	3.28E+02	
MCGUIRE		1.58E-01	
MILLSTONE 2	1.33E+03	2.24E+03	
NORTH ANNA	3.50E+03	5.30E+03	
OCONEE	1.92E+04	1.63E+04	
PALISADES	1.40E+02	3.00E+03	
POINT BEACH	6.41E+02	6.11E+02	
PRAIRIE ISLAND	2.60E+02	4.65E+01	
R. E. GINNA	8.61E+02	5.46E+02	
RANCHO SECO	1.58E+03	1.37E+03	
SALEM 1	7.82E+01	1.06E+03	
SALEM 2	7.74E+00	6.09E+02	
SAN ONOFRE	1.05E+03	4.17E+02	
SEQUOYAH	3.01E+03	9.03E+03	
ST. LUCIE	8.97E+03	2.30E+04	
SURRY	6.17E+03	1.41E+04	
THREE MILE ISLAND 1	4.64E-03	5.81E-02	
THREE MILE ISLAND 2	4.72E+04	2.88E+02	
TMI 2/EPICOR	2.16E+00	1.84E+02	
TROJAN	3.91E+02	1.16E+03	
TURKEY POINT	4.24E+03	4.33E+03	
YANKEE ROWE	7.07E+01	1.72E+02	
ZION	5.78E+03	6.91E+03	

TABLE 3

AIRBORNE EFFLUENTS COMPARISON BY YEAR (CURIES)

I-131 AND PARTICULATES

BOILING WATER REACTORS

(HALF-LIFE EQUAL TO OR GREATER THAN 8 DAYS)

FACILITY	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
BIG ROCK POINT	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					1.20E-01	2.70E-01	<7.00E-02	1.04E-01	2.27E-01	5.03E-02
BRUNSWICK						<1.00E-02	4.60E-01	9.32E-01	4.07E-01	9.52E-01
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										
HUMBOLDT BAY	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
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	<1.00E-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
OYSTER CREEK	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				<1.00E-02	1.00E-02	4.00E-02	9.75E-01	2.73E-01	9.62E-02	2.58E-01
PILGRIM			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			7.50E-01	5.50E+00	8.88E+00	1.31E+00	1.33E+00	1.69E+00	2.15E+00	1.57E+00
VERMONT YANKEE			1.70E-01	7.00E-02	3.60E-01	1.00E-02	<1.00E-02	1.44E-02	2.18E-01	4.43E-01
FORT ST. VRAIN*										6.89E-07

TABLE 3

AIRBORNE EFFLUENTS COMPARISON BY YEAR (CURIES)

I-131 AND PARTICULATES

BOILING WATER REACTORS

(HALF-LIFE EQUAL TO OR GREATER THAN 8 DAYS)

FACILITY	1980	1981
BIG ROCK POINT	2.94E-02	6.10E-03
BROWNS FERRY	1.05E-01	4.00E-02
BRUNSWICK	2.12E+00	8.89E-01
COOPER	<1.52E-01	<1.09E-02
DRESDEN 1	1.46E-02	9.94E-03
DRESDEN 2-3	1.10E+01	9.87E+00
DUANE ARNOLD	8.50E-02	3.25E-02
EDWIN I. HATCH 1	4.29E-01	2.12E-01
EDWIN I. HATCH 2	1.33E-02	9.42E-03
HUMBOLDT BAY	5.11E-04	<3.82E-04
JAMES A. FITZPATRICK	1.25E-01	2.80E-01
LACROSSE	1.32E-02	1.69E-02
MILLSTONE 1	3.32E-01	1.48E-01
MONTICELLO	2.83E-02	3.45E-02
NINE MILE POINT	2.55E-02	1.49E-02
OYSTER CREEK	1.25E+00	2.24E+00
PEACH BOTTOM	2.94E-02	<4.19E-02
PILGRIM	1.04E-01	<6.87E-02
QUAD-CITIES	5.90E-01	1.27E+00
VERMONT YANKEE	1.70E-02	4.53E-03
FORT ST. VRAIN*	1.25E-06	1.40E-06

TABLE 4

AIRBORNE EFFLUENTS COMPARISON BY YEAR (CURIES)

I-131 AND PARTICULATES

PRESSURIZED WATER REACTORS

(HALF-LIFE EQUAL TO OR GREATER THAN 8 DAYS)

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							<1.00E-02	1.52E-04	7.21E-02	4.07E-04
CALVERT CLIFFS						7.00E-02	1.38E-01	3.07E-01	1.35E-01	2.05E+00
CRYSTAL RIVER								2.53E-03	1.05E-03	1.88E-02
DAVIS-BESSE								2.57E-04	4.30E-04	5.69E-03
DONALD C. COOK						<1.00E-02	<1.00E-02	7.45E-02	1.10E-01	7.36E-02
FORT CALHOUN				<1.00E-02	<1.00E-02	<1.00E-02	<2.04E-02	1.34E-02	8.30E-03	1.58E-03
H. B. ROBINSON			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
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									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										
MILLSTONE 2						1.00E-02	1.25E-02	4.47E-03	2.97E-03	9.79E-03
NORTH ANNA									3.19E-02	5.71E-02
OCONEE				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
POINT BEACH		<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				<1.00E-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						<1.00E-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	<1.00E-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
SEQUOYAH										
ST. LUCIE							<1.00E-02	1.48E-01	5.17E-01	2.02E-01
SURRY			<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				6.00E-02	3.63E+00	4.30E-01	4.22E-01	1.04E+00	4.59E-01	7.91E-02
YANKEE ROWE	<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				<1.00E-02	1.00E-02	1.40E-01	9.00E-02	5.38E-02	8.91E-02	6.74E-02

TABLE 4

AIRBORNE EFFLUENTS COMPARISON BY YEAR (CURIES)

I-131 AND PARTICULATES

PRESSURIZED WATER REACTORS

(HALF-LIFE EQUAL TO OR GREATER THAN 8 DAYS)

FACILITY	1980	1981
ARKANSAS ONE 1	1.66E-01	5.58E-03
ARKANSAS ONE 2	6.90E-03	1.41E-02
BEAVER VALLEY	1.91E-03	6.85E-03
CALVERT CLIFFS	7.44E-02	4.69E-02
CRYSTAL RIVER	6.77E-03	1.78E-02
DAVIS-BESSE	2.01E-03	5.79E-02
DONALD C. COOK	6.88E-02	3.55E-01
FORT CALHOUN	2.42E-03	3.59E-03
H. B. ROBINSON	1.13E-03	3.32E-04
HADDAM NECK	8.01E-03	<1.28E-02
INDIAN POINT 1-2	6.42E-02	4.42E-02
INDIAN POINT 3	2.53E-02	3.63E-03
JOSEPH M. FARLEY 1	2.37E-03	6.24E-01
JOSEPH M. FARLEY 2		3.22E-03
KEWAUNEE	2.61E-04	1.21E-04
MAINE YANKEE	1.88E-03	6.13E-04
MCGUIRE		1.21E-11
MILLSTONE 2	1.94E-02	1.06E-01
NORTH ANNA	1.26E-02	4.81E-01
OCONEE	1.33E-01	3.24E-01
PALISADES	2.76E-02	4.15E-02
POINT BEACH	1.28E-03	2.03E-01
PRAIRIE ISLAND	1.83E-03	4.49E-04
R. E. GINNA	9.00E-03	5.88E-03
RANCHO SECO	9.96E-03	4.65E-03
SALEM 1	2.17E-01	4.84E-01
SALEM 2	5.44E-05	6.31E-03
SAN ONOFRE	8.41E-01	1.18E-02
SEQUOYAH	2.57E-03	1.30E-02
ST. LUCIE	6.20E-02	7.69E-02
SURRY	1.85E-02	6.53E-02
THREE MILE ISLAND 1	2.93E-04	5.05E-04
THREE MILE ISLAND 2	5.67E-04	3.69E-05
TMI 2/EPICOR	6.83E-06	2.63E-06
TROJAN	2.51E-02	7.67E-02
TURKEY POINT	7.05E-02	2.94E-02
YANKEE ROWE	9.56E-05	2.13E-04
ZION	3.00E-03	1.25E-02

TABLE 5

LIQUID EFFLUENTS COMPARISON BY YEAR (CURIES)

TRITIUM

BOILING WATER REACTORS

FACILITY	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
BIG ROCK POINT	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					2.80E+00	1.04E+01	<4.02E+00	2.40E+01	3.08E+01	1.32E+01
BRUNSWICK						3.20E+00	5.90E+00	8.93E+00	1.41E+01	3.09E+01
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										
HUMBOLDT BAY	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
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NINE MILE POINT	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/R	6.78E+00
OYSTER CREEK	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				<1.00E-01	1.00E+01	3.08E+01	7.37E+01	7.09E+01	3.24E+01	4.28E+01
PILGRIM			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			4.70E+00	2.45E+01	3.40E+01	5.37E+01	4.98E+01	2.64E+01	1.72E+01	1.76E+01
VERMONT YANKEE				1.00E-01	0.00E+00	0.00E+00	1.60E+00	8.44E-01	N/R	4.04E+00
FORT ST. VRAIN*										1.23E+02

TABLE 5

LIQUID EFFLUENTS COMPARISON BY YEAR (CURIES)

TRITIUM

BOILING WATER REACTORS

FACILITY	1980	1981
BIG ROCK POINT	6.18E+00	3.13E+00
BROWNS FERRY	2.18E+01	2.42E+01
BRUNSWICK	1.28E+01	2.26E+01
COOPER	8.77E+00	<8.37E+00
DRESDEN 1	N/R	0.00E+00
DRESDEN 2-3	6.20E+01	6.05E+00
DUANE ARNOLD	N/R	0.00E+00
EDWIN I. HATCH 1	1.42E+01	1.16E+01
EDWIN I. HATCH 2	1.07E+01	9.28E+00
HUMBOLDT BAY	9.70E-02	<1.62E-01
JAMES A. FITZPATRICK	2.81E+00	4.11E+00
LACROSSE	7.20E+01	7.74E+01
MILLSTONE 1	2.73E+01	2.62E+00
MONTICELLO	0.00E+00	4.17E-03
NINE MILE POINT	N/R	5.05E+00
OYSTER CREEK	1.54E+02	2.67E+01
PEACH BOTTOM	3.73E+01	3.68E+01
PILGRIM	4.00E+01	3.41E+01
QUAD-CITIES	1.03E+01	1.19E+01
VERMONT YANKEE	N/R	3.70E-01
FORT ST. VRAIN*	2.06E+02	2.19E+02

TABLE 6

LIQUID EFFLUENTS COMPARISON BY YEAR (CURIES)

TRITIUM

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							8.60E+00	1.08E+02	3.49E+02	9.59E+01
CALVERT CLIFFS						2.63E+02	2.74E+02	5.75E+02	4.56E+02	5.14E+02
CRYSTAL RIVER								1.66E+02	1.54E+02	1.66E+02
DAVIS-BESSE								9.01E+00	2.15E+02	2.45E+02
DONALD C. COOK						5.64E+01	1.92E+02	2.86E+02	6.24E+02	1.22E+03
FORT CALHOUN				1.58E+01	1.24E+02	1.11E+02	1.22E+02	1.57E+02	1.50E+02	2.58E+02
H. B. ROBINSON		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
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									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										
MILLSTONE 2						7.60E+00	2.77E+02	2.11E+02	2.01E+02	2.54E+02
NORTH ANNA									2.82E+02	3.13E+02
OCONEE				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
POINT BEACH		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				<1.00E-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						1.32E+02	0.00E+00	8.55E-02	N/R	N/R
SALEM 1							4.00E-02	2.96E+02	4.46E+02	7.26E+02
SALEM 2										
SAN ONOFRE	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
SEQUOYAH										
ST. LUCIE							1.33E+01	2.42E+02	1.28E+02	1.28E+02
SURRY			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				3.29E+02	5.80E+02	7.97E+02	7.71E+02	9.24E+02	1.17E+03	9.40E+02
YANKEE ROWE	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										

TABLE 6

LIQUID EFFLUENTS COMPARISON BY YEAR (CURIES)

TRITIUM

PRESSURIZED WATER REACTORS

FACILITY	1980	1981
ARKANSAS ONE 1	2.12E+02	4.42E+02
ARKANSAS ONE 2	2.89E+02	2.44E+02
BEAVER VALLEY	3.98E+01	1.40E+02
CALVERT CLIFFS	4.91E+02	1.00E+03
CRYSTAL RIVER	1.95E+02	2.71E+02
DAVIS-BESSE	1.08E+02	1.57E+02
DONALD C. COOK	7.82E+02	9.15E+02
FORT CALHOUN	5.44E+01	2.42E+02
H. B. ROBINSON	1.89E+02	1.86E+02
HADDAM NECK	3.29E+03	5.29E+03
INDIAN POINT 1-2	2.76E+02	2.41E+02
INDIAN POINT 3	4.27E+02	6.42E+02
JOSEPH M. FARLEY 1	5.70E+02	1.65E+02
JOSEPH M. FARLEY 2		6.34E+02
KEWAUNEE	2.33E+02	2.51E+02
MAINE YANKEE	2.18E+02	2.16E+02
MCGUIRE		6.25E+00
MILLSTONE 2	2.68E+02	3.71E+02
NORTH ANNA	4.03E+02	1.28E+03
OCONEE	7.12E+02	5.07E+02
PALISADES	7.47E+01	2.78E+02
POINT BEACH	7.61E+02	6.52E+02
PRAIRIE ISLAND	5.43E+02	5.62E+02
R. E. GINNA	1.60E+02	2.40E+02
RANCHO SECO	1.47E-02	8.35E+01
SALEM 1	0.00E+00	4.93E+02
SALEM 2	N/R	8.42E+02
SAN ONOFRE	1.03E+03	2.97E+02
SEQUOYAH	3.23E-01	7.65E+01
ST. LUCIE	2.72E+02	3.25E+02
SURRY	3.85E+02	5.31E+02
THREE MILE ISLAND 1	3.26E+01	7.11E+00
THREE MILE ISLAND 2	6.10E-04	5.06E-02
TMI 2/EPICOR	N/R	0.00E+00
TROJAN	1.24E+02	1.03E+02
TURKEY POINT	7.49E+02	1.95E+02
YANKEE ROWE	5.84E+01	1.03E+02
ZION 1	7.45E+02	6.04E+02
ZION 2		2.66E+02

TABLE 7

LIQUID EFFLUENTS COMPARISON BY YEAR (CURIES)

BOILING WATER REACTORS

MIXED FISSION AND ACTIVATION PRODUCTS

FACILITY	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
BIG ROCK POINT	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					8.00E-01	2.70E+00	<3.95E+00	1.19E+00	1.32E+01	1.02E+01
BRUNSWICK						1.89E+00	3.29E+00	6.22E+00	3.48E+00	5.10E+00
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										
HUMBOLDT BAY	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	8.86E+00	1.67E+00
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NINE MILE POINT	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/R	1.89E+00
OYSTER CREEK	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				<1.00E-01	9.00E-01	9.30E-01	3.38E+00	2.23E+00	5.11E+00	1.95E+01
PILGRIM			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			2.40E+00	2.14E+01	3.88E+01	1.71E+01	6.99E+00	1.34E+00	2.24E+00	1.31E+00
VERMONT YANKEE				<1.00E-01	0.00E+00	<1.00E-02	<1.00E-02	1.55E-01	N/R	2.40E-04
FORT ST. VRAIN*										1.89E-04

TABLE 7

LIQUID EFFLUENTS COMPARISON BY YEAR (CURIES)

BOILING WATER REACTORS

MIXED FISSION AND ACTIVATION PRODUCTS

FACILITY	1980	1981
BIG ROCK POINT	7.82E-01	3.91E-01
BROWNS FERRY	9.38E+00	2.24E+00
BRUNSWICK	1.26E+00	2.20E+00
COOPER	<1.10E+01	<3.61E+00
DRESDEN 1	N/R	0.00E+00
DRESDEN 2-3	7.16E-01	6.12E-02
DUANE ARNOLD	N/R	0.00E+00
EDWIN I. HATCH 1	6.83E-02	3.73E-01
EDWIN I. HATCH 2	4.57E-02	1.63E-01
HUMBOLDT BAY	1.39E-01	1.55E-01
JAMES A. FITZPATRICK	1.51E+00	2.51E+00
LACROSSE	2.13E+00	2.26E-01
MILLSTONE 1	7.24E-01	3.94E-01
MONTICELLO	0.00E+00	3.11E-06
NINE MILE POINT	N/R	5.35E+00
OYSTER CREEK	5.06E-01	2.48E-01
PEACH BOTTOM	1.90E+00	1.97E+00
PILGRIM	2.73E+00	1.94E+00
QUAD-CITIES	1.31E+01	3.27E+00
VERMONT YANKEE	N/R	1.02E-02
FORT ST. VRAIN*	6.37E-05	3.64E-04

TABLE 8

LIQUID EFFLUENTS COMPARISON BY YEAR (CURIES)

PRESSURIZED WATER REACTORS

MIXED FISSION AND ACTIVATION PRODUCTS

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							1.70E-01	6.52E-01	2.63E-01	1.21E-01
CALVERT CLIFFS						1.44E+00	1.18E+00	3.48E+00	6.13E+00	7.80E+00
CRYSTAL RIVER								1.54E-02	2.96E-02	4.16E-01
DAVIS-BESSE								2.60E-02	9.01E-02	4.28E-02
DONALD C. COOK						2.60E-01	1.87E+00	1.52E+00	1.48E+00	2.58E+00
FORT CALHOUN				<1.00E-01	2.30E+00	3.60E-01	5.50E-01	3.63E-01	5.95E-01	2.45E-01
H. B. ROBINSON		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
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									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										
MILLSTONE 2						2.00E-02	2.60E-01	1.56E+00	2.79E+00	4.87E+00
NORTH ANNA									2.68E-01	5.89E-01
OCONEE				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
POINT BEACH		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				<1.00E-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						<1.00E-02	0.00E+00	0.00E+00	N/R	N/R
SALEM 1							<1.00E-02	2.88E+00	4.02E+00	3.98E+00
SALEM 2										
SAN ONOFRE	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
SEQUOYAH										
ST. LUCIE							8.00E-02	5.80E+00	2.80E+00	2.67E+00
SURRY			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				<1.00E-01	1.60E+00	3.07E+00	<8.65E+00	8.90E+00	3.32E+00	4.10E-01
YANKEE ROWE	<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										

TABLE 8

LIQUID EFFLUENTS COMPARISON BY YEAR (CURIES)

PRESSURIZED WATER REACTORS

MIXED FISSION AND ACTIVATION PRODUCTS

FACILITY	1980	1981
ARKANSAS ONE 1	3.42E+00	7.50E+00
ARKANSAS ONE 2	4.13E+00	2.95E+00
BEAVER VALLEY	1.04E-01	1.44E-01
CALVERT CLIFFS	4.53E+00	2.68E+00
CRYSTAL RIVER	1.46E-01	1.29E-01
DAVIS-BESSE	2.07E-01	7.92E-01
DONALD C. COOK	1.37E+00	1.86E+00
FORT CALHOUN	5.04E-01	1.65E-01
H. B. ROBINSON	3.58E-01	1.84E+00
HADDAM NECK	2.76E-01	7.12E-01
INDIAN POINT 1-2	1.26E+00	5.67E+00
INDIAN POINT 3	2.90E+00	2.62E+00
JOSEPH M. FARLEY 1	6.18E-02	1.31E-01
JOSEPH M. FARLEY 2		2.69E-02
KEWAUNEE	6.17E-01	8.15E-01
MAINE YANKEE	2.97E-01	4.36E-01
MCGUIRE		3.94E-01
MILLSTONE 2	2.81E+00	4.18E+00
NORTH ANNA	1.05E+00	6.76E-01
OCONEE	1.54E+00	1.75E+00
PALISADES	8.73E-03	3.31E-02
POINT BEACH	6.29E-01	1.01E+00
PRAIRIE ISLAND	1.32E-02	9.12E-03
R. E. GINNA	1.96E-02	3.85E-02
RANCHO SECO	3.78E-03	5.92E-01
SALEM 1	2.65E+00	2.80E+00
SALEM 2	3.89E-01	1.51E+00
SAN ONOFRE	1.12E+01	3.64E+00
SEQUOYAH	N/R	2.76E+00
ST. LUCIE	2.36E+00	2.46E+00
SURRY	3.85E+00	6.11E+00
THREE MILE ISLAND 1	1.83E-01	8.69E-02
THREE MILE ISLAND 2	1.45E-05	2.22E-05
TMI 2/EPICOR	N/R	0.00E+00
TROJAN	7.87E-01	9.94E-01
TURKEY POINT	6.78E-01	3.03E-01
YANKEE ROWE	1.75E-02	1.43E-02
ZION 1	4.74E-01	1.61E+00
ZION 2		1.05E+00

TABLE 9

BOILING WATER REACTORS

SOLID WASTE SUMMARY 1981

FACILITY	VOLUME (CUBIC METERS)	ACTIVITY (CURIES)	NO. OF SHIPMENTS
BIG ROCK POINT	1.44E+02	3.17E+02	14
BROWNS FERRY	N/R	N/R	N/R
BRUNSWICK	4.30E+03	7.47E+03	374
COOPER	4.99E+02	4.43E+02	74
DRESDEN	1.14E+03	4.59E+03	230
DUANE ARNOLD	6.97E+02	1.07E+03	118
EDWIN I. HATCH 1	1.29E+03	4.46E+03	128
EDWIN I. HATCH 2	1.40E+03	3.05E+02	92
HUMBOLDT BAY	8.43E+01	5.46E-01	3
JAMES A. FITZPATRICK	8.61E+02	1.63E+03	102
LACROSSE	4.82E+00	6.11E+01	2
MILLSTONE 1	1.96E+03	1.82E+03	129
MONTICELLO	5.54E+02	4.42E+02	52
NINE MILE POINT	5.31E+02	1.72E+03	76
OYSTER CREEK	1.78E+03	4.21E+02	156
PEACH BOTTOM	2.34E+03	5.33E+03	335
PILGRIM	1.06E+03	9.38E+02	78
QUAD-CITIES	1.72E+03	5.16E+03	335
VERMONT YANKEE	4.39E+02	1.11E+03	44
FORT ST. VRAIN*	0.00E+00	0.00E+00	0

TABLE 10

PRESSURIZED WATER REACTORS

SOLID WASTE SUMMARY 1981

FACILITY	VOLUME (CUBIC METERS)	ACTIVITY (CURIES)	NO. OF SHIPMENTS
ARKANSAS ONE 1	N/R	N/R	N/R
ARKANSAS ONE 2	N/R	N/R	N/R
BEAVER VALLEY	2.13E+02	9.30E+01	36
CALVERT CLIFFS	5.00E+02	9.86E+01	42
CRYSTAL RIVER	1.27E+03	1.38E+03	81
DAVIS-BESSE	3.25E+02	3.95E+01	30
DONALD C. COOK	9.63E+02	1.43E+03	89
FORT CALHOUN	2.53E+02	1.01E+02	19
H. B. ROBINSON	9.02E+02	1.88E+01	56
HADDAM NECK	4.38E+02	6.61E+02	48
INDIAN POINT 1-2	1.58E+03	1.71E+03	112
INDIAN POINT 3	3.17E+02	6.40E+01	25
JOSEPH M. FARLEY	5.64E+02	7.20E+02	38
KEWAUNEE	7.38E+01	1.98E+02	14
MAINE YANKEE	4.14E+02	1.67E+03	32
MCGUIRE	1.98E+01	1.31E-01	1
MILLSTONE 2	1.63E+01	3.21E+02	7
NORTH ANNA	3.02E+02	2.62E+03	27
OCONEE	2.48E+03	1.12E+04	193
PALISADES	8.54E+02	1.57E+04	39
POINT BEACH	1.77E+02	4.87E+02	24
PRAIRIE ISLAND	2.97E+02	5.64E+01	18
R. E. GINNA	3.76E+02	6.35E+02	22
RANCHO SECO	2.31E+02	1.44E+02	15
SALEM 1&2	9.36E+02	1.14E+03	90
SAN ONOFRE	1.62E+03	1.26E+03	82
SEQUOYAH	1.61E+02	2.92E+01	12
ST. LUCIE	2.50E+02	2.96E+02	15
SURRY	2.80E+03	1.36E+03	138
THREE MILE ISLAND 1	7.98E+02	2.34E+02	56
THREE MILE ISLAND 2	2.74E+02	5.11E+01	8
TMI 2/EPICOR	1.51E+02	3.50E+02	46
TROJAN	3.75E+02	1.04E+03	27
TURKEY POINT	1.25E+03	1.17E+02	82
YANKEE ROWE	3.08E+02	6.79E+01	26
ZION	1.53E+03	3.44E+03	167

TABLE 11

SOLID WASTE COMPARISON BY YEAR

BOILING WATER REACTORS

VOLUME(CUBIC METERS) - ACTIVITY(CURIES)

FACILITY	1975	1976		1977		1978		1979	
BIG ROCK POINT		2.88E+01	3.69E+00	7.22E+01	9.68E+02	3.10E+01	2.56E+01	8.99E+01	2.77E+02
BROWNS FERRY		3.20E+02	1.03E+02	1.82E+03	1.10E+04	2.90E+03	1.33E+03	2.29E+03	4.17E+03
BRUNSWICK		1.79E+03	6.46E+02	2.47E+03	3.24E+03	2.02E+03	2.14E+03	3.09E+03	4.29E+03
COOPER		3.01E+02	3.20E+02	2.83E+02	2.85E+02	3.29E+02	3.84E+02	5.65E+02	9.69E+01
DRESDEN		7.12E+03	4.33E+03	2.25E+03	1.13E+04	1.77E+03	1.88E+03	1.04E+03	8.45E+02
DUANE ARNOLD		5.95E+02	1.87E+02	5.45E+02	4.98E+02	1.10E+03	1.86E+03	7.99E+02	8.01E+02
EDWIN I. HATCH 1		4.12E+02	2.91E+02	5.39E+02	3.81E+02	7.50E+02	1.09E+04	9.78E+02	2.70E+02
EDWIN I. HATCH 2									
HUMBOLDT BAY		8.49E+01	4.09E+00	3.77E+02	2.00E+01	1.78E+02	7.91E-01	9.06E+01	3.35E+03
JAMES A. FITZPATRICK		6.19E+02	3.41E+02	1.23E+03	6.17E+03	8.70E+02	3.19E+02	8.04E+02	1.06E+03
LACROSSE		N/R	N/R	4.65E+00	5.88E+02	3.80E+01	6.18E+01	5.09E+00	1.25E+02
MILLSTONE 1		1.33E+03	1.70E+03	1.77E+03	3.03E+03	2.00E+03	8.15E+04	2.11E+03	1.16E+03
MONTICELLO		2.85E+02	3.79E+03	5.73E+02	2.91E+04	4.99E+02	6.35E+04	4.74E+02	1.31E+04
NINE MILE POINT		5.38E+02	2.51E+03	6.65E+02	2.51E+04	3.85E+02	2.24E+04	4.97E+02	1.52E+03
OYSTER CREEK		1.20E+03	1.29E+03	1.74E+03	2.73E+02	1.54E+03	1.15E+03	1.13E+03	1.34E+03
PEACH BOTTOM		1.20E+03	5.85E+02	2.52E+03	1.82E+03	1.96E+03	4.97E+03	2.40E+03	8.03E+03
PILGRIM		9.12E+02	3.69E+04	5.84E+02	5.70E+03	1.97E+03	4.92E+04	3.03E+03	2.22E+04
QUAD-CITIES		1.00E+03	2.35E+03	1.20E+03	7.53E+03	1.34E+03	3.27E+03	7.82E+02	4.26E+03
VERMONT YANKEE		2.38E+02	2.93E+01	1.08E+02	1.76E+02	3.99E+02	5.39E+04	2.71E+02	9.99E+02
FORT ST. VRAIN*								0.00E+00	0.00E+00

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SOLID WASTE COMPARISON BY YEAR

BOILING WATER REACTORS		VOLUME(CUBIC METERS) - ACTIVITY(CURIES)			
FACILITY	1980		1981		
BIG ROCK POINT	4.20E+01	3.09E+01	1.44E+02	3.17E+02	
BROWNS FERRY	2.49E+03	6.46E+03	N/R	N/R	
BRUNSWICK	6.73E+03	7.55E+03	4.30E+03	7.47E+03	
COOPER	4.35E+02	7.05E+02	4.99E+02	4.43E+02	
DRESDEN	1.16E+03	4.46E+03	1.14E+03	4.59E+03	
DUANE ARNOLD	7.35E+02	7.00E+02	6.97E+02	1.07E+03	
EDWIN I. HATCH 1	4.64E+02	9.62E+02	1.29E+03	4.46E+03	
EDWIN I. HATCH 2	2.59E+02	8.27E+01	1.40E+03	3.05E+02	
HUMBOLDT BAY	8.20E+01	6.95E+01	8.43E+01	5.46E-01	
JAMES A. FITZPATRICK	7.50E+02	8.86E+02	8.61E+02	1.63E+03	
LACROSSE	4.32E+01	2.02E+01	4.82E+00	6.11E+01	
MILLSTONE 1	2.30E+03	2.36E+03	1.96E+03	1.82E+03	
MONTICELLO	7.42E+02	7.57E+02	5.54E+02	4.42E+02	
NINE MILE POINT	8.14E+02	2.32E+04	5.31E+02	1.72E+03	
OYSTER CREEK	2.03E+03	1.32E+03	1.78E+03	4.21E+02	
PEACH BOTTOM	2.64E+03	6.69E+03	2.34E+03	5.33E+03	
PILGRIM	2.94E+03	1.60E+03	1.06E+03	9.38E+02	
QUAD-CITIES	1.67E+03	4.07E+03	1.72E+03	5.16E+03	
VERMONT YANKEE	4.84E+02	9.20E+02	4.39E+02	1.11E+03	
FORT ST. VRAIN*	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

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SOLID WASTE COMPARISON BY YEAR

PRESSURIZED WATER REACTORS

VOLUME(CUBIC METERS) - ACTIVITY(CURIES)

FACILITY	1975	1976		1977		1978		1979	
		N/R	N/R	3.17E+02	1.26E+02	N/R	N/R	N/R	N/R
ARKANSAS ONE 1								N/R	N/R
ARKANSAS ONE 2								N/R	N/R
BEAVER VALLEY		4.30E+01	4.26E-02	2.67E+02	8.18E+00	4.39E+02	2.25E+02	2.44E+02	2.95E+02
CALVERT CLIFFS		1.18E+02	1.22E+02	3.09E+02	9.83E+02	6.03E+02	1.12E+03	4.32E+02	9.71E+02
CRYSTAL RIVER				4.48E+02	3.48E+00	6.87E+02	2.72E+04	1.24E+03	1.20E+03
DAVIS-BESSE				0.00E+00	0.00E+00	3.40E+02	3.30E+00	2.60E+02	2.86E+00
DONALD C. COOK		1.69E+02	2.62E-01	6.84E+02	8.28E+01	1.28E+03	2.25E+02	1.09E+03	3.37E+02
FORT CALHOUN		7.57E+02	1.27E+02	5.97E+02	6.46E+02	5.84E+02	1.06E+02	2.44E+02	2.99E+01
H. B. ROBINSON		3.16E+02	6.29E+01	2.59E+02	1.24E+03	8.22E+02	2.40E+02	8.34E+02	8.72E+01
HADDAM NECK		7.67E+02	7.46E+02	1.68E+03	8.41E+02	2.29E+02	1.44E+02	1.29E+03	3.05E+02
INDIAN POINT 1-2		9.19E+02	9.46E+02	1.06E+03	1.45E+03	8.43E+03	2.37E+03	1.17E+03	2.16E+03
INDIAN POINT 3						5.94E+02	6.49E+01	2.25E+02	1.63E+02
JOSEPH M. FARLEY						2.69E+02	5.72E+00	1.11E+03	2.32E+02
KEWAUNEE		5.94E+02	4.94E+01	3.37E+01	3.66E+02	7.98E+01	1.50E+03	1.70E+02	3.54E+02
MAINE YANKEE		1.84E+02	5.04E+02	1.84E+02	1.53E+04	5.81E+02	4.14E+03	3.63E+02	2.77E+03
MCGUIRE									
MILLSTONE 2		2.80E+02	1.80E+00	9.35E+01	5.80E+01	1.55E+02	1.70E+01	2.46E+02	1.78E+03
NORTH ANNA						2.14E+01	3.59E+00	2.95E+02	5.89E+01
OCONEE		2.22E+03	7.83E+02	1.07E+03	7.37E+03	1.58E+03	5.93E+03	1.63E+03	2.59E+03
PALISADES		6.81E+01	9.58E+01	4.43E+02	8.71E+01	7.17E+02	3.40E+03	6.84E+02	3.92E+02
POINT BEACH		1.99E+02	3.04E+02	6.84E+03	5.68E+02	1.61E+02	1.51E+03	2.69E+02	1.22E+03
PRAIRIE ISLAND		1.52E+02	6.53E+01	6.43E+02	2.46E+02	1.95E+02	1.53E+02	1.99E+01	8.83E+01
R. E. GINNA		2.80E+02	9.78E+01	3.49E+02	6.90E+02	5.96E+01	6.27E+02	3.08E+02	1.53E+02
RANCHO SECO		1.11E+02	2.80E+01	5.06E+01	1.21E+03	1.29E+02	1.27E+03	1.01E+02	4.03E+00
SALEM 1&2		0.00E+00	0.00E+00	4.25E+02	2.20E+00	2.27E+02	1.94E+02	6.86E+02	1.28E+02
SAN ONOFRE		1.45E+02	6.98E+02	3.68E+02	6.02E+01	1.31E+02	7.17E+00	8.35E+01	9.24E+01
SEQUOYAH									
ST. LUCIE		8.68E+01	1.57E+00	3.85E+02	3.27E+03	3.58E+02	1.26E+04	3.08E+02	1.79E+02
SURRY		7.00E+02	6.17E+02	7.93E+02	6.10E+02	6.03E+02	5.66E+02	2.74E+03	3.45E+02
THREE MILE ISLAND 1		4.06E+02	1.85E+02	2.18E+02	4.73E+01	3.89E+02	2.34E+02	7.51E+02	3.12E+01
THREE MILE ISLAND 2									
TMI 2/EPICOR									
TROJAN		4.37E+01	4.32E+00	1.01E+02	8.31E+01	2.26E+02	4.48E+02	6.37E+02	3.30E+02
TURKEY POINT		1.44E+03	4.77E+02	1.07E+03	4.26E+02	1.75E+03	1.72E+03	9.20E+02	2.48E+02
YANKEE ROWE		3.60E+02	2.65E+01	2.81E+02	3.54E+00	2.60E+02	9.75E+00	2.36E+02	1.63E+02
ZION		2.06E+03	6.82E+01	1.97E+03	2.25E+02	1.63E+03	1.86E+03	5.97E+02	2.69E+03

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SOLID WASTE COMPARISON BY YEAR

PRESSURIZED WATER REACTORS VOLUME(CUBIC METERS) - ACTIVITY(CURIES)

FACILITY	1980		1981	
	N/R	N/R	N/R	N/R
ARKANSAS ONE 1	N/R	N/R	N/R	N/R
ARKANSAS ONE 2	N/R	N/R	N/R	N/R
BEAVER VALLEY	2.84E+02	5.34E+02	2.13E+02	9.30E+01
CALVERT CLIFFS	2.51E+02	1.48E+04	5.00E+02	9.86E+01
CRYSTAL RIVER	9.27E+02	2.05E+03	1.27E+03	1.38E+03
DAVIS-BESSE	3.30E+02	3.00E+01	3.25E+02	3.95E+01
DONALD C. COOK	2.10E+03	1.04E+03	9.63E+02	1.43E+03
FORT CALHOUN	4.06E+02	1.32E+03	2.53E+02	1.01E+02
H. B. ROBINSON	3.99E+03	3.08E+02	9.02E+02	1.88E+01
HADDAM NECK	1.26E+03	4.89E+02	4.38E+02	6.61E+02
INDIAN POINT 1-2	1.03E+03	3.32E+02	1.58E+03	1.71E+03
INDIAN POINT 3	3.47E+02	2.02E+02	3.17E+02	6.40E+01
JOSEPH M. FARLEY	4.41E+02	2.26E+02	5.64E+02	7.20E+02
KEWAUNEE	1.03E+02	1.37E+03	7.38E+01	1.98E+02
MAINE YANKEE	4.57E+02	4.79E+03	4.14E+02	1.67E+03
MCGUIRE			1.98E+01	1.31E-01
MILLSTONE 2	7.51E+00	2.28E+02	1.63E+01	3.21E+02
NORTH ANNA	2.64E+02	1.54E+02	3.02E+02	2.62E+03
OCONEE	1.32E+03	2.91E+03	2.48E+03	1.12E+04
PALISADES	7.31E+02	1.18E+02	8.54E+02	1.57E+04
POINT BEACH	4.49E+02	9.35E+02	1.77E+02	4.87E+02
PRAIRIE ISLAND	5.25E+02	1.98E+02	2.97E+02	5.64E+01
R. E. GINNA	4.00E+02	4.60E+02	3.76E+02	6.35E+02
RANCHO SECO	4.60E+02	1.12E+02	2.31E+02	1.44E+02
SALEM 1&2	1.01E+03	4.59E+02	9.36E+02	1.14E+03
SAN ONOFRE	7.12E+02	4.35E+02	1.62E+03	1.26E+03
SEQUOYAH	N/R	N/R	1.61E+02	2.92E+01
ST. LUCIE	3.12E+02	7.46E+02	2.50E+02	2.96E+02
SURRY	2.01E+03	7.06E+02	2.80E+03	1.36E+03
THREE MILE ISLAND 1	4.62E+02	2.30E+02	7.98E+02	2.34E+02
THREE MILE ISLAND 2	7.67E+02	1.26E+02	2.74E+02	5.11E+01
TMI 2/EPICOR	N/R	N/R	1.51E+02	3.50E+02
TROJAN	5.14E+02	4.59E+01	3.75E+02	1.04E+03
TURKEY POINT	7.24E+02	1.61E+02	1.25E+03	1.17E+02
YANKEE ROWE	2.07E+02	9.57E+01	3.08E+02	6.79E+01
ZION	1.64E+03	2.55E+03	1.53E+03	3.44E+03

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NET ELECTRICAL ENERGY GENERATION COMPARISON BY YEAR

BOILING WATER REACTORS		MEGAWATT HOURS									
FACILITY	INITIAL CRITICALITY	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
BIG ROCK POINT	09/27/62									4.01E+05	1.14E+05
BROWNS FERRY	08/17/73									1.69E+07	2.04E+07
BROWNS FERRY	07/20/74										
BROWNS FERRY	08/08/76										
BRUNSWICK	10/08/76									9.91E+06	6.82E+06
BRUNSWICK	03/20/75										
COOPER	02/21/74									4.89E+06	4.99E+06
DRESDEN 1	10/15/59									7.59E+05	0.00E+00
DRESDEN 2-3	01/07/70									9.53E+06	8.42E+06
DRESDEN 2-3	01/31/71										
DUANE ARNOLD	03/23/74									1.23E+06	2.90E+06
EDWIN I. HATCH 1	09/12/74									4.77E+06	5.10E+06
EDWIN I. HATCH 2	07/04/78										
HUMBOLDT BAY	02/16/63									0.00E+00	0.00E+00
JAMES A. FITZPATRICK	11/17/74									4.20E+06	2.96E+06
LACROSSE	07/11/67									1.74E+05	2.01E+05
MILLSTONE 1	10/26/70									4.65E+06	4.22E+06
MONTICELLO	12/10/70									3.86E+06	4.40E+06
NINE MILE POINT	09/05/69									4.47E+06	3.00E+06
OYSTER CREEK	05/03/69									3.65E+06	4.56E+06
PEACH BOTTOM	09/16/73									1.38E+07	1.47E+07
PEACH BOTTOM	08/07/74										
PILGRIM	06/16/72									4.38E+06	4.84E+06
QUAD-CITIES	10/18/71									9.15E+06	8.76E+06
QUAD-CITIES	04/26/72										
VERMONT YANKEE	03/24/72									3.24E+06	3.45E+06
FORT ST. VRAIN*	01/31/74									6.09E+05	1.24E+05

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NET ELECTRICAL ENERGY GENERATION COMPARISON BY YEAR

BOILING WATER REACTORS		MEGAWATT HOURS	
FACILITY	INITIAL CRITICALITY	1980	1981
BIG ROCK POINT	09/27/62	4.05E+05	4.70E+05
BROWNS FERRY	08/17/73	6.06E+06	4.41E+06
BROWNS FERRY	07/20/74	5.62E+06	7.47E+06
BROWNS FERRY	08/08/76	6.94E+06	6.26E+06
BRUNSWICK	10/08/76	3.94E+06	2.56E+06
BRUNSWICK	03/20/75	1.86E+05	3.28E+06
COOPER	02/21/74	3.79E+06	3.85E+06
DRESDEN 1	10/15/59	0.00E+00	0.00E+00
DRESDEN 2-3	01/07/70	4.58E+06	3.41E+06
DRESDEN 2-3	01/31/71	4.33E+06	5.18E+06
DUANE ARNOLD	03/23/74	2.80E+06	2.22E+06
EDWIN I. HATCH 1	09/12/74	4.79E+06	2.76E+06
EDWIN I. HATCH 2	07/04/78	3.64E+06	4.48E+06
HUMBOLDT BAY	02/16/63	0.00E+00	0.00E+00
JAMES A. FITZPATRICK	11/17/74	4.33E+06	4.78E+06
LACROSSE	07/11/67	2.15E+06	2.41E+05
MILLSTONE 1	10/26/70	3.40E+06	2.52E+06
MONTICELLO	12/10/70	3.45E+06	3.26E+06
NINE MILE POINT	09/05/69	4.54E+06	3.27E+06
OYSTER CREEK	05/03/69	1.96E+06	2.63E+06
PEACH BOTTOM	09/16/73	4.34E+06	6.63E+06
PEACH BOTTOM	08/07/74	7.23E+06	3.13E+06
PILGRIM	06/16/72	3.04E+06	3.44E+06
QUAD-CITIES	10/18/71	3.44E+06	5.73E+06
QUAD-CITIES	04/26/72	3.61E+06	3.77E+06
VERMONT YANKEE	03/24/72	2.98E+06	3.57E+06
FORT ST. VRAIN*	01/31/74	6.76E+05	7.55E+05

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NET ELECTRICAL ENERGY GENERATION COMPARISON BY YEAR

PRESSURIZED WATER REACTORS		MEGAWATT HOURS									
FACILITY	INITIAL CRITICALITY	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
ARKANSAS ONE 1	08/06/74									5.25E+06	3.32E+06
ARKANSAS ONE 2	12/05/78									3.98E+03	8.81E+05
BEAVER VALLEY	05/10/76									2.48E+06	1.79E+06
CALVERT CLIFFS	10/07/74									9.91E+06	9.68E+06
CALVERT CLIFFS	11/30/76										
CRYSTAL RIVER	01/14/77									2.59E+06	3.76E+06
DAVIS-BESSE	08/12/77									2.61E+06	3.13E+06
DONALD C. COOK	01/18/75									1.01E+07	1.16E+07
DONALD C. COOK	07/01/78										
FORT CALHOUN	08/06/73									2.85E+06	3.67E+06
H. B. ROBINSON	09/20/70									3.98E+06	4.00E+06
HADDAM NECK	07/24/67									4.71E+06	4.12E+06
INDIAN POINT 1-2	08/02/62									4.37E+06	4.80E+06
INDIAN POINT 1-2	05/22/73										
INDIAN POINT 3	04/06/76									5.46E+06	4.79E+06
JOSEPH M. FARLEY 1	08/09/77									5.92E+06	1.74E+06
JOSEPH M. FARLEY 2	05/05/81										
KEWAUNEE	03/07/74									3.89E+06	3.44E+06
MAINE YANKEE	10/23/72									5.35E+06	4.54E+06
MCGUIRE	08/08/81										
MILLSTONE 2	10/17/75									4.50E+06	4.36E+06
NORTH ANNA	04/05/78									3.66E+06	4.19E+06
NORTH ANNA	06/12/80										
OCONEE	04/19/73									1.59E+07	1.32E+07
OCONEE	11/11/73										
OCONEE	09/05/74										
PALISADES	05/24/71									2.62E+06	3.43E+06
POINT BEACH	11/02/70									7.65E+06	6.77E+06
POINT BEACH	05/30/72										
PRAIRIE ISLAND	12/01/73									7.73E+06	7.10E+06
PRAIRIE ISLAND	12/17/74										
R. E. GINNA	11/08/69									3.22E+06	2.96E+06
RANCHO SECO	09/16/74									4.99E+06	5.71E+06
SALEM 1	12/11/76									4.53E+06	2.04E+06
SALEM 2	08/02/80										
SAN ONOFRE	06/14/67									2.68E+06	3.36E+06
SEQUOYAH	07/05/80										
ST. LUCIE	04/22/76									5.00E+06	4.88E+06
SURRY	07/01/72									1.01E+07	2.87E+06
SURRY	03/07/73										
THREE MILE ISLAND 1	06/05/74									5.67E+06	8.48E+05
THREE MILE ISLAND 2	03/28/78									5.77E+05	N/R
TMI 2/EPICOR	03/28/78										
TROJAN	12/15/75									1.67E+06	5.27E+06
TURKEY POINT	10/20/72									8.29E+06	6.71E+06
TURKEY POINT	06/11/73										
YANKEE ROWE	08/19/60									1.19E+06	1.23E+06
ZION 1	06/19/73									1.35E+07	1.03E+07
ZION 2	12/24/73										

TABLE 14

NET ELECTRICAL ENERGY GENERATION COMPARISON BY YEAR

PRESSURIZED WATER REACTORS		MEGAWATT HOURS	
FACILITY	INITIAL CRITICALITY	1980	1981
ARKANSAS ONE 1	08/06/74	3.78E+06	4.90E+06
ARKANSAS ONE 2	12/05/78	3.65E+06	4.32E+06
BEAVER VALLEY	05/10/76	3.01E+05	4.66E+06
CALVERT CLIFFS	10/07/74	4.53E+06	6.11E+06
CALVERT CLIFFS	11/30/76	6.41E+06	5.42E+06
CRYSTAL RIVER	01/14/77	3.35E+06	4.01E+06
DAVIS-BESSE	08/12/77	2.09E+06	4.36E+06
DONALD C. COOK	01/18/75	6.46E+06	6.78E+06
DONALD C. COOK	07/01/78	6.70E+06	6.38E+06
FORT CALHOUN	08/06/73	2.01E+06	2.15E+06
H. B. ROBINSON	09/20/70	3.21E+06	3.50E+06
HADDAM NECK	07/24/67	3.56E+06	4.06E+06
INDIAN POINT 1-2	08/02/62	0.00E+00	0.00E+00
INDIAN POINT 1-2	05/22/73	4.26E+06	3.06E+06
INDIAN POINT 3	04/06/76	3.07E+06	3.03E+06
JOSEPH M. FARLEY 1	08/09/77	4.60E+06	2.62E+06
JOSEPH M. FARLEY 2	05/05/81		2.92E+06
KEWAUNEE	03/07/74	3.63E+06	3.77E+06
MAINE YANKEE	10/23/72	4.40E+06	5.21E+06
MCGUIRE	08/08/81		1.91E+04
MILLSTONE 2	10/17/75	4.88E+06	6.09E+06
NORTH ANNA	04/05/78	5.63E+06	4.64E+06
NORTH ANNA	06/12/80	3.50E+05	5.65E+06
OCONEE	04/19/73	5.12E+06	3.00E+06
OCONEE	11/11/73	3.88E+06	5.19E+06
OCONEE	09/05/74	5.22E+06	5.64E+06
PALISADES	05/24/71	2.38E+06	3.46E+06
POINT BEACH	11/02/70	2.48E+06	2.61E+06
POINT BEACH	05/30/72	3.59E+06	3.72E+06
PRAIRIE ISLAND	12/01/73	3.11E+06	3.84E+06
PRAIRIE ISLAND	12/17/74	3.47E+06	3.09E+06
R. E. GINNA	11/08/69	3.09E+06	3.32E+06
RANCHO SECO	09/16/74	4.42E+06	2.63E+06
SALEM 1	12/11/76	5.68E+06	6.19E+06
SALEM 2	08/02/80	0.00E+00	1.63E+06
SAN ONOFRE	06/14/67	8.17E+05	7.79E+05
SEQUOYAH	07/05/80	5.18E+05	2.53E+06
ST. LUCIE	04/22/76	5.20E+06	4.95E+06
SURRY	07/01/72	2.47E+06	2.38E+06
SURRY	03/07/73	2.24E+06	5.15E+06
THREE MILE ISLAND 1	06/05/74	0.00E+00	0.00E+00
THREE MILE ISLAND 2	03/28/78	0.00E+00	0.00E+00
TMI 2/EPICOR	03/28/78	0.00E+00	0.00E+00
TROJAN	12/15/75	6.07E+06	6.42E+06
TURKEY POINT	10/20/72	4.39E+06	9.12E+05
TURKEY POINT	06/11/73	3.85E+06	4.50E+06
YANKEE ROWE	08/19/60	2.92E+05	8.85E+05
YANKEE ROWE 1	06/19/73	6.51E+06	6.19E+06
YANKEE ROWE 2	12/24/73	5.28E+06	5.26E+06

TABLE 15

THERMAL ENERGY GENERATION COMPARISON BY YEAR

BOILING WATER REACTORS		MEGAWATT HOURS									
FACILITY	INITIAL CRITICALITY	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
BIG ROCK POINT	09/27/62	1.18E+06	1.21E+06	1.20E+06	1.41E+06	1.13E+06	9.80E+05	8.30E+05	1.23E+06	1.37E+06	3.96E+05
BROWNS FERRY	08/17/73				1.37E+06	1.64E+07	8.75E+06	1.34E+07	5.37E+07	5.32E+07	6.31E+07
BROWNS FERRY	07/20/74										
BROWNS FERRY	08/08/76										
BRUNSWICK	10/08/76						4.72E+06	7.81E+06	1.59E+07	3.07E+07	2.12E+07
BRUNSWICK	03/20/75										
COOPER	02/21/74					6.90E+06	1.24E+07	1.19E+07	1.45E+07	1.54E+07	1.58E+07
DRESDEN 1	10/15/59	4.77E+06	2.38E+06	3.76E+06	2.43E+06	1.36E+06	2.56E+06	3.42E+06	2.21E+06	2.73E+06	0.00E+00
DRESDEN 2-3	01/07/70	4.11E+06	1.23E+07	2.52E+07	2.83E+07	2.18E+07	1.70E+07	2.74E+07	2.89E+07	3.13E+07	2.77E+07
DRESDEN 2-3	01/31/71										
DUANE ARNOLD	03/23/74						7.42E+06	8.02E+06	9.32E+06	3.96E+06	9.07E+06
EDWIN I. HATCH 1	09/12/74						9.75E+06	1.38E+07	1.22E+07	3.37E+07	1.62E+07
EDWIN I. HATCH 2	07/04/78										
HUMBOLDT BAY	02/16/63	1.40E+06	1.14E+06	1.25E+06	1.47E+06	1.27E+06	1.32E+06	6.80E+05	0.00E+00	0.00E+00	0.00E+00
JAMES A. FITZPATRICK	11/17/74						6.81E+06	1.26E+07	1.18E+07	1.30E+07	8.97E+06
LACROSSE	07/11/67	4.50E+05	7.10E+05	8.20E+05	6.90E+05	1.08E+06	9.20E+05	6.10E+05	3.43E+05	6.54E+05	7.48E+05
MILLSTONE 1	10/26/70	2.60E+05	1.11E+07	9.69E+06	5.96E+06	1.12E+07	1.21E+07	1.16E+07	1.48E+07	1.43E+07	1.30E+07
MONTICELLO	12/10/70		4.37E+06	1.10E+07	9.90E+06	8.28E+06	8.88E+06	1.23E+07	1.10E+07	1.18E+07	1.35E+07
NINE MILE POINT	09/05/69	5.94E+06	9.94E+06	1.00E+07	1.10E+07	1.05E+07	9.68E+06	1.31E+07	9.15E+06	1.39E+07	9.67E+06
OYSTER CREEK	05/03/69	1.06E+07	1.17E+07	1.30E+07	1.09E+07	1.13E+07	9.81E+06	1.18E+07	9.82E+06	1.10E+07	1.38E+07
PEACH BOTTOM	09/16/73					1.23E+07	3.34E+07	3.72E+07	2.86E+07	4.39E+07	4.58E+07
PEACH BOTTOM	08/07/74										
PILGRIM	06/16/72			2.65E+06	1.25E+07	6.00E+06	8.10E+06	7.60E+06	8.26E+06	1.33E+07	1.47E+07
QUAD-CITIES	10/18/71			1.25E+07	3.17E+07	2.61E+07	2.31E+07	2.59E+07	2.68E+07	3.14E+07	3.00E+07
QUAD-CITIES	04/26/72										
VERMONT YANKEE	03/24/72			1.48E+06	6.08E+06	8.20E+06	1.13E+07	1.02E+07	1.11E+07	1.00E+07	1.08E+07
FORT ST. VRAIN*	01/31/74									2.04E+06	4.78E+05

TABLE 15

THERMAL ENERGY GENERATION COMPARISON BY YEAR

BOILING WATER REACTORS		MEGAWATT HOURS	
FACILITY	INITIAL CRITICALITY	1980	1981
BIG ROCK POINT	09/27/62	1.40E+06	1.63E+06
BROWNS FERRY	08/17/73	1.92E+07	1.36E+07
BROWNS FERRY	07/20/74	1.74E+07	2.31E+07
BROWNS FERRY	08/08/76	2.13E+07	1.95E+07
BRUNSWICK	10/08/76	1.23E+07	8.29E+06
BRUNSWICK	03/20/75	5.38E+06	1.04E+07
COOPER	02/21/74	1.36E+07	1.39E+07
DRESDEN 1	10/15/59	0.00E+00	0.00E+00
DRESDEN 2-3	01/07/70	1.57E+07	1.13E+07
DRESDEN 2-3	01/31/71	1.42E+07	1.71E+07
DUANE ARNOLD	03/23/74	8.87E+06	7.05E+06
EDWIN I. HATCH 1	09/12/74	1.54E+07	8.97E+06
EDWIN I. HATCH 2	07/04/78	1.16E+07	1.47E+07
HUMBOLDT BAY	02/16/63	0.00E+00	0.00E+00
JAMES A. FITZPATRICK	11/17/74	1.30E+07	1.42E+07
LACROSSE	07/11/67	8.00E+05	9.11E+05
MILLSTONE 1	10/26/70	1.04E+07	8.60E+06
MONTICELLO	12/10/70	1.07E+07	1.01E+07
NINE MILE POINT	09/05/69	1.41E+07	1.01E+07
OYSTER CREEK	05/03/69	6.27E+06	8.44E+06
PEACH BOTTOM	09/16/73	1.37E+07	2.08E+07
PEACH BOTTOM	08/07/74	2.26E+07	9.85E+06
PILGRIM	06/16/72	9.20E+06	1.05E+07
QUAD-CITIES	10/18/71	1.17E+07	1.88E+07
QUAD-CITIES	04/26/72	1.22E+07	1.27E+07
VERMONT YANKEE	03/24/72	9.38E+06	1.13E+07
FORT ST. VRAIN*	01/31/74	2.23E+06	2.23E+06

TABLE 16

THERMAL ENERGY GENERATION COMPARISON BY YEAR

PRESSURIZED WATER REACTORS		MEGAWATT HOURS									
FACILITY	INITIAL CRITICALITY	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
ARKANSAS ONE 1	08/06/74					1.99E+06	1.54E+07	1.21E+07	1.64E+07	1.64E+07	1.05E+07
ARKANSAS ONE 2	12/05/78									4.45E+04	3.45E+06
BEAVER VALLEY	05/10/76							1.97E+06	1.01E+07	8.80E+06	6.11E+06
CALVERT CLIFFS	10/07/74						1.40E+07	1.98E+07	2.97E+07	3.14E+07	3.15E+07
CALVERT CLIFFS	11/30/76										
CRYSTAL RIVER	01/14/77								1.26E+07	7.97E+06	1.17E+07
DAVIS-BESSE	08/12/77								1.66E+06	8.52E+06	1.00E+07
DONALD C. COOK	01/18/75						1.46E+07	2.15E+07	1.55E+07	3.29E+07	3.68E+07
DONALD C. COOK	07/01/78										
FORT CALHOUN	08/06/73				2.03E+06	7.58E+06	6.71E+06	7.15E+06	9.40E+06	8.98E+06	1.16E+07
H. B. ROBINSON	09/20/70	6.00E+04	7.85E+06	1.55E+07	1.25E+07	1.56E+07	1.36E+07	1.59E+07	1.43E+07	1.33E+07	1.30E+07
HADDAM NECK	07/24/67	1.14E+07	1.34E+07	1.38E+07	7.73E+06	1.42E+07	1.34E+07	1.30E+07	1.31E+07	1.51E+07	1.32E+07
INDIAN POINT 1-2	08/02/62				1.47E+06	1.15E+07	1.64E+07	7.60E+06	3.50E+07	1.48E+07	1.61E+07
INDIAN POINT 1-2	05/22/73										
INDIAN POINT 3	04/06/76									1.70E+07	1.57E+07
JOSEPH M. FARLEY 1	08/09/77									1.95E+07	5.77E+06
JOSEPH M. FARLEY 2	05/05/81										
KEWAUNEE	03/07/74					5.03E+06	1.08E+07	1.08E+07	1.11E+07	1.24E+07	1.09E+07
MAINE YANKEE	10/23/72			1.44E+06	1.08E+07	1.14E+07	1.47E+07	1.94E+07	1.65E+07	1.69E+07	1.41E+07
MCGUIRE	08/08/81										
MILLSTONE 2	10/17/75						6.40E+05	1.52E+07	1.42E+07	1.44E+07	1.38E+07
NORTH ANNA	04/05/78									1.22E+07	1.41E+07
NORTH ANNA	06/12/80										
OCONEE	04/19/73				6.62E+06	1.70E+07	4.68E+07	3.97E+07	4.00E+07	4.84E+07	4.37E+07
OCONEE	11/11/73										
OCONEE	09/05/74										
PALISADES	05/24/71			5.91E+06	7.80E+06	4.00E+05	8.91E+06	9.66E+06	1.73E+07	9.44E+06	1.20E+07
POINT BEACH	11/02/70	6.30E+05	1.00E+07	9.96E+06	1.84E+07	2.04E+07	2.09E+07	2.18E+07	2.23E+07	2.33E+07	2.08E+07
POINT BEACH	05/30/72										
PRAIRIE ISLAND	12/01/73				1.28E+05	5.26E+06	2.25E+07	2.06E+07	2.46E+07	2.52E+07	1.12E+08
PRAIRIE ISLAND	12/17/74										
R. E. GINNA	11/08/69	6.84E+06	8.50E+06	7.71E+06	1.08E+07	6.71E+06	9.71E+06	6.98E+06	1.11E+07	1.05E+07	9.35E+06
RANCHO SECO	09/16/74						4.11E+06	6.91E+06	1.81E+07	1.59E+07	1.79E+07
SALEM 1	12/11/76							5.00E+04	6.70E+06	1.43E+07	6.60E+06
SALEM 2	08/02/80										
SAN ONOFRE	06/14/67	9.19E+06	9.60E+06	8.53E+06	7.09E+06	9.73E+06	1.00E+07	7.75E+06	7.29E+06	8.54E+06	1.05E+07
SEQUOYAH	07/05/80										
ST. LUCIE	04/22/76							3.50E+05	1.75E+07	1.64E+07	1.60E+07
SURRY	07/01/72			1.29E+06	2.26E+07	1.92E+07	2.90E+07	2.51E+07	3.10E+07	3.27E+07	9.32E+06
SURRY	03/07/73										
THREE MILE ISLAND 1	06/05/74					6.20E+06	1.76E+07	1.39E+07	1.76E+07	1.83E+07	2.83E+06
THREE MILE ISLAND 2	03/28/78									3.16E+06	N/R
TMI 2/EPICOR	03/28/78										
TROJAN	12/15/75							7.54E+06	2.12E+07	5.63E+06	1.70E+07
TURKEY POINT	10/20/72			2.90E+05	1.53E+07	2.55E+07	2.78E+07	2.68E+07	2.70E+07	2.81E+07	2.28E+07
TURKEY POINT	06/11/73										
YANKEE ROWE	08/19/60	4.13E+06	5.02E+06	2.40E+06	3.57E+06	3.07E+06	4.02E+06	4.25E+06	3.52E+06	4.16E+06	4.17E+06
ZION 1	06/19/73				2.73E+06	1.69E+07	3.28E+07	3.11E+07	3.66E+07	4.30E+07	3.31E+07
ZION 2	12/24/73										

TABLE 16

THERMAL ENERGY GENERATION COMPARISON BY YEAR

PRESSURIZED WATER REACTORS		MEGAWATT HOURS	
FACILITY	INITIAL CRITICALITY	1980	1981
ARKANSAS ONE 1	08/06/74	1.29E+07	1.54E+07
ARKANSAS ONE 2	12/05/78	1.18E+07	1.39E+07
BEAVER VALLEY	05/10/76	1.13E+06	1.55E+07
CALVERT CLIFFS	10/07/74	1.52E+07	1.96E+07
CALVERT CLIFFS	11/30/76	2.05E+07	1.71E+07
CRYSTAL RIVER	01/14/77	1.04E+07	1.27E+07
DAVIS-BESSE	08/12/77	6.71E+06	1.40E+07
DONALD C. COOK	01/18/75	2.02E+07	2.11E+07
DONALD C. COOK	07/01/78	2.14E+07	2.04E+07
FORT CALHOUN	08/06/73	6.48E+06	6.98E+06
H. B. ROBINSON	09/20/70	1.07E+07	1.19E+07
HADDAM NECK	07/24/67	1.14E+07	1.31E+07
INDIAN POINT 1-2	08/02/62	0.00E+00	0.00E+00
INDIAN POINT 1-2	05/22/73	1.50E+07	1.05E+07
INDIAN POINT 3	04/06/76	1.15E+07	1.14E+07
JOSEPH M. FARLEY 1	08/09/77	1.54E+07	8.96E+06
JOSEPH M. FARLEY 2	05/05/81		9.47E+06
KEWAUNEE	03/07/74	1.15E+07	1.21E+07
MAINE YANKEE	10/23/72	1.41E+07	1.67E+07
MCGUIRE	08/08/81		8.50E+04
MILLSTONE 2	10/17/75	1.55E+07	1.92E+07
NORTH ANNA	04/05/78	1.89E+07	1.51E+07
NORTH ANNA	06/12/80	1.12E+06	1.77E+07
OCONEE	04/19/73	1.52E+07	9.00E+06
OCONEE	11/11/73	1.20E+07	1.59E+07
OCONEE	09/05/74	1.59E+07	1.72E+07
PALISADES	05/24/71	8.19E+06	1.17E+07
POINT BEACH	11/02/70	8.09E+06	8.51E+06
POINT BEACH	05/30/72	1.11E+07	1.15E+07
PRAIRIE ISLAND	12/01/73	1.06E+07	1.25E+07
PRAIRIE ISLAND	12/17/74	1.14E+07	1.01E+07
R. E. GINNA	11/08/69	9.93E+06	1.07E+07
RANCHO SECO	09/16/74	1.39E+07	8.92E+06
SALEM 1	12/11/76	1.84E+07	2.02E+07
SALEM 2	08/02/80	0.00E+00	5.11E+06
SAN ONOFRE	06/14/67	2.55E+06	2.59E+06
SEQUOYAH	07/05/80	1.67E+06	8.06E+06
ST. LUCIE	04/22/76	1.70E+07	1.61E+07
SURRY	07/01/72	8.67E+06	7.94E+06
SURRY	03/07/73	7.26E+06	1.68E+07
THREE MILE ISLAND 1	06/05/74	0.00E+00	0.00E+00
THREE MILE ISLAND 2	03/28/78	0.00E+00	0.00E+00
TMI 2/EPICOR	03/28/78	0.00E+00	0.00E+00
TROJAN	12/15/75	1.97E+07	2.10E+07
TURKEY POINT	10/20/72	1.47E+07	3.03E+06
TURKEY POINT	06/11/73	1.32E+07	1.48E+07
YANKEE ROWE	08/19/60	1.13E+06	3.63E+06
YON 1	06/19/73	2.22E+07	1.98E+07
YON 2	12/24/73	1.75E+07	1.77E+07

APPENDIX A

INDIVIDUAL PLANT SUMMARIES

INSTALLATION:ARKANSAS ONE 1

LOCATION:6 MI WNW RUSSELLVILLE, AR

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1

TYPE: PWR

DOCKET NO.:50-513

COOLING WATER SOURCE:DARDANELLE RESERVOIR

LICENSEE:ARKANSAS POWER &LIGHT

LICENSED POWER (MWT):2568.00

INITIAL CRITICALITY:08/06/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
K-40	1.36E-05
AR-41	0.00E+00
MN-54	7.14E-07
CO-58	1.45E-05
CO-60	6.36E-06
KR-85	5.40E+01
KR-85M	1.41E-02
KR-87	0.00E+00
KR-88	1.41E-03
SR-89	7.16E-07
SR-90	6.95E-07
NB-95	3.40E-07
I-131	5.52E-03
XE-131M	1.45E+02
I-133	7.10E-05
XE-133	3.43E+03
XE-133M	5.70E+00
CS-134	3.12E-06
XE-135	9.91E+01
CS-137	1.42E-05
BA-140	2.02E-07
TH-228	3.02E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	6.68E-03
NA-24	6.51E-04
CR-51	2.18E-01
MN-54	4.98E-02
MN-56	0.00E+00
CO-57	3.24E-03
CO-58	1.80E+00
FE-59	3.36E-02
CO-60	9.50E-01
NI-65	0.00E+00
ZN-65	2.35E-04
SE-75	2.68E-04
KR-85	8.15E-02
KR-85M	8.06E-05
KR-87	4.53E-06
KR-88	1.60E-03
SR-89	4.16E-03
SR-90	1.01E-03
SR-91	7.50E-05

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-92	6.13E-04
NB-95	8.60E-02
ZR-95	4.65E-02
NB-97	7.18E-02
ZR-97	4.29E-03
MO-99	3.89E-04
RU-103	2.17E-02
RU-106	5.83E-02
AG-110M	1.46E-01
I-131	1.13E-01
XE-131M	4.80E-01
BA-133	3.15E-03
I-133	7.73E-05
XE-133	5.60E+01
XE-133M	3.60E-01
CS-134	6.30E-01
I-134	3.95E-05
XE-135	5.75E-02
CS-136	4.70E-04
CS-137	1.24E+00
CS-138	1.18E-05
BA-140	9.93E-04
LA-140	8.64E-02
CE-144	3.48E-02
EU-152	1.35E-05
W-187	1.13E-04
NP-239	1.56E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	1.25E+02
TOTAL LIQUID RELEASE	4.42E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.95E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.71E+12

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.: 50-368
COOLING WATER SOURCE: COOLING TOWER

LICENSEE: ARKANSAS POWER & LIGHT
LICENSED POWER (MW): 2815.00
INITIAL CRITICALITY: 12/05/78

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	2.72E-06
K-40	1.90E-05
AR-41	1.97E-05
MN-54	1.74E-07
CO-58	2.21E-05
CO-60	4.10E-06
SE-75	1.99E-07
KR-85	2.70E+00
KR-85M	6.50E+00
KR-87	0.00E+00
KR-88	4.10E+00
SR-89	7.37E-06
SR-90	1.30E-06
NB-95	6.94E-06
ZR-95	1.62E-06
NB-97	1.14E-07
TC-99M	4.14E-07
RU-103	1.91E-06
AG-110M	1.85E-07
SN-113	4.32E-08
I-131	1.37E-02
XE-131M	3.90E+01
TE-132	2.02E-07
I-133	3.53E-04
XE-133	4.03E+03
XE-133M	1.90E+00
CS-134	2.02E-06
I-135	6.14E-06
XE-135	2.75E+02
CS-137	4.34E-06
CE-144	1.28E-06
BI-214	6.62E-05
PB-214	4.23E-06
RA-226	1.98E-07
TH-228	6.54E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
BE-7	1.45E-03
NA-24	1.85E-03
CR-51	1.19E-01
MN-54	2.55E-02
CO-57	5.37E-04
CO-58	4.40E-01

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
FE-59	3.08E-02
CO-60	6.72E-02
NI-65	4.00E-05
ZN-65	7.86E-04
SE-75	4.94E-05
KR-85	1.60E-01
KR-85M	1.11E-02
KR-87	1.81E-04
KR-88	3.41E-03
SR-89	2.22E-03
SR-90	0.00E+00
SR-91	1.79E-05
SR-92	1.87E-04
NB-95	4.15E-02
ZR-95	2.68E-02
NB-97	7.62E-03
ZR-97	7.35E-05
MO-99	5.06E-03
RU-103	1.49E-02
RU-106	2.39E-03
AG-110M	1.63E-02
I-131	1.27E+00
XE-131M	6.10E-01
I-132	3.87E-05
BA-133	5.32E-05
I-133	4.42E-02
XE-133	1.43E+02
XE-133M	7.60E-01
CS-134	1.99E-01
I-135	1.05E-03
XE-135	4.00E-01
CS-136	4.83E-03
CS-137	5.70E-01
CS-138	1.25E-04
BA-140	9.26E-05
LA-140	1.13E-02
CE-144	3.02E-03
W-187	1.78E-05
NP-239	8.88E-05

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	3.10E+00
TOTAL LIQUID RELEASE	2.44E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	9.25E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.09E+12

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-334
COOLING WATER SOURCE: OHIO RIVER

LICENSEE: DUQUESNE LIGHT + OHIO EDISON + PENNSYLVANIA POWER
LICENSED POWER (MWT): 2652.00
INITIAL CRITICALITY: 05/10/76

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	4.43E-07
CO-58	1.50E-05
CO-60	5.52E-05
KR-85	<6.58E+00
KR-85M	<4.50E-01
KR-87	<1.17E-01
KR-88	<1.94E-01
SR-89	<1.27E-05
SR-90	<1.02E-04
I-131	<6.41E-03
XE-131M	8.33E+00
I-133	<2.77E-04
XE-133	<7.82E+02
XE-133M	4.06E+00
CS-134	<1.03E-07
I-135	<9.28E-05
XE-135	<3.77E+00
XE-135M	<1.76E-01
CS-137	<5.16E-05
XE-138	<6.64E-07
BA-LA-140	<1.62E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	<2.84E-05
MN-54	6.05E-03
CO-58	2.50E-02
FE-59	<2.09E-06
CO-60	8.99E-02
ZN-65	<6.60E-07
SR-89	5.40E-04
SR-90	1.07E-05
ZR-NB-95	<8.90E-04
MO-99	<7.69E-07
TC-99M	<3.06E-06
I-131	2.90E-03
I-133	1.65E-04
XE-133	3.07E-02
CS-134	5.10E-03
XE-135	<1.63E-04
CS-137	1.33E-02
BA-140	<2.64E-07
LA-140	<1.24E-07
CE-141	<4.11E-07

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 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS
NUCLIDES RELEASED

ACTIVITY (CI)

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	9.49E-02
TOTAL LIQUID RELEASE	1.40E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.30E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	4.29E+09

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

INSTALLATION: BEAVER VALLEY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 36 MODE OF TRANSPORTATION TRUCK

DESTINATION
BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS (DISPOSITION)

NUMBER OF SHIPMENTS 0 MODE OF TRANSPORTATION

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

A

	%	JAN-JUNE	JULY-DEC
CO-58	%	2.26E+01	1.16E+01
CO-60	%	6.65E+01	6.92E+01
CS-137	%	4.40E+00	9.10E+00

B

CO-58	%	2.26E+01	9.40E+00
CO-60	%	6.09E+01	8.58E+01
CS-137	%		2.70E+00
MN-54	%	7.20E+00	

TYPE OF WASTE

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

UNIT YEAR TOTAL

M3 1.07E+02
CI 8.73E+01

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 1.06E+02
CI 5.68E+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 1981
AIRBORNE AND LIQUID EFFLUENTSUNIT NUMBER: 1
TYPE: BWR
DOCKET NO.: 50-155LICENSEE: CONSUMERS POWER
LICENSED POWER (MWT): 240.00
INITIAL CRITICALITY: 09/27/62

COOLING WATER SOURCE: LAKE MICHIGAN

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
N-13	1.81E+03
NA-24	8.38E-04
CR-51	5.42E-04
MN-54	4.99E-05
CO-60	2.10E-04
BR-82	1.25E-02
KR-83M	3.09E+02
KR-85	3.63E+00
KR-85M	3.67E+02
KR-87	1.36E+03
KR-88	9.53E+02
KR-89	8.53E+02
KR-90	9.55E+02
KR-91	1.19E+01
I-131	2.38E-03
XE-131M	1.34E+00
I-133	3.39E-02
XE-133	2.85E+02
XE-133M	7.74E+00
I-135	2.79E-02
XE-135	1.30E+03
XE-135M	1.39E+03
CS-136	4.60E-05
CS-137	1.50E-04
XE-137	1.35E+03
XE-138	7.34E+03
XE-139	1.27E+03
BA-140	1.45E-03
LA-140	9.55E-03
XE-140	1.29E+02
UNIDENTIFIED	1.28E-03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.91E-02
MN-54	1.69E-02
CO-58	2.25E-04
FE-59	2.37E-03
CO-60	4.99E-02
ZN-65	1.82E-04
SR-89	6.87E-04
SR-90	1.02E-03
AG-110M	1.70E-04
SB-124	1.37E-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 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-131	1.94E-04
XE-133	2.44E-05
CS-134	3.38E-02
CS-137	1.79E-01
LA-140	5.92E-06
UNIDENTIFIED	8.78E-02

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	<1.02E+01
TOTAL LIQUID RELEASE	3.13E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	5.76E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	9.51E+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 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
10	TRUCK	BARNWELL, S.C.
4	TRUCK	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

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	4.04E+01
CI	3.05E+02
M3	9.84E+01
CI	4.44E+00
M3	5.66E+00
CI	8.00E+00
M3	
CI	

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.: 50-259
COOLING WATER SOURCE: TENNESSEE RIVER
UNIT NUMBER: 2
TYPE: BWR
DOCKET NO.: 50-260
COOLING WATER SOURCE: TENNESSEE RIVER
UNIT NUMBER: 3
TYPE: BWR
DOCKET NO.: 50-296
COOLING WATER SOURCE: TENNESSEE RIVER

LICENSEE: TENNESSEE VALLEY AUTHORITY
LICENSED POWER (MWT): 3293.00
INITIAL CRITICALITY: 08/17/73

LICENSEE: TENNESSEE VALLEY AUTHORITY
LICENSED POWER (MWT): 3293.00
INITIAL CRITICALITY: 07/20/74

LICENSEE: TENNESSEE VALLEY AUTHORITY
LICENSED POWER (MWT): 3293.00
INITIAL CRITICALITY: 08/08/76

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	3.80E+01
AR-41	4.49E+02
MN-54	3.45E-03
CO-58	2.53E-03
FE-59	5.59E-03
CO-60	1.70E-02
KR-85	8.42E+02
KR-85M	2.67E+03
KR-87	1.01E+03
KR-88	1.22E+04
SR-89	3.08E-03
SR-90	3.21E-03
NB-95	2.67E-03
ZR-95	8.16E-03
I-131	4.00E-02
MI-131	4.00E-02
I-133	1.50E-02
MI-133	1.50E-02
XE-133	9.35E+03
CS-134	3.76E-03
I-135	3.73E-02
MI-135	3.73E-02
XE-135	5.48E+02
XE-135M	1.84E+03
CS-137	4.33E-03
XE-138	1.62E+04
BA-140	3.43E-03
LA-140	1.05E-02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	2.42E+01
NA-24	9.22E-02
CR-51	2.34E-01
MN-54	7.45E-02
MN-56	2.92E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-58	1.99E-02
FE-59	1.54E-01
CO-60	3.48E-01
CU-64	1.43E-01
ZN-65	3.79E-01
BR-82	1.14E-02
SR-89	5.50E-02
SR-90	2.72E-02
NB-95	1.72E-02
ZR-95	1.72E-02
MO-99	4.73E-03
TC-99M	4.73E-03
AG-110M	3.02E-02
SB-124	9.37E-03
SB-125	1.21E-02
I-131	3.96E-02
I-133	1.45E-02
XE-133	6.90E-02
CS-134	1.38E-01
I-135	7.56E-03
XE-135	6.56E-02
CS-136	7.49E-03
CS-137	1.95E-01
BA-140	2.58E-03
LA-140	2.58E-03
CE-141	2.94E-02
SM-153	1.16E-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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.: 50-325
COOLING WATER SOURCE: CAPE FEAR RIVER
UNIT NUMBER: 2
TYPE: BWR
DOCKET NO.: 50-324
COOLING WATER SOURCE: CAPE FEAR RIVER

LICENSEE: CAROLINA POWER & LIGHT
LICENSED POWER (MWT): 2436.00
INITIAL CRITICALITY: 10/08/76

LICENSEE: CAROLINA POWER & LIGHT
LICENSED POWER (MWT): 2436.00
INITIAL CRITICALITY: 03/20/75

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.76E+03
CR-51	3.78E-02
MN-54	2.06E-03
CO-57	2.79E-08
CO-58	3.47E-04
FE-59	1.27E-04
CO-60	3.38E-03
ZN-65	3.75E-06
KR-85	N/D
KR-85M	2.64E+04
SR-85	2.79E-07
KR-87	5.73E+04
KR-88	5.95E+04
ZR-NB-95	1.62E-06
MO-99	1.65E-04
TC-99M	1.52E-03
RU-103	2.56E-07
RH-106	4.42E-04
AG-110M	1.04E-05
SN-117M	3.37E-05
I-131	2.66E-01
I-132	9.81E-02
I-133	9.93E-01
XE-133	7.83E+04
XE-133M	2.88E+03
CS-134	8.67E-04
I-134	6.36E-02
I-135	8.48E-01
XE-135	9.75E+04
XE-135M	3.54E+04
CS-136	N/D
CS-137	2.05E-03
XE-138	1.40E+05
BA-139	2.71E-03
BA-LA-140	3.32E-03
CE-141	2.72E-05
CE-144	1.47E-06
NP-239	2.00E-05
UNIDENTIFIED	2.21E+04

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	3.15E-02
NA-24	2.50E-01
AR-41	3.80E-04
CR-51	4.31E-01
MN-54	2.21E-01
MN-56	4.84E-05
CO-57	1.65E-05
CO-58	4.15E-02
FE-59	1.01E-02
CO-60	4.68E-01
CU-64	4.51E-02
NI-65	N/D
ZN-65	1.58E-03
AS-76	9.25E-04
KR-85	1.16E-02
KR-85M	4.06E-05
SR-85	4.68E-05
SR-89	1.02E-02
SR-90	1.36E-03
SR-91	1.10E-03
Y-91M	3.65E-04
SR-92	4.58E-04
ZR-NB-95	5.57E-05
NB-97	7.49E-04
NB-97M	2.08E-06
ZR-97	3.50E-05
MO-99	N/D
TC-99M	3.11E-03
TC-101	1.56E-05
RU-103	6.88E-05
AG-110M	1.51E-03
IN-113M	N/D
SN-113	N/D
SN-117M	1.01E-05
SB-122	1.60E-02
TE-129M	N/D
I-131	9.40E-02
XE-131M	1.21E-02
I-132	1.75E-04
TE-132	2.55E-03
I-133	2.71E-02
XE-133	2.35E-01
XE-133M	3.62E-03
CS-134	1.71E-01
I-134	1.52E-05
I-135	6.25E-04
XE-135	1.18E-01
XE-135M	1.33E-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 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-136	1.79E-03
CS-137	2.55E-01
CS-138	2.15E-06
BA-139	8.59E-04
CE-139	N/D
BA-LA-140	2.65E-02
CE-141	9.86E-05
CE-144	9.72E-04
W-187	N/D
NP-239	1.29E-02
UNIDENTIFIED	6.51E-02

TRITIUM

	(CI)
TOTAL AIRBORNE RELEASE	1.76E+01
TOTAL LIQUID RELEASE	2.26E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	6.20E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.63E+11

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

INSTALLATION:BRUNSWICK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
318	SOLE USE VEHICLE
56	SOLE USE VEHICLE

DESTINATION
BARNWELL, S.C.
RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
0	

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

BA-140	%	7.59E-01
CO-58	%	4.00E+00
CO-60	%	2.94E+01
CR-51	%	2.44E+01
CS-134	%	6.68E+00
CS-137	%	1.09E+01
FE-59	%	2.44E+00
I-131	%	1.85E-01
I-133	%	4.56E-02
LA-140	%	1.02E+00
MN-54	%	2.07E+01
MO-99	%	6.97E-04
NA-24	%	2.46E-02
NB-97	%	1.13E-03
SB-122	%	8.45E-01
SR-92	%	1.02E-01
TC-99M	%	9.88E-02
TE-131	%	5.30E-02
ZN-65	%	3.36E-01
ZN-69M	%	8.37E-06

B

BA-140	%	7.59E-01
CO-58	%	4.00E+00
CO-60	%	2.94E+01
CR-51	%	2.44E+01
CS-134	%	6.68E+00
CS-137	%	1.09E+01
FE-59	%	2.44E+00
I-131	%	1.85E-01
I-133	%	4.56E-02
LA-140	%	1.02E+00
MN-54	%	2.07E+01
MO-99	%	6.97E-04
NA-24	%	2.46E-02
NB-97	%	1.13E-03
SB-122	%	8.45E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:BRUNSWICK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
SR-92	%	1.02E-01	1.01E-04
TC-99M	%		9.88E-02
TE-131	%		5.90E-02
ZN-65	%	3.36E-01	1.85E-01
ZN-69M	%		8.57E-06

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.37E+03
	CI	7.41E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.93E+03
	CI	6.03E+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: CALVERT CLIFFS

LOCATION: 45 MI SE WASHINGTON, D.C.

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-317
COOLING WATER SOURCE: CHESAPEAKE BAY
UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.: 50-318
COOLING WATER SOURCE: CHESAPEAKE BAY

LICENSEE: BALTIMORE GAS & ELECTRIC
LICENSED POWER (MWT): 2700.00
INITIAL CRITICALITY: 10/07/74

LICENSEE: BALTIMORE GAS & ELECTRIC
LICENSED POWER (MWT): 2700.00
INITIAL CRITICALITY: 11/30/76

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.08E+00
CO-58	9.80E-07
CO-60	3.00E-04
BR-82	4.79E-05
KR-85M	5.71E+01
KR-87	2.83E-01
KR-88	5.17E-01
RB-88	8.64E-03
SR-89	1.36E-04
SR-90	6.21E-05
I-131	3.72E-02
XE-131M	1.10E+02
I-132	1.60E-03
I-133	1.96E-02
XE-133	1.86E+03
XE-133M	2.56E+01
CS-134	6.10E-07
I-135	1.89E-03
XE-135	6.21E+01
CS-137	1.52E-06
CS-138	8.88E-05
BA-139	1.58E-08
CE-139	1.08E-07
BA-140	1.43E-04
LA-140	2.94E-04
CE-141	5.84E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	3.93E-02
MN-54	3.81E-01
MN-56	2.63E-04
CO-57	8.41E-04
CO-58	1.27E+00
CO-60	2.09E-01
SR-89	2.19E-02
SR-90	2.69E-02
NB-95	1.64E-02
ZR-95	1.75E-02
ZR-97	5.36E-04

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: CALVERT CLIFFS

LOCATION: 45 MI SE WASHINGTON, D.C.

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MO-99	1.66E-03
RU-103	4.45E-04
RU-106	1.07E-02
AG-110M	1.62E-02
SN-113	3.26E-03
SB-124	2.86E-04
SB-125	7.58E-02
I-131	3.07E-01
XE-131M	2.68E-02
I-133	5.89E-02
XE-133	3.91E+00
XE-133M	1.49E-02
CS-134	5.07E-02
XE-135	3.00E-02
CS-137	1.03E-01
BA-140	4.03E-03
LA-140	3.77E-02
CE-141	6.58E-06
CE-144	2.87E-03
UNIDENTIFIED	9.38E-03

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	5.81E+00
TOTAL LIQUID RELEASE	1.00E+03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.87E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.33E+12

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 42
MODE OF TRANSPORTATION
MOTOR SURFACE TRANSI

DESTINATION
BARNWELL, SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CO-58	%	2.52E+01	3.48E+01
CO-60	%	1.60E+01	5.80E+00
CS-134	%	1.87E+01	2.03E+01
CS-137	%	2.34E+01	2.97E+01
MN-54	%	1.61E+01	4.70E+00
SB-122	%		1.12E+00

B

CO-58	%	1.60E+01	2.63E+01
CO-60	%	7.23E+01	1.74E+01
CS-134	%	2.26E+00	1.06E+01
CS-137	%	6.38E+00	4.13E+01
MN-54	%	1.66E+00	2.60E+00
NB-95	%	1.03E+00	

C

CO-58	%	1.72E+01	2.18E+01
CO-60	%	2.21E+01	1.98E+01
CR-51	%	2.30E+00	
CS-134	%	7.28E+00	
CS-137	%	3.53E+01	
MN-54	%	3.79E+00	3.30E+00
NB-95	%	6.68E+00	6.30E+00
SB-122	%		2.80E+00
SB-125	%	3.96E+00	4.31E+01
ZR-95	%	1.36E+00	

TYPE OF WASTE

UNIT YEAR TOTAL

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

M3 5.29E+01
CI 9.40E+01

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 2.92E+02
CI 2.40E+00

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3 1.56E+02
CI 2.17E+00

D. OTHER

M3
CI

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-315
COOLING WATER SOURCE: LAKE MICHIGAN
UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.: 50-316
COOLING WATER SOURCE: LAKE MICHIGAN

LICENSEE: INDIANA & MICHIGAN ELECTRIC
LICENSED POWER (MWT): 3250.00
INITIAL CRITICALITY: 01/18/75

LICENSEE: INDIANA & MICHIGAN ELECTRIC
LICENSED POWER (MWT): 3391.00
INITIAL CRITICALITY: 07/01/78

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.59E-01
AR-41	2.30E-01
MN-54	6.08E-05
CO-58	8.30E-04
CO-60	2.13E-03
KR-85	4.50E+00
KR-85M	3.16E+00
KR-87	9.94E-01
KR-88	8.01E-01
NB-95	1.38E-06
ZR-95	8.57E-07
I-130	6.47E-06
I-131	4.66E-02
XE-131M	3.75E+00
I-133	4.77E-02
XE-133	2.22E+04
XE-133M	2.07E+01
CS-134	3.06E-03
I-135	3.52E-05
XE-135	2.47E+02
CS-136	1.26E-04
CS-137	1.33E-02
CE-139	1.99E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	4.79E-01
CR-51	2.82E-02
MN-54	2.75E-02
CO-57	3.77E-03
CO-58	4.57E-01
FE-59	6.14E-04
CO-60	2.26E-01
ZN-65	3.00E-03
SR-89	1.46E-03
SR-90	8.44E-04
ZR-NB-95	2.78E-02
ZR-97	2.23E-03
CD-109	1.71E-03
AG-110M	6.50E-02

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SN-113	4.33E-04
SB-124	5.48E-03
I-131	1.53E-01
I-133	5.67E-02
CS-134	3.92E-02
CS-136	5.27E-03
CS-137	7.87E-02
CE-139	8.05E-05
BA-LA-140	2.48E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	5.47E+00
TOTAL LIQUID RELEASE	9.15E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.83E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.47E+12

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

INSTALLATION: DONALD C. COOK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
82	TRUCK	BARNWELL, S.C.
1	TRUCK	BEATTY, NV
6	TRUCK	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS (DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

		JAN-JUNE	JULY-DEC
A			
	CO-58	% 4.50E+01	4.50E+01
	CO-60	% 2.00E+01	1.00E+01
	CS-134	% 1.00E+01	1.50E+01
	CS-137	% 2.50E+01	3.00E+01
B			
	CO-58	% 7.00E+01	7.50E+01
	CO-60	% 5.00E+00	1.00E+01
	CS-137	% 2.50E+01	1.50E+01

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	5.19E+02
BOTTOMS, ETC.	CI	1.29E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	4.45E+02
EQUIPMENT, ETC.	CI	1.42E+02
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: COOPER

LOCATION: 70 MI S OMAHA, NB

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.: 50-298
COOLING WATER SOURCE: MISSOURI RIVER

LICENSEE: NEBRASKA PUBLIC POWER & IOWA POWER & LIGHT
LICENSED POWER (MWT): 2381.00
INITIAL CRITICALITY: 02/21/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	4.83E-04
MN-54	7.35E-04
CO-58	1.86E-04
CO-60	1.77E-03
ZN-65	4.65E-05
KR-83M	5.99E+01
KR-85	4.59E+01
KR-85M	2.40E+02
KR-87	6.30E+03
KR-88	4.41E+02
KR-89	3.02E+00
SR-89	1.66E-04
SR-90	3.05E-05
I-131	<5.26E-03
XE-131M	3.55E+00
I-133	<1.18E-02
XE-133	4.87E+02
XE-133M	1.39E+01
CS-134	<2.24E-04
I-135	<1.27E-01
XE-135	6.71E+02
XE-135M	4.09E+01
CS-137	<3.73E-04
XE-137	8.24E+00
XE-138	2.11E+02
BA-LA-140	<1.66E-03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.85E-02
CR-51	<5.25E-01
MN-54	<6.28E-01
MN-56	4.61E-04
CO-58	<3.09E-01
FE-59	<8.77E-03
CO-60	<9.76E-01
ZN-65	<1.98E-02
SR-89	4.34E-02
SR-90	1.59E-03
SR-92	<6.19E-05
ZR-NB-95	<2.12E-02
MO-99	1.47E-02
TC-99M	<2.17E-02
AG-110M	<1.06E-02

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

INSTALLATION: COOPER

LOCATION: 70 MI S OMAHA, NB

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SB-124	<1.91E-02
I-131	<7.86E-02
XE-133	<1.31E-01
CS-134	<3.34E-01
XE-135	<1.13E-02
CS-136	<2.40E-03
CS-137	<4.40E-01
BA-LA-140	<2.18E-02
CE-141	<1.56E-02
UNIDENTIFIED	<9.14E-02

TRITIUM

	(CI)
TOTAL AIRBORNE RELEASE	4.54E+00
TOTAL LIQUID RELEASE	<8.37E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.12E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.16E+10

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

INSTALLATION: COOPER

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
71	SOLE USE VEHICLE	BEATTY, NV
3	SOLE USE VEHICLE	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
AG-110M	%	2.09E+00	2.94E+00
BA-LA-140	%		1.52E-01
CO-58	%	3.35E+00	2.50E+00
CO-60	%	2.49E+01	3.89E+01
CR-51	%	2.43E+01	4.37E+00
CS-134	%	1.23E+01	1.53E+01
CS-137	%	1.71E+01	2.03E+01
FE-59	%	4.49E-01	1.93E-01
I-131	%	1.69E-01	1.25E-01
MN-54	%	1.37E+01	1.36E+01
ZN-65	%	1.06E+00	1.28E+00
ZR-NB-95	%	4.29E-01	2.50E-01

B

AG-110M	%	1.60E+00	2.14E+00
CO-58	%	1.43E+00	2.18E+00
CO-60	%	2.57E+01	2.55E+01
CR-51	%	2.29E+01	2.42E+01
CS-134	%	1.46E+01	1.35E+01
CS-137	%	2.03E+01	1.88E+01
FE-59	%		2.07E-01
I-131	%	6.31E-01	1.30E-01
MN-54	%	1.14E+01	1.23E+01
ZN-65	%	9.57E-01	9.79E-01
ZR-NB-95	%	1.43E-01	2.72E-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	1.51E+02
CI	4.40E+02
M3	3.48E+02
CI	2.82E+00
M3	
CI	
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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 3
TYPE: PWR
DOCKET NO.:50-302
COOLING WATER SOURCE:GULF OF MEXICO

LICENSEE:FLORIDA POWER
LICENSED POWER (MWT):2452.00
INITIAL CRITICALITY:01/14/77

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	<3.23E+02
CR-51	<6.97E-04
MN-54	<7.01E-05
CO-57	<3.51E-05
CO-58	<1.05E-04
FE-59	<1.74E-04
CO-60	<1.03E-04
ZN-65	<2.17E-04
KR-85	2.03E+03
KR-85M	1.40E+02
KR-87	<3.84E+01
KR-88	<1.38E+02
KR-89	<1.34E+05
SR-89	1.08E-03
SR-90	<1.71E-04
NB-95	<7.05E-05
ZR-95	<1.13E-04
AG-110M	<1.00E-04
SB-126	<7.10E-05
I-131	<9.04E-03
XE-131M	1.71E+02
I-133	<2.79E-03
XE-133	3.36E+04
XE-133M	6.42E+02
CS-134	<1.47E-03
I-135	<1.47E+00
XE-135	2.29E+03
XE-135M	<2.18E+02
CS-137	<1.96E-03
XE-137	<2.58E+04
XE-138	<7.16E+02
BA-LA-140	<1.86E-04
CE-141	<9.12E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
RB	1.47E-07
NA-24	<2.85E-03
CR-51	<2.62E-02
MN-54	<3.35E-03
CO-57	9.65E-06
CO-58	4.79E-02
FE-59	<7.73E-03
CO-60	1.30E-02

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CU-64	<4.90E-01
ZN-65	<5.89E-03
AS-76	<6.88E-03
KR-85	<3.59E-01
KR-85M	<6.13E-03
SR-89	8.79E-03
SR-90	<8.37E-04
NB-95	<9.99E-04
ZR-95	<2.32E-03
NB-97	3.91E-05
ZR-97	2.27E-06
ZR-NB-97	<4.01E-03
MO-99	<1.48E-02
TC-99M	<2.10E-03
RU-103	1.54E-04
AG-110M	<3.94E-03
SB-124	4.06E-04
SB-125	2.04E-03
I-131	7.23E-03
XE-131M	<1.03E-01
I-132	<3.02E-03
I-133	<1.50E-03
XE-133	<3.56E+00
XE-133M	<3.41E-02
CS-134	1.50E-02
I-135	<7.75E-03
XE-135	<2.09E-02
CS-136	3.94E-05
CS-137	1.82E-02
BA-140	<5.23E-03
BA-LA-140	<3.02E-03
LA-140	<2.03E-03
CE-141	<3.75E-03
CE-144	<1.91E-02
W-187	1.51E-05
NP-239	<2.24E-02

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	1.55E+01
TOTAL LIQUID RELEASE	2.71E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	7.90E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.65E+09

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

INSTALLATION:CRYSTAL RIVER

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
40	EXCLUSIVE USE VEHICL	BARNWELL, S.C.
41	TRUCK	BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

		JAN-JUNE	JULY-DEC
A			
CO-58	%	3.00E+00	4.69E+00
CO-60	%	2.30E+00	5.10E+00
CS-134	%	2.70E+01	2.63E+01
CS-137	%	5.91E+01	5.34E+01
I-131	%	6.50E+00	
B			
CO-58	%	7.20E+00	1.50E+01
CO-60	%	1.67E+01	3.66E+00
CR-51	%		1.39E+00
CS-134	%	1.02E+01	2.94E+00
CS-137	%	1.74E+01	4.52E+01
I-131	%	4.04E+01	1.94E+00
I-133	%	2.40E+00	

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.01E+03
	CI	1.30E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.55E+02
	CI	7.76E+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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-346
COOLING WATER SOURCE: LAKE ERIE

LICENSEE: TOLEDO EDISON AND CLEVELAND ELECTRIC ILLUMINATING
LICENSED POWER (MWT): 2772.00
INITIAL CRITICALITY: 08/12/77

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	8.66E+00
KR-85	7.04E+00
KR-85M	1.56E+00
SR-89	6.83E-05
I-131	5.38E-02
XE-131M	3.78E+00
I-133	6.04E-03
XE-133	9.83E+02
XE-133M	1.51E+00
XE-135	1.60E+01
XE-135M	1.00E+00
CS-137	2.97E-13

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.49E-03
MN-54	3.68E-03
CO-58	3.37E-01
FE-59	1.59E-04
CO-60	1.49E-02
SR-89	5.28E-04
Y-91M	3.51E-05
NB-95	1.81E-04
NB-97	3.92E-04
ZR-97	5.40E-05
MO-99	4.63E-04
TC-99M	4.82E-04
AG-110M	1.26E-03
I-131	2.43E-01
I-133	1.09E-03
CS-134	5.95E-02
CS-136	4.89E-04
CS-137	1.27E-01
BA-139	3.27E-05
CE-141	1.21E-05

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	8.65E+00
TOTAL LIQUID RELEASE	1.57E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.26E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.77E+10

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 30 MODE OF TRANSPORTATION TRUCK

DESTINATION
BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS 0 MODE OF TRANSPORTATION

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

CO-58

% 1.65E+01 6.71E+00

CS-134

% 1.92E+01 2.58E+01

CS-137

% 5.04E+01 5.89E+01

B

CO-58

% 6.22E+01 4.44E+01

CO-60

% 3.69E+01

CS-137

% 1.53E+01

MN-54

% 1.04E+01 9.07E+00

TYPE OF WASTE

UNIT YEAR TOTAL

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

M3 1.83E+02

CI 7.69E+00

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 1.42E+02

CI 3.19E+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:DRESDEN 1

LOCATION:14 MI SW JOLIET, IL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1

LICENSEE:COMMON WEALTH EDISON

TYPE: BWR

LICENSED POWER (MWT): 700.00

DOCKET NO.:50-10

INITIAL CRITICALITY:10/15/59

COOLING WATER SOURCE:KANKAKEE RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	8.55E-04
CO-58	1.55E-06
FE-59	4.31E-07
CO-60	2.82E-03
ZN-65	4.52E-07
SR-89	9.40E-04
SR-90	6.20E-05
NB-95	8.41E-04
ZR-95	4.88E-06
AG-110M	2.87E-07
I-131	2.61E-03
CS-134	3.28E-05
CS-137	1.75E-03
BA-140	1.29E-06
CE-141	5.32E-06
CE-144	2.87E-06

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	N/D

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2
TYPE: BWR
DOCKET NO.:50-237
COOLING WATER SOURCE:KANKAKEE RIVER
UNIT NUMBER: 3
TYPE: BWR
DOCKET NO.:50-249
COOLING WATER SOURCE:KANKAKEE RIVER

LICENSEE:COMMONWEALTH EDISON
LICENSED POWER (MWT):2527.00
INITIAL CRITICALITY:06/09/72

LICENSEE:COMMONWEALTH EDISON
LICENSED POWER (MWT):2527.00
INITIAL CRITICALITY:11/16/71

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.26E-01
MN-54	3.57E-02
CO-58	1.01E-02
FE-59	5.11E-03
CO-60	3.03E-01
ZN-65	3.95E-03
KR-85M	7.12E+02
KR-87	1.05E+03
KR-88	1.75E+03
SR-89	1.03E+00
SR-90	5.81E-03
NB-95	2.17E-02
ZR-95	1.01E-02
RU-103	1.67E-02
AG-110M	5.20E-05
SB-124	3.12E-04
I-131	4.62E+00
I-133	1.53E+01
XE-133	3.26E+03
XE-133M	7.13E+01
CS-134	1.02E-02
I-135	2.53E+01
XE-135	9.11E+03
XE-135M	5.48E+03
CS-136	7.03E-03
CS-137	4.23E-02
XE-138	1.81E+04
BA-140	4.45E+00
CE-141	1.36E-01
CE-144	3.82E-03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	3.89E-03
CO-58	9.75E-04
CO-60	2.84E-02
SR-89	1.10E-03
SR-90	1.66E-04
ZR-95	2.56E-04
I-131	1.53E-02

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-134	1.86E-03
CS-137	8.90E-03
CE-141	9.76E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	3.16E+02
TOTAL LIQUID RELEASE	6.05E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.43E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.63E+12

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

INSTALLATION: DRESDEN 1, 2, & 3

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
197	TRUCK
33	TRUCK

DESTINATION
BARNWELL, S.C.
RICHLAND, 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	4.19E+02
CI	4.49E+03
M3	7.19E+02
CI	9.69E+01
M3	
CI	
M3	
CI	

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

LOCATION: 8 MI NW CEDAR RAPIDS, IA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	LICENSEE: IOWA ELECTRIC LIGHT & POWER
TYPE: BWR	LICENSED POWER (MWT): 1658.10
DOCKET NO.: 50-331	INITIAL CRITICALITY: 03/23/74
COOLING WATER SOURCE: CEDAR RAPIDS RIVER & CIRC WATER SYSTEM	

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
N-13	4.64E+00
AR-41	1.10E+00
CR-51	1.14E-02
MN-54	8.66E-04
CO-57	4.00E-06
CO-58	2.16E-05
FE-59	2.17E-05
CO-60	2.12E-03
KR-85	<4.44E-01
KR-85M	3.06E+01
KR-87	4.76E+00
KR-88	2.77E+01
SR-89	3.36E-04
SR-90	3.52E-05
I-131	1.42E-02
I-133	1.64E-01
XE-133	1.61E+02
CS-134	1.19E-05
I-135	1.49E-01
XE-135	5.55E+01
XE-135M	<1.14E+02
CS-137	1.10E-05
CS-138	3.52E-04
XE-138	8.79E+01
BA-140	1.11E-03
CE-141	2.76E-04
UNIDENTIFIED	1.76E-03
TOTAL LIQUID RELEASE	N/A

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 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
114	
4	

DESTINATION
BARNWELL, S.C.
BEATTY, NV

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
0	

DESTINATION

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	2.10E+02
CI	1.04E+03
M3	4.87E+02
CI	2.58E+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 1981
AIRBORNE AND LIQUID EFFLUENTSUNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-348
COOLING WATER SOURCE:LICENSEE:ALABAMA POWER
LICENSED POWER (MWT):2652.00
INITIAL CRITICALITY:08/09/77

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	6.17E+01
CR-51	1.19E-05
MN-54	6.40E-06
CO-58	5.10E-01
FE-59	0.00E+00
CO-60	1.74E-04
ZN-65	3.52E-05
KR-85	7.08E+01
KR-85M	1.70E+00
KR-87	4.98E-03
KR-88	1.53E-02
KR-89	0.00E+00
SR-89	3.57E-04
KR-90	2.72E-07
SR-90	8.97E-11
ZR-95	7.21E-06
SB-124	0.00E+00
I-131	3.00E-03
XE-131M	8.53E-01
I-133	1.39E-02
XE-133	8.00E+01
XE-133M	3.21E-01
CS-134	2.23E-02
XE-135	5.28E+00
XE-135M	2.51E-11
CS-136	0.00E+00
CS-137	8.74E-02
XE-137	2.93E-02
XE-138	5.55E-03
BA-140	5.39E-06
CE-141	1.58E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	1.65E+02
NA-24	5.32E-06
CR-51	9.95E-04
MN-54	9.38E-04
CO-57	1.52E-04
CO-58	5.06E-03
FE-59	2.49E-04
CO-60	1.21E-02
CU-64	7.33E-03
ZN-65	1.78E-06

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-89	6.72E-05
SR-90	2.61E-06
NB-95	5.76E-04
ZR-95	2.65E-05
RU-106	2.22E-04
AG-110M	2.04E-03
I-131	1.93E-02
I-133	4.83E-03
XE-133	3.48E-02
CS-134	2.32E-03
I-135	2.98E-04
XE-135	1.43E-05
CS-136	6.76E-05
CS-137	1.04E+00
LA-140	9.38E-05

TRITIUM

	(CI)
TOTAL AIRBORNE RELEASE	6.80E+01
TOTAL LIQUID RELEASE	1.65E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	9.09E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.82E+10

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTSUNIT NUMBER: 2
TYPE: PWR
DOCKET NO.: 50-364
COOLING WATER SOURCE:LICENSEE:ALABAMA POWER
LICENSED POWER (MWT):2652.00
INITIAL CRITICALITY:05/05/81

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.82E-04
CR-51	1.05E-05
MN-54	5.76E-08
CO-58	1.21E-05
FE-59	4.11E-08
CO-60	1.13E-04
ZN-65	8.28E-08
KR-85	1.64E-02
KR-85M	1.52E-03
KR-87	5.28E-08
KR-88	7.09E-08
KR-89	2.37E-08
SR-89	1.07E-05
KR-90	1.52E-12
ZR-95	6.80E-08
SB-124	1.53E-07
I-131	2.67E-05
XE-131M	5.43E-03
I-133	6.48E-03
XE-133	2.51E+00
XE-133M	6.75E-02
CS-134	4.16E-06
XE-135	2.49E-03
XE-135M	2.84E-08
CS-136	3.39E-08
CS-137	1.53E-07
XE-137	1.79E-06
XE-138	8.09E-08
BA-140	6.79E-06
CE-141	5.21E-08

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	5.78E+02
NA-24	8.06E-03
P-32	6.29E-04
CR-51	2.43E-04
MN-54	4.04E-04
FE-55	4.64E-03
CO-57	3.59E-06
CO-58	3.22E-03
FE-59	2.99E-04
CO-60	4.71E-03
CU-64	6.17E-05

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
ZN-65	9.11E-07
AS-76	2.41E-06
SR-89	2.17E-05
SR-90	9.71E-07
NB-95	5.35E-04
ZR-95	2.74E-05
MO-99	8.15E-06
TC-99M	2.89E-05
RU-103	6.02E-04
RU-106	1.02E-04
AG-110M	2.20E-03
I-131	5.69E-04
I-132	1.22E-05
I-133	5.90E-05
XE-133	4.27E-02
CS-134	8.00E-05
I-135	9.66E-06
XE-135	8.84E-06
CS-136	3.52E-05
CS-137	1.10E-04
BA-140	2.04E-05
LA-140	6.49E-05
CE-141	4.27E-07
NP-239	1.13E-04

TRITIUM

(CI)

TOTAL AIRBORNE RELEASE	1.25E+02
TOTAL LIQUID RELEASE	6.34E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.66E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.09E+10

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 38 MODE OF TRANSPORTATION TRUCK

DESTINATION BARNWELL, S.C.

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CO-58	%	2.15E+01	1.69E+01
CO-60	%	1.63E+01	7.21E+01
CR-51	%	3.36E+00	5.00E-01
CS-134	%	3.42E+01	2.20E+00
CS-137	%	9.54E+00	4.00E-01
MN-54	%	7.89E+00	7.90E+00

B

CO-58	%	4.75E+01	7.00E+00
CO-60	%	4.25E+01	8.06E+01
CS-134	%	5.40E+00	1.34E+00
CS-137	%	7.00E+00	1.73E-01

TYPE OF WASTE

UNIT YEAR TOTAL

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.49E+02
	CI	7.04E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	4.15E+02
	CI	1.56E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	0.00E+00
	CI	0.00E+00
D. OTHER	M3	0.00E+00
	CI	0.00E+00

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.: 50-333
COOLING WATER SOURCE: LAKE ONTARIO

LICENSEE: POWER AUTHORITY OF THE STATE OF NEW YORK
LICENSED POWER (MWT): 2436.00
INITIAL CRITICALITY: 11/17/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
N-13	8.80E+03
AR-41	2.21E+02
CR-51	1.35E-03
MN-54	9.89E-04
CO-58	5.07E-04
CO-60	5.52E-03
ZN-65	4.97E-05
KR-85M	1.23E+04
KR-87	1.49E+04
KR-88	2.48E+04
SR-89	1.40E-01
SR-90	1.33E-04
ZR-NB-95	5.66E-05
I-131	1.15E-01
XE-131M	3.29E+04
I-133	2.38E-01
XE-133	3.23E+04
XE-133M	5.49E+02
CS-134	1.73E-04
I-135	3.31E-01
XE-135	5.23E+04
XE-135M	5.95E+03
CS-137	8.62E-04
XE-138	1.45E+04
BA-LA-140	1.52E-02
CE-141	2.29E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	3.77E-02
CR-51	4.79E-02
MN-54	3.44E-01
CO-58	2.08E-01
FE-59	1.10E-02
CO-60	1.40E+00
ZN-65	4.57E-02
AS-76	2.08E-04
KR-85M	7.28E-06
SR-90	1.27E-04
ZR-NB-95	2.54E-04
MO-99	6.44E-04
TC-99M	1.67E-03
AG-110M	2.21E-04
SB-124	3.83E-03

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
I-131	4.50E-02
I-133	5.35E-03
XE-133	3.98E-02
CS-134	8.00E-02
I-135	2.47E-03
XE-135	5.85E-02
CS-137	1.26E-01
BA-LA-140	1.12E-03
CE-141	6.99E-05
CE-144	6.58E-04
NP-239	4.29E-02

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	6.65E+00
TOTAL LIQUID RELEASE	4.11E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.81E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.81E+11

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

INSTALLATION: JAMES A. FITZPATRICK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
86	TRUCK
16	TRUCK

DESTINATION
BARNWELL, S.C.
RICHLAND, WA

IRRADIATED FUEL SHIPMENTS (DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
0	

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
CO-58	%	4.00E+00	3.10E+00
CO-60	%	6.32E+01	7.19E+01
CR-51	%	3.90E+00	
CS-134	%	1.70E+00	3.70E+00
CS-137	%	3.30E+00	7.10E+00
MN-54	%	1.20E+01	1.02E+01
ZN-65	%	3.20E+00	3.30E+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	3.99E+02
CI	1.61E+03
M3	4.62E+02
CI	2.00E+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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-285
COOLING WATER SOURCE: MISSOURI RIVER

LICENSEE: OMAHA PUBLIC POWER
LICENSED POWER (MWT): 1420.00
INITIAL CRITICALITY: 08/06/73

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.49E+00
KR-85	6.15E+01
KR-85M	2.99E-01
KR-87	3.61E-01
KR-88	4.71E-01
SR-89	4.43E-01
SR-90	1.20E-07
I-131	3.53E-03
XE-131M	3.68E+01
I-133	3.46E-06
XE-133	1.11E+03
XE-133M	5.33E+00
CS-134	4.44E-06
I-135	1.65E-04
XE-135	3.18E+00
XE-135M	4.41E-01
CS-137	3.88E-06
XE-138	1.20E+00
BA-140	N/D
LA-140	N/D

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	2.10E-03
MN-54	1.01E-03
CO-57	3.38E-04
CO-58	3.02E-02
FE-59	N/D
CO-60	3.85E-03
ZN-65	N/D
SR-89	6.16E-05
SR-90	3.98E-06
NB-95	5.41E-04
ZR-95	2.95E-04
MO-99	N/D
TE-99M	N/D
RU-103	N/D
SN-117M	1.04E-04
SB-124	3.18E-04
I-131	4.98E-03
I-133	N/D
XE-133	3.23E+00
CS-134	2.21E-02
XE-135	1.72E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: FORT CALHOUN

LOCATION: 19 MI N OMAHA, NB

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-136	3.72E-04
CS-137	4.68E-02
BA-140	1.27E-03
LA-140	6.60E-05
CE-141	N/D

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	8.15E+01
TOTAL LIQUID RELEASE	2.42E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	6.42E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.12E+12

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

INSTALLATION: FORT CALHOUN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
11	TRUCK	BARNWELL, S.C.
8	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	%	1.40E+01
	CO-60	%	1.00E+00
	CS-134	%	3.40E+01
	CS-137	%	6.60E+01
B			
	CO-58	%	1.40E+01
	CO-60	%	1.00E+00
	CS-134	%	3.40E+01
	CS-137	%	6.60E+01

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	1.29E+02
BOTTOMS, ETC.	CI	9.08E+01
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	1.24E+02
EQUIPMENT, *ETC.*	CI	1.07E+01
C. IRRADIATED COMPONENTS, CONTROL	M3	0.00E+00
RODS, ETC.	CI	0.00E+00
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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: HTG
DOCKET NO.: 50-267
COOLING WATER SOURCE: SOUTH PLATTE RIVER/SHALLOW WELLS

LICENSEE: PUBLIC SERVICE CO OF COLORADO
LICENSED POWER (MWT): 842.00
INITIAL CRITICALITY: 01/31/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	1.36E+01
KR-85	2.57E-01
KR-85M	2.22E-02
KR-87	2.84E-02
KR-88	3.36E-02
XE-131M	5.35E-01
XE-133	4.24E+01
XE-133M	1.11E-01
XE-135	6.59E-02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	2.19E+02
CO-60	4.66E-07
NB-97	2.01E-04
XE-131M	1.52E-04
XE-133	2.43E-02
CS-134	2.82E-07
CS-137	8.43E-07

TRITIUM

	(CI)
TOTAL AIRBORNE RELEASE	1.36E+01
TOTAL LIQUID RELEASE	2.19E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	6.97E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.91E+08

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-244
COOLING WATER SOURCE: LAKE ONTARIO

LICENSEE: ROCHESTER GAS & ELEC
LICENSED POWER (MWT): 1520.10
INITIAL CRITICALITY: 11/08/69

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	9.67E-01
CR-51	2.04E-06
CO-58	5.97E-07
CO-60	3.92E-06
KR-85	1.30E+01
KR-85M	5.84E-01
KR-87	7.40E-02
KR-88	9.20E-02
NB-95	5.03E-08
ZR-95	1.22E-07
RU-103	1.14E-07
AG-110M	8.82E-08
SB-125	2.57E-07
I-131	1.12E-03
XE-131M	1.79E+01
I-132	3.83E-03
I-133	1.36E-03
XE-133	4.83E+02
XE-133M	7.22E-01
CS-134	3.63E-07
I-135	1.23E-04
XE-135	2.60E+01
XE-135M	1.36E+00
CS-137	2.75E-06
XE-138	1.21E+00
BA-LA-140	6.55E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	1.07E-04
CO-58	8.18E-04
CO-60	1.38E-02
I-131	8.88E-04
CS-134	7.18E-03
CS-137	1.41E-02
BA-LA-140	8.83E-05
CE-141	9.51E-05
CE-PR-144	1.43E-03

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	7.01E+01
TOTAL LIQUID RELEASE	2.40E+02

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

INSTALLATION:R.E.GINNA

LOCATION:16 MI NE ROCHESTER, NY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.85E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.97E+11

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

INSTALLATION: R.E. GINNA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION

15

5

2

DESTINATION

BARNWELL SC

BEATTY NV

RICHLAND 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 7.62E+01

CI 6.27E+02

M3 3.00E+02

CI 8.48E+00

M3 N/A

CI N/A

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.:50-213
COOLING WATER SOURCE:CONNECTICUT RIVER

LICENSEE:CONNECTICUT YANKEE ATOMIC POWER
LICENSED POWER (MWT):1825.00
INITIAL CRITICALITY:07/24/67

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	8.66E+01
AR-37	N/D
AR-41	2.89E-01
CR-51	N/D
MN-54	N/D
CO-58	8.42E-05
CO-60	1.32E-03
KR-85	2.48E+01
KR-85M	7.54E-01
KR-87	2.74E+00
KR-88	2.34E+00
SR-89	2.74E-06
SR-90	1.15E-06
ZR-NB-95	N/D
RU-103	N/D
RU-106	N/D
I-131	8.85E-03
XE-131M	3.09E+01
I-133	1.47E-03
XE-133	1.71E+03
XE-133M	1.39E+01
CS-134	3.33E-05
I-135	N/D
XE-135	1.57E+01
XE-135M	9.36E+00
CS-137	9.87E-04
XE-137	8.36E+00
XE-138	8.44E+00
BA-LA-140	N/D
CE-144	N/D

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	5.29E+03
BE-7	N/D
NA-22	1.44E-04
CR-51	5.84E-03
MN-54	7.83E-03
CO-57	4.23E-04
CO-58	1.34E-02
FE-59	N/D
CO-60	1.20E-01
KR-85	1.00E-02
SR-89	6.73E-03

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-90	8.01E-03
ZR-NB-95	3.06E-02
MO-99	N/D
TC-99M	N/D
RU-103	1.26E-03
RU-106	6.06E-02
AG-110M	4.35E-05
SB-125	8.47E-03
I-131	5.57E-02
I-132	3.97E-02
I-133	1.58E-01
XE-133	7.21E-01
XE-133M	1.17E-02
CS-134	2.78E-02
I-135	4.16E-02
XE-135	4.96E-02
CS-137	8.58E-02
BA-LA-140	2.94E-03
CE-141	N/D
CE-144	3.87E-02
EU-154	N/D

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	8.65E+01
TOTAL LIQUID RELEASE	5.29E+03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	5.83E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	7.60E+11

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

INSTALLATION:HADDAM NECK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 48 MODE OF TRANSPORTATION
TRUCK

DESTINATION
BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS 0 MODE OF TRANSPORTATION

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CE-141	%		3.88E-01
CE-144	%	1.29E+01	1.44E+00
CO-57	%	3.31E-01	
CO-58	%	2.71E+00	3.14E+01
CO-60	%	3.70E+01	2.20E+01
CR-51	%		2.71E+01
CS-134	%	1.52E-01	5.38E-01
CS-137	%	1.42E-01	5.21E-01
MN-54	%	4.81E+00	3.41E+00
NB-95	%	5.82E-01	1.82E+00
RU-103	%		2.74E+00
RU-106	%	4.19E+01	7.27E+00
ZR-95	%	3.23E-01	1.19E+00

B

AG-110M	%	1.74E-01	1.32E-01
CE-141	%		1.73E-01
CE-144	%	1.69E+01	1.01E+01
CO-57	%	4.28E-01	3.15E-01
CO-58	%	2.48E+00	1.05E+01
CO-60	%	2.75E+01	2.82E+01
CR-51	%		1.44E+01
CS-134	%		5.18E-02
CS-137	%	1.43E-01	1.94E-01
FE-59	%		1.55E-01
I-131	%		6.02E-02
MN-54	%	2.72E+00	2.80E+00
NA-22	%	2.60E-01	1.68E-01
NB-95	%	8.54E-01	1.21E+00
RU-103	%		1.39E+00
RU-106	%	4.72E+01	2.85E+01
SB-125	%	7.64E-01	7.57E-01
ZR-95	%	4.86E-01	7.47E-01

D

AG-110M	%	1.74E-01	1.32E-01
CE-141	%		1.73E-01
CE-144	%	1.69E+01	1.01E+01
CO-57	%	4.28E-01	3.15E-01

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

INSTALLATION:HADDAM NECK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
CO-58	%	2.48E+00	1.05E+01
CO-60	%	2.75E+01	2.82E+01
CR-51	%		1.44E+01
CS-134	%		5.18E-02
CS-137	%	1.43E-01	1.94E-01
FE-59	%		1.55E-01
I-131	%		6.02E-02
MN-54	%	2.72E+00	2.80E+00
NA-22	%	2.60E-01	1.68E-01
NB-95	%	8.54E-01	1.21E+00
RU-103	%		1.39E+00
RU-106	%	4.72E+01	2.85E+01
SB-125	%	7.64E-01	7.57E-01
ZR-95	%	4.86E-01	7.47E-01

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.40E+02
	CI	6.34E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	2.77E+02
	CI	1.17E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	N/A
	CI	N/A
D. OTHER	M3	2.03E+01
DRY WASTE IN DRUMS	CI	1.56E+01

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

INSTALLATION:EDWIN I. HATCH 1

LOCATION:11 MI N BAXLEY, GA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.:50-321
COOLING WATER SOURCE:ALTAMAHA RIVER

LICENSEE:GEORGIA POWER
LICENSED POWER (MWT):2436.00
INITIAL CRITICALITY:09/12/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
N-13	3.95E+02
AR-41	2.81E+02
CR-51	3.40E-04
MN-54	2.11E-05
CO-58	1.79E-05
FE-59	0.00E+00
CO-60	3.28E-04
KR-85	8.95E-01
KR-85M	1.92E+03
KR-87	2.50E+02
KR-88	1.47E+03
KR-89	0.00E+00
SR-89	7.69E-04
SR-90	3.30E-06
NB-95	1.50E-04
ZR-95	8.01E-06
SN-113	1.92E-08
I-131	2.00E-01
XE-131M	2.41E+03
I-133	7.92E-02
XE-133	1.91E+04
XE-133M	2.67E+02
CS-134	2.18E-03
I-135	3.44E-02
XE-135	2.63E+02
XE-135M	3.37E+02
CS-137	2.78E-03
XE-137	3.51E+02
XE-138	5.25E+02
BA-140	4.61E-04
LA-140	9.02E-04
CE-141	6.81E-08
CE-144	4.64E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	1.86E-03
NA-24	1.94E-03
P-32	0.00E+00
CR-51	4.43E-03
MN-54	3.40E-03
FE-55	5.92E-02
MN-56	0.00E+00
CO-58	1.14E-03

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
FE-59	1.72E-04
CO-60	2.06E-02
CU-64	7.37E-03
NI-65	4.10E-06
ZN-65	4.07E-02
ZN-69M	0.00E+00
AS-76	2.95E-05
KR-85M	1.31E-05
KR-87	0.00E+00
KR-88	2.63E-06
RB-88	1.90E-05
SR-89	1.42E-03
SR-90	0.00E+00
NB-95	1.07E-03
ZR-95	2.65E-04
NB-97	5.39E-05
ZR-97	9.50E-06
MO-99	2.62E-03
TC-99M	3.70E-03
AG-110M	3.16E-04
I-131	4.82E-02
XE-131M	1.79E-02
I-132	0.00E+00
I-133	3.08E-03
XE-133	1.10E-01
XE-133M	2.08E-03
CS-134	7.36E-02
I-135	2.77E-04
XE-135	8.39E-02
XE-135M	3.51E-06
CS-136	1.65E-03
CS-137	8.97E-02
CS-138	1.00E-04
XE-138	0.00E+00
BA-140	6.74E-05
LA-140	8.48E-04
CE-141	3.89E-05
CE-144	3.44E-03
W-187	1.33E-05
NP-239	6.86E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	3.52E+00
TOTAL LIQUID RELEASE	1.16E+01

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

INSTALLATION: EDWIN I. HATCH I

LOCATION: 11 MI N BAXLEY, GA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.86E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.73E+09

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
100	TRACTOR & TRAILER	BARNWELL, S.C.
22	TRACTOR & TRAILER	HANFORD, WA
6	TRACTOR & TRAILER	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

		JAN-JUNE	JULY-DEC
A			
ALL OTHERS	%		2.96E+01
CO-60	%	2.07E+00	1.89E+01
CS-134	%	3.53E+01	2.32E+01
CS-137	%	4.71E+01	2.84E+01
OTHER	%	7.17E+00	
ZN-65	%	8.36E+00	
B			
ALL OTHERS	%		4.43E+01
CO-60	%	2.09E+01	1.65E+01
CR-51	%	2.83E+00	
CS-134	%	1.88E+01	
CS-137	%	2.82E+01	1.68E+01
OTHER	%	1.32E+01	
ZN-65	%	1.62E+01	2.25E+01
D			
CO-60	%	3.62E+01	
CS-137	%	2.44E+00	
NB-95	%	2.45E+01	
OTHER	%	6.56E+00	
ZN-65	%	1.75E+01	
ZR-95	%	1.28E+01	

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	3.04E+02
BOTTOMS, ETC.	CI	4.35E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	6.47E+02
EQUIPMENT, ETC.	CI	5.88E+01
C. IRRADIATED COMPONENTS, CONTROL	M3	0.00E+00
RODS, ETC.	CI	0.00E+00
D. OTHER	M3	3.36E+02
	CI	4.63E+01

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2
TYPE: BWR
DOCKET NO.: 50-366
COOLING WATER SOURCE: ALTAMAHA RIVER

LICENSEE: GEORGIA POWER
LICENSED POWER (MWT): 2436.00
INITIAL CRITICALITY: 07/04/78

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
N-13	1.72E+01
AR-41	5.96E+00
CR-51	2.82E-06
MN-54	1.16E-06
CO-58	0.00E+00
FE-59	0.00E+00
CO-60	1.63E-05
KR-85	0.00E+00
KR-85M	8.71E+00
KR-87	5.92E+00
KR-88	1.19E+01
KR-89	0.00E+00
SR-89	8.38E-05
SR-90	8.66E-08
NB-95	1.55E-05
ZR-95	2.99E-07
SN-113	1.65E-07
I-131	8.62E-03
XE-131M	1.25E+01
I-133	6.16E-03
XE-133	9.10E+01
XE-133M	1.15E+00
CS-134	1.21E-05
I-135	2.50E-03
XE-135	3.35E+01
XE-135M	2.40E+00
CS-137	2.04E-05
XE-137	2.72E+00
XE-138	1.33E+01
BA-140	1.01E-04
LA-140	1.83E-04
CE-141	9.69E-10
CE-144	1.07E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	1.17E-03
NA-24	7.92E-03
P-32	0.00E+00
CR-51	8.47E-04
MN-54	6.55E-04
FE-55	9.09E-02
MN-56	0.00E+00
CO-58	1.18E-03

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
FE-59	1.55E-05
CO-60	5.98E-03
CU-64	4.15E-04
NI-65	2.17E-06
ZN-65	1.29E-02
ZN-69M	0.00E+00
AS-76	1.94E-05
KR-85M	0.00E+00
KR-87	1.11E-06
KR-88	0.00E+00
RB-88	1.62E-05
SR-89	3.02E-04
SR-90	0.00E+00
NB-95	7.56E-04
ZR-95	3.12E-04
ZR-97	0.00E+00
MO-99	2.33E-04
TC-99M	3.84E-04
AG-110M	1.26E-05
SB-125	3.82E-05
I-131	1.58E-03
I-132	5.66E-06
I-133	1.29E-04
XE-133	1.55E-02
XE-133M	3.22E-04
CS-134	1.59E-02
I-134	8.08E-06
I-135	2.44E-05
XE-135	6.35E-03
CS-136	8.45E-05
CS-137	2.03E-02
CS-138	7.82E-05
XE-138	1.43E-08
BA-140	0.00E+00
LA-140	2.42E-05
CE-141	0.00E+00
CE-144	4.53E-04
W-187	0.00E+00
NP-239	1.37E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	6.08E+00
TOTAL LIQUID RELEASE	9.28E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.46E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	4.16E+09

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
33	TRACTOR & TRAILER	BARNWELL, S.C.
7	TRACTOR & TRAILER	RICHLAND, WA
23	TRUCK OR VAN	BARNWELL, S.C.
29	TRUCK OR VAN	HANFORD, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
ALL OTHERS	%		2.24E+01
CO-58	%	3.85E+00	
CO-60	%	9.78E+00	
CR-51	%	9.06E+00	3.22E+01
CS-134	%	1.50E+01	
CS-137	%	1.68E+01	8.12E+00
NB-95	%	3.16E+00	
OTHERS	%	6.06E+00	
ZN-65	%	3.66E+01	3.73E+01

B

		JAN-JUNE	JULY-DEC
ALL OTHERS	%		4.43E+01
CO-60	%	2.16E+01	1.65E+01
CR-51	%	2.39E+00	
CS-134	%	2.02E+01	
CS-137	%	3.09E+01	1.68E+01
CS-138	%	1.65E+00	
MN-54	%	1.22E+00	
OTHERS	%	4.13E+00	
SB-125	%	1.83E+00	
ZN-65	%	1.61E+01	2.25E+01

TYPE OF WASTE

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	2.96E+02
BOTTOMS, ETC.	CI	2.41E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	1.11E+03
EQUIPMENT, ETC.	CI	6.35E+01
C. IRRADIATED COMPONENTS, CONTROL	M3	N/A
RODS, ETC.	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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.: 50-133
COOLING WATER SOURCE:HUMBOLDT BAY

LICENSEE:PACIFIC GAS &ELECTRIC
LICENSED POWER (MWT): 220.00
INITIAL CRITICALITY:02/16/63

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	N/D
CO-60	2.96E-04
KR-83M	N/D
KR-85M	N/D
KR-87	N/D
KR-88	N/D
KR-89	N/D
SR-89	N/D
SR-90	1.75E-06
I-131	N/D
I-133	N/D
XE-133	N/D
XE-133M	N/D
CS-134	N/D
I-135	N/D
XE-135	N/D
XE-135M	N/D
CS-137	1.06E-04
XE-137	N/D
XE-138	N/D
BA-LA-140	N/D
CE-144	N/D

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	N/D
MN-54	9.68E-04
CO-58	N/D
CO-60	5.46E-02
ZN-65	N/D
SR-89	N/D
SR-90	3.70E-04
ZR-NB-95	N/D
MO-99	N/D
TC-99M	N/D
I-131	N/D
XE-133	N/D
CS-134	6.25E-03
XE-135	N/D
CS-137	9.17E-02
BA-LA-140	N/D
CE-144	N/D
NP-239	N/D

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 1981
AIRBORNE AND LIQUID EFFLUENTS

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	<4.00E-02
TOTAL LIQUID RELEASE	<1.62E-01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.49E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	9.08E+10

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

INSTALLATION:HUMBOLDT BAY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
3	TRUCK(SOLE USE)	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

B		JAN-JUNE	JULY-DEC
CO-60	%	4.28E+01	
CS-134	%	2.33E+00	
CS-137	%	5.12E+01	
MN-54	%	9.16E-02	
UNIDENTIFIED	%	3.56E+00	

TYPE OF WASTE

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	
BOTTOMS, ETC.	CI	
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	8.43E+01
EQUIPMENT, ETC.	CI	5.46E-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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-3
COOLING WATER SOURCE: HUDSON RIVER
UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.: 50-247
COOLING WATER SOURCE: HUDSON RIVER

LICENSEE: CONSOLIDATED EDISON
LICENSED POWER (MWT): 615.00
INITIAL CRITICALITY: 08/02/62
LICENSEE: CONSOLIDATED EDISON
LICENSED POWER (MWT): 2758.00
INITIAL CRITICALITY: 05/22/73

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
P-32	4.68E-05
CR-51	7.76E-05
MN-54	6.14E-05
FE-55	1.94E-03
CO-57	1.31E-05
CO-58	2.67E-03
CO-60	2.90E-03
NI-63	2.71E-04
ZN-65	9.82E-06
KR-85	5.77E+02
KR-85M	5.60E+01
KR-87	2.49E+01
KR-88	8.93E+01
SR-89	5.10E-05
SR-90	1.45E-05
NB-95	5.59E-06
I-131	3.24E-02
XE-131M	1.33E+02
I-133	1.51E-02
XE-133	7.71E+03
XE-133M	1.05E+02
CS-134	3.04E-04
I-135	4.49E-02
XE-135	4.57E+02
XE-135M	8.17E+00
CS-137	2.89E-03
XE-137	1.07E+01
XE-138	2.30E+01
BA-LA-140	5.33E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
P-32	4.43E-02
CR-51	2.15E-01
MN-54	4.98E-02
FE-55	6.86E-01
CO-57	6.50E-03
CO-58	7.86E-01
FE-59	2.73E-02
CO-60	1.01E+00

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NI-63	1.01E-01
ZN-65	3.20E-02
SR-89	4.78E-03
SR-90	1.29E-03
ZR-NB-95	9.64E-02
MO-99	3.25E-01
TC-99M	2.53E-02
AG-110M	7.18E-03
I-131	1.65E+00
XE-133	1.18E-01
CS-134	1.66E-01
XE-135	4.89E-02
CS-136	9.49E-02
CS-137	3.00E-01
BA-LA-140	1.09E-01
CE-141	9.69E-02

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	4.23E+00
TOTAL LIQUID RELEASE	2.41E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	8.89E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	7.24E+11

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: INDIAN POINT 1-2

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 112
MODE OF TRANSPORTATION TRUCK

DESTINATION
BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS 0
MODE OF TRANSPORTATION

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CO-58	%	4.60E+01	1.90E+01
CO-60	%	1.30E+01	3.20E+01
CS-134	%	1.20E+01	1.90E+01
CS-137	%	1.70E+01	3.00E+01
NI-63	%	1.00E+01	
OTHERS	%	2.00E+00	

B

CO-58	%	4.60E+01	2.60E+01
CO-60	%	1.30E+01	5.60E+01
CS-134	%	1.20E+01	5.70E+00
CS-137	%	1.70E+01	1.10E+01
NI-63	%	1.00E+01	
OTHERS	%	2.00E+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	3.48E+02
CI	1.65E+03
M3	1.23E+03
CI	5.55E+01
M3	0.00E+00
CI	0.00E+00
M3	0.00E+00
CI	0.00E+00

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTSUNIT NUMBER: 3
TYPE: PWR
DOCKET NO.: 50-286
COOLING WATER SOURCE:LICENSEE: POWER AUTHORITY OF THE STATE OF NEW YORK
LICENSED POWER (MWT): 2760.00
INITIAL CRITICALITY: 04/06/76

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
P-32	3.26E-07
CR-51	7.38E-06
MN-54	1.31E-06
FE-55	8.09E-05
CO-57	1.07E-06
CO-58	7.98E-05
CO-60	3.65E-05
NI-63	2.23E-05
ZN-65	1.91E-06
KR-85	2.86E+02
KR-85M	8.20E+01
SR-85	2.37E-07
KR-87	2.96E+00
KR-88	6.22E+00
SR-89	4.13E-07
SR-90	5.60E-08
NB-95	6.52E-07
CD-109	1.76E-05
SN-113	2.57E-07
I-131	1.66E-03
XE-131M	8.26E+01
BA-133	1.64E-06
I-133	3.75E-05
XE-133	5.43E+03
XE-133M	5.24E+01
CS-134	1.79E-05
I-135	0.00E+00
XE-135	6.16E+02
XE-135M	1.31E+01
CS-137	3.13E-05
XE-138	2.11E-02
CE-139	1.22E-06
BA-LA-140	1.90E-06
CE-141	4.63E-07
CE-144	4.08E-06
HG-203	5.34E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	9.94E-04
P-32	1.33E-02
CR-51	5.61E-02
MN-54	7.43E-02
FE-55	6.89E-01

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-56	2.67E-03
CO-57	2.46E-03
CO-58	8.90E-01
FE-59	1.26E-02
CO-60	3.15E-01
NI-63	1.71E-01
NI-65	1.93E-05
ZN-65	2.22E-03
SR-85	1.03E-04
RB-88	5.52E-04
Y-88	3.07E-05
SR-89	4.58E-04
SR-90	7.40E-04
Y-91M	1.55E-03
SR-92	1.81E-03
Y-92	7.31E-04
ZR-NB-95	8.07E-03
NB-97	3.61E-02
ZR-97	6.71E-05
MO-99	8.68E-03
TC-99M	1.34E-03
RU-103	2.52E-04
RH-106	2.61E-03
CD-109	2.25E-03
AG-110M	1.60E-02
SN-113	1.71E-04
SB-122	5.58E-03
SB-124	2.45E-02
SB-125	7.20E-02
I-131	1.98E-02
I-132	4.27E-03
BA-133	1.26E-03
I-133	1.29E-02
XE-133	2.84E+00
CS-134	5.72E-02
I-134	2.55E-03
I-135	6.45E-03
XE-135	1.27E-01
CS-136	1.45E-04
CS-137	9.19E-02
CS-138	1.31E-03
CE-139	3.51E-04
BA-LA-140	7.19E-03
CE-141	1.64E-03
CE-144	1.59E-04
W-187	8.43E-05
HG-203	2.16E-04
NP-239	3.09E-04

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED

ACTIVITY (CI)

TRITIUM

(CI)

TOTAL AIRBORNE RELEASE

3.69E+00

TOTAL LIQUID RELEASE

6.42E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)

LITERS 3.71E+07

VOLUME OF DILUTION WATER USED DURING PERIOD

LITERS 7.25E+11

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: INDIAN POINT 3

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
20	TRUCK	BARNWELL, S.C.
5	TRUCK	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

	%	JAN-JUNE	JULY-DEC
AG-110M	%	4.00E+00	
CO-58	%	1.70E+01	4.21E+01
CO-60	%	6.50E+01	2.44E+01
CS-134	%		1.17E+01
CS-137	%	7.00E+00	2.05E+01
MN-54	%	7.00E+00	1.30E+00

B

	%	JAN-JUNE	JULY-DEC
CO-58	%	3.50E+01	3.21E+01
CO-60	%	3.60E+01	5.10E+01
CR-51	%		3.00E+00
CS-134	%	8.00E+00	1.90E+00
CS-137	%	1.60E+01	7.70E+00
MN-54	%	5.00E+00	4.30E+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	4.93E+01
CI	5.75E+01
M3	2.68E+02
CI	6.50E+00
M3	
CI	

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1

TYPE: PWR

DOCKET NO.:50-305

COOLING WATER SOURCE:LAKE MICHIGAN

LICENSEE:WISCONSIN PUBLIC SERVICE

LICENSED POWER (MWT):1650.00

INITIAL CRITICALITY:03/07/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.07E-06
AR-41	1.63E+00
CO-60	1.26E-05
KR-85M	2.38E-02
SR-89	<5.98E-06
SR-90	<5.98E-06
I-131	8.63E-05
I-132	1.15E-05
I-133	6.96E-05
XE-133	3.32E+00
XE-133M	1.78E+00
CS-134	2.71E-07
I-134	6.25E-07
I-135	2.52E-05
XE-135	8.34E-01
CS-137	1.00E-05
RN-222	6.32E-04
UNIDENTIFIED	<1.11E+02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	3.11E-03
CR-51	1.43E-02
MN-54	9.22E-03
CO-57	2.98E-04
CO-58	4.37E-01
FE-59	4.53E-04
CO-60	2.11E-01
KR-85M	2.40E-05
SR-89	1.04E-04
SR-90	<4.45E-05
NB-95	7.44E-04
ZR-95	3.84E-04
AG-110M	2.39E-02
SN-113	8.80E-05
SN-117M	7.65E-05
SB-124	2.23E-02
SB-125	1.72E-02
I-131	1.02E-06
XE-133	5.25E-05
CS-134	2.09E-02
CS-137	4.96E-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 1981
AIRBORNE AND LIQUID EFFLUENTS

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	3.82E+00
TOTAL LIQUID RELEASE	2.51E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	6.24E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.81E+10

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

INSTALLATION:KEWAUNEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
14 SHIELDED VAN

DESTINATION
BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
0

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CO-57	%		5.00E-02
CO-58	%	3.14E+01	3.27E+01
CO-60	%	5.16E+01	4.84E+01
CS-134	%	3.40E+00	3.81E+00
CS-137	%	1.15E+01	1.29E+01
MN-54	%	2.10E+00	1.68E+00
SB-125	%		4.90E-01

B

CO-58	%	1.08E+01	3.58E+01
CO-60	%	6.86E+01	4.78E+01
CS-134	%	3.80E+00	3.40E+00
CS-137	%	1.29E+01	1.12E+01
MN-54	%	3.90E+00	1.80E+00

C

CO-57	%		2.00E-01
CO-58	%	1.12E+01	1.99E+01
CO-60	%	6.84E+01	5.11E+01
CS-134	%	3.70E+00	5.70E+00
CS-137	%	1.29E+01	1.99E+01
MN-54	%	3.80E+00	1.20E+00
SB-125	%		2.20E+00

D

CO-57	%		2.00E-02
CO-58	%	1.56E+01	3.42E+01
CO-60	%	6.48E+01	4.82E+01
CS-134	%	3.70E+00	3.63E+00
CS-137	%	1.25E+01	1.21E+01
MN-54	%	3.40E+00	1.77E+00
SB-125	%		2.20E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:KEWAUNEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3		1.02E+01
BOTTOMS, ETC.	CI		1.43E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3		2.04E+01
EQUIPMENT, ETC.	CI		4.14E+00
C. IRRADIATED COMPONENTS, CONTROL	M3		2.99E+01
RODS, ETC.	CI		1.69E+00
D. OTHER	M3		1.34E+01
CONTAMINATED FILTER	CI		4.97E+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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.:50-409
COOLING WATER SOURCE:MISSISSIPPI RIVER

LICENSEE:DAIRYLAND POWER
LICENSED POWER (MWT): 165.00
INITIAL CRITICALITY:07/11/67

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	6.78E-05
MN-54	3.49E-05
CO-57	5.76E-06
CO-58	4.63E-05
FE-59	3.07E-06
CO-60	2.36E-04
ZN-65	2.03E-05
KR-85	1.02E+01
KR-85M	3.10E+02
KR-87	1.78E+02
KR-88	5.81E+02
KR-89	4.64E+00
SR-89	2.34E-03
SR-90	8.18E-05
NB-95	5.01E-05
ZR-95	2.36E-05
RU-103	1.40E-06
RU-105	2.32E-06
RU+RH-106	1.89E-04
XE-129M	9.65E+00
I-131	4.08E-03
XE-131M	6.83E+01
I-132	2.91E-05
I-133	3.28E-03
XE-133	7.01E+02
XE-133M	3.67E+01
CS-134	1.26E-05
I-134	3.05E-05
I-135	3.26E-05
XE-135	2.79E+03
XE-135M	7.02E+01
CS-136	1.89E-06
CS-137	1.22E-04
XE-137	3.12E+01
XE-138	2.62E+02
BA+LA-140	3.98E-03
CE-141	1.41E-05
CE-144	7.97E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	7.43E-03
MN-54	1.28E-01
MN-56	1.19E-04

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 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-57	2.36E-03
CO-58	1.89E-03
FE-59	2.42E-02
CO-60	8.33E-01
ZN-65	2.86E-02
KR-85M	6.95E-05
KR-87	3.64E-05
KR-88	4.41E-05
RB-88	2.53E-05
SR-89	8.54E-03
SR-90	4.59E-03
SR-91	7.54E-04
SR-92	4.82E-04
NB-95	1.52E-02
ZR-95	7.41E-03
MO-99	2.01E-03
TC-99M	7.89E-03
RU-103	7.20E-03
RU+RH-105	9.21E-04
RU+RH-106	1.69E-02
I-131	1.83E-03
XE-131M	4.67E-03
I-132	7.79E-05
I-133	4.12E-03
XE-133	1.75E-03
XE-133M	2.86E-04
CS-134	8.24E-02
I-135	1.63E-03
XE-135	1.59E-03
XE-135M	8.86E-04
CS-137	6.97E-01
BA-139	9.79E-05
BA+LA-140	1.44E-03
CE-141	3.20E-03
CE-144	3.67E-02
NP-239	4.68E-03

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	2.34E+01
TOTAL LIQUID RELEASE	7.74E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.43E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.38E+11

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

INSTALLATION: LACROSSE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
2 TRUCK

DESTINATION
BARNWELL, S.C.

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

CE-144	%	9.12E-01
CO-57	%	2.12E-01
CO-58	%	4.65E+00
CO-60	%	6.75E+01
CS-134	%	2.18E+00
CS-137	%	1.27E+01
MN-54	%	6.12E+00
NB-95	%	1.20E-02
NB-97	%	1.33E+00
ZN-65	%	4.42E+00

TYPE OF WASTE

UNIT YEAR TOTAL

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

M3 4.82E+00
CI 6.11E+01

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3
CI

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:MAINE YANKEE

LOCATION:3.9 MI S WICASSETT, ME

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.:50-309

LICENSEE:MAINE YANKEE ATOMIC POWER
LICENSED POWER (MWT):2630.00
INITIAL CRITICALITY:10/23/72

COOLING WATER SOURCE:BACK RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	N/D
CO-58	3.92E-05
CO-60	8.98E-05
KR-85	1.17E+02
KR-85M	N/D
KR-87	N/D
KR-88	N/D
SR-89	1.36E-06
SR-90	5.83E-08
I-131	4.20E-04
XE-131M	3.80E+00
I-132	N/D
I-133	1.18E-03
XE-133	1.99E+02
XE-133M	1.53E-01
CS-134	5.19E-06
I-134	N/D
I-135	N/D
XE-135	8.16E+00
XE-135M	N/D
CS-137	3.17E-05
XE-138	N/D
BA-140	N/D
UNIDENTIFIED	2.11E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	5.81E-03
NA-24	1.62E-03
CR-51	N/D
MN-54	8.63E-03
CO-57	1.16E-04
CO-58	9.54E-02
FE-59	N/D
CO-60	3.65E-02
ZN-65	N/D
SE-75	1.52E-01
SR-89	1.96E-04
SR-90	3.92E-05
ZR-95	N/D
MO-99	4.43E-05
TC-99M	N/D
AG-110M	8.08E-04
SB-124	5.96E-04

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 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SB-125	3.39E-04
I-131	1.76E-02
I-133	1.43E-03
XE-133	5.26E-03
CS-134	6.22E-03
XE-135	1.78E-03
CS-137	5.07E-02
BA-140	N/D
CE-141	1.56E-05
CE-143	6.64E-05
HG-203	4.97E-02
UNIDENTIFIED	5.70E-03

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	4.48E+00
TOTAL LIQUID RELEASE	2.16E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	7.76E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.87E+11

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

INSTALLATION:MAINE YANKEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
24	TRUCK
8	TRUCK

DESTINATION
BARNWELL, S.C.
RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
0	

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
CO-58	%	2.50E+01	2.50E+01
CO-60	%	2.50E+01	2.50E+01
CS-137	%	5.00E+01	5.00E+01

B

CO-58	%	2.50E+01	2.50E+01
CO-60	%	2.50E+01	2.50E+01
CS-137	%	5.00E+01	5.00E+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	1.49E+02
CI	1.65E+03
M3	2.65E+02
CI	1.53E+01
M3	
CI	
M3	
CI	

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

INSTALLATION:MCGUIRE

LOCATION:17 MI N CHARLOTTE NC

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1

TYPE:PWR

DOCKET NO.:50-369

COOLING WATER SOURCE:LAKE NORMAN

LICENSEE:DUKE POWER CO

LICENSED POWER (MWT):3411.00

INITIAL CRITICALITY:08/08/81

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	8.12E-03
KR-85	1.20E-01
KR-85M	1.73E-04
SR-90	1.21E-11
XE-133	2.42E-02
XE-133M	3.77E-04
XE-135	5.63E-03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	8.83E-03
AR-41	8.99E-04
CR-51	4.86E-02
MN-54	1.24E-02
CO-57	7.14E-06
CO-58	2.35E-01
FE-59	2.17E-03
CO-60	3.51E-02
SR-89	9.52E-04
SR-92	8.00E-04
NB-95	6.80E-04
ZR-95	5.67E-04
MO-99	3.13E-04
TC-99M	1.66E-03
AG-110M	1.32E-03
SB-122	2.87E-04
SB-124	3.09E-03
I-131	8.89E-04
I-133	1.26E-03
XE-133	2.07E-04
XE-135	2.69E-04
CE-144	3.42E-03
W-187	3.58E-03

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	6.52E-02
TOTAL LIQUID RELEASE	6.25E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.19E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	7.22E+11

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: MCGUIRE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
1

DESTINATION
BARNWELL SC

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

JAN-JUNE

JULY-DEC

B

AG-110M	%	5.10E-01
CO-57	%	1.74E+01
CO-58	%	1.80E+00
CO-60	%	3.58E+01
CS-134	%	1.97E+01
CS-137	%	2.37E+01
MN-54	%	1.20E-01
NB-97	%	6.20E-01

TYPE OF WASTE

UNIT YEAR TOTAL

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

M3

CI

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3

1.98E+01

CI

1.31E-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:MILLSTONE 1

LOCATION:3.2 MI WSW NEW LONDON, CT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.:50-245
COOLING WATER SOURCE:LONG ISLAND SOUND

LICENSEE:NORTHEAST NUCLEAR ENERGY
LICENSED POWER (MWT):2011.00
INITIAL CRITICALITY:10/26/70

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	6.39E-03
MN-54	7.76E-04
CO-58	1.79E-04
FE-59	8.02E-06
CO-60	5.18E-03
KR-83M	4.62E+02
KR-85	5.94E-03
KR-85M	6.68E+02
KR-87	2.51E+03
KR-88	2.44E+03
KR-89	1.12E+00
SR-89	6.24E-03
SR-90	7.17E-05
I-131	<7.52E-02
XE-131M	2.44E-01
I-133	3.88E-01
XE-133	2.70E+02
XE-133M	1.21E+01
CS-134	2.90E-05
I-135	5.86E-01
XE-135	2.09E+03
XE-135M	1.10E+03
CS-137	8.29E-04
XE-137	7.95E+00
XE-138	4.76E+03
BA-LA-140	<4.88E-02
CE-141	1.08E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.14E-04
CR-51	4.10E-04
MN-54	2.77E-02
CO-58	6.08E-04
CO-60	2.00E-01
SR-89	<2.26E-03
SR-90	4.75E-04
MO-99	5.62E-05
TC-99M	8.00E-05
SB-124	1.96E-02
I-131	<6.83E-04
I-133	9.34E-06
XE-133	8.42E-03
CS-134	2.18E-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 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-135	<3.16E-02
CS-137	1.21E-01
BA-LA-140	<8.92E-04
CE-141	7.57E-05
CE-144	3.92E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	9.47E+01
TOTAL LIQUID RELEASE	2.62E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	7.94E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.29E+10

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

INSTALLATION:MILLSTONE 1

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
111	TRUCK
17	TRUCK

DESTINATION
BARNWELL, S.C.
RICHLAND, WA.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
1	TRUCK

DESTINATION
PLEASANTON, CA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

	%	JAN-JUNE	JULY-DEC
BA-140	%		1.30E+00
CE144-ZN65-KR85-SR90-NB97-NI63-FE59-I131-I133	%	3.00E+00	
CO-58	%		3.00E+00
CO-60	%	4.20E+01	4.20E+01
CR-51	%		3.20E+00
CR51-CO58-SR89	%	3.90E+00	
CS-134	%	9.80E+00	4.10E+00
CS-137	%	1.80E+01	1.20E+01
FE-55	%	9.00E+00	1.60E+01
FE59-NB97-SB124-SR90-NI63-CE144-I131-CE141	%		4.70E+00
LA-140	%		1.30E+00
MN-54	%	7.10E+00	8.80E+00
SB-124	%	7.20E+00	
SR-89	%		3.60E+00

B

	%	JAN-JUNE	JULY-DEC
CO-60	%	6.20E+01	4.00E+01
CO58-SR90-NI63-CR51	%	4.70E+00	
CS-134	%	2.00E+00	3.40E+00
CS-137	%	7.00E+00	2.10E+01
FE-55	%	7.00E+00	2.30E+01
MN-54	%	1.60E+01	6.20E+00
SR-89	%	1.30E+00	3.30E+00
SR90-NI63	%		3.10E+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	2.74E+02
CI	1.77E+03
M3	1.69E+03
CI	5.79E+01
M3	
CI	
M3	
CI	

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:MILLSTONE 2

LOCATION:3.2 MI WSW NEW LONDON, CT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.:50-336
COOLING WATER SOURCE:LONG ISLAND SOUND

LICENSEE:NORTHEAST NUCLEAR ENERGY
LICENSED POWER (MWT):2560.00
INITIAL CRITICALITY:10/17/75

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	1.39E+02
AR-41	3.21E-01
MN-54	6.40E-05
CO-58	6.00E-06
CO-60	2.61E-04
BR-82	1.04E-06
KR-83M	1.40E+01
KR-85	7.48E-01
KR-85M	1.65E+01
KR-87	1.58E+00
KR-88	2.82E+00
RB-88	2.59E-03
Y-88	2.15E-05
SR-89	6.66E-07
I-131	1.06E-01
XE-131M	2.32E+00
I-133	5.13E-03
XE-133	1.99E+03
XE-133M	1.36E+00
I-135	4.66E-03
XE-135	2.44E+02
XE-135M	3.76E+00
CS-137	1.22E-05
XE-137	8.19E-01
CS-138	3.54E-05
XE-138	1.37E+00

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	3.71E+02
NA-24	3.08E-02
CR-51	6.74E-04
MN-54	3.58E-02
CO-57	1.64E-04
CO-58	2.05E-01
FE-59	7.97E-04
CO-60	6.40E-01
RB-88	1.46E-03
SR-89	4.90E-04
SR-90	7.00E-06
SR-92	7.99E-03
NB-95	5.51E-03
ZR-95	9.93E-04
NB-97	3.58E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MO-99	3.05E-02
TC-99M	8.97E-04
RU-105	1.75E-02
RU-106	2.67E-02
AG-110M	2.85E-02
SB-124	1.83E-01
SB-125	1.88E-03
I-131	4.81E-01
I-132	1.60E-01
I-133	7.50E-01
XE-133	2.32E+00
CS-134	4.37E-01
I-134	5.73E-02
I-135	2.38E-01
XE-135	5.33E-02
XE-135M	4.99E-01
CS-136	1.29E-01
CS-137	5.31E-01
CS-138	9.82E-02
CE-141	3.51E-04
CE-144	2.67E-03
W-187	3.52E-03

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	1.40E+02
TOTAL LIQUID RELEASE	3.71E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.98E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.81E+11

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

INSTALLATION:MILLSTONE 2

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
7 TRUCK

DESTINATION
BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
0

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
CO-58	%		4.70E+01
CO-60	%	8.00E+00	1.40E+01
CR-51	%		5.60E+00
CS-134	%	2.80E+01	1.30E+01
CS-137	%	6.30E+01	1.50E+01
FE-55	%		1.00E+00
MN-54	%		1.60E+00
NB-95	%		1.00E+00
SR89-MN54-SR90-NI63-FE55	%	1.00E+00	
ZR95-NB97-I131-CO57-SR89-SR90-NI63	%		1.80E+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	1.63E+01
CI	3.21E+02
M3	
CI	
M3	
CI	
M3	
CI	

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1

LICENSEE:NORTHERN STATES POWER

TYPE: BWR

LICENSED POWER (MWT):1670.00

DOCKET NO.:50-263

INITIAL CRITICALITY:12/10/70

COOLING WATER SOURCE:MISSISSIPPI RIVER

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	4.24E-04
MN-54	2.56E-04
CO-58	3.71E-05
FE-59	5.28E-05
CO-60	2.14E-03
ZN-65	8.12E-04
KR-83M	7.74E+00
KR-85	2.50E+02
KR-85M	7.27E+00
KR-87	4.12E+01
KR-88	2.23E+01
KR-89	7.70E+02
SR-89	5.17E-03
KR-90	2.63E+01
SR-90	1.83E-04
NB-95	5.35E-05
ZR-95	1.77E-05
RU-103	3.33E-05
I-131	1.55E-02
XE-131M	4.75E+00
I-133	7.48E-02
XE-133	6.34E+02
XE-133M	2.61E+00
CS-134	7.18E-05
I-135	3.95E-02
XE-135	3.77E+01
XE-135M	5.86E+01
CS-136	1.51E-06
CS-137	7.80E-04
XE-137	1.01E+03
XE-138	8.13E+02
XE-139	6.30E+01
BA-140	8.85E-03
CE-141	6.75E-05
CE-144	1.40E-05
ND-147	1.17E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	1.63E-06
I-131	2.48E-07
I-133	1.03E-06
CS-137	1.99E-07

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 1981
AIRBORNE AND LIQUID EFFLUENTS

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	1.10E+02
TOTAL LIQUID RELEASE	4.17E-03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.79E+02
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	0.00E+00

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

INSTALLATION:MONTICELLO

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
20	TRUCK	BARNWELL, S.C.
31	TRUCK	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	TRUCK	VALLECITOS, CA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
BA-140	%	5.90E+00	4.45E+00
CE-141	%	5.36E-01	
CO-58	%	2.61E-01	
CO-60	%	1.61E+01	1.84E+01
CR-51	%	1.19E+00	2.14E+00
CS-134	%	6.81E+00	5.05E+00
CS-137	%	4.12E+01	4.20E+01
I-131	%	5.74E+00	4.44E+00
LA-140	%	6.28E+00	4.49E+00
MN-54	%	1.07E+00	2.04E+00
NB-95	%	4.32E-03	
SR-90	%	7.31E-03	
ZN-65	%	1.13E+01	1.51E+01

B

BA-140	%	7.90E-01	3.17E-01
CE-141	%	8.17E-02	1.54E+00
CO-58	%	1.78E+00	
CO-60	%	7.78E+01	5.06E+01
CR-51	%	2.26E+00	2.83E+00
CS-134	%	8.87E-01	2.28E+00
CS-137	%	7.55E+00	2.37E+01
FE-59	%	4.88E-01	
I-131	%		1.06E+00
LA-140	%	8.56E-01	2.89E-01
MN-54	%	2.66E+00	7.89E-01
RU-103	%		1.45E-02
SR-90	%		1.42E-01
ZN-65	%	3.47E+00	1.27E+01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:MONTICELLO

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	1.40E+02
BOTTOMS, ETC.	CI	4.23E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	4.14E+02
EQUIPMENT, ETC.	CI	1.94E+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:NINE MILE POINT

LOCATION:8 MI NE OSWEGO, NY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1	LICENSEE:NIAGARA MOHAWK POWER
TYPE: BWR	LICENSED POWER (MWT):1850.00
DOCKET NO.:50-220	INITIAL CRITICALITY:09/05/69
COOLING WATER SOURCE:LAKE ONTARIO	

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.94E-04
MN-54	1.22E+00
CO-58	4.65E-05
CO-60	6.10E-03
KR-85M	5.37E+01
KR-88	6.89E+01
SR-89	<5.60E-04
SR-90	<6.87E-05
I-131	6.44E-03
I-133	5.62E-02
XE-133	7.49E+01
I-135	2.92E-01
XE-135	1.58E+02
XE-135M	2.36E+02
CS-137	1.35E-03
XE-138	1.99E+01
BA-LA-140	3.70E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	9.32E-02
CO-58	2.58E-02
CO-60	1.16E+00
SR-89	3.06E-04
SR-90	2.10E-03
XE-133	<1.91E-02
CS-134	5.40E-01
XE-135	<2.89E-01
CS-137	3.53E+00

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	6.34E+01
TOTAL LIQUID RELEASE	5.05E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.32E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	7.81E+08

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

INSTALLATION:NINE MILE POINT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
68	TRUCK	BARNWELL SC
8	TRUCK	HANFORD WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

		JAN-JUNE	JULY-DEC
A			
	CO-58	%	1.00E-01
	CO-60	%	5.00E+01
	CS-134	%	1.00E+01
	CS-137	%	4.00E+01
	MN-54	%	3.86E+01
			4.50E+00
B			
	CO-58	%	1.00E-01
	CO-60	%	5.00E+01
	CS-134	%	5.60E+01
	CS-137	%	1.00E+01
	MN-54	%	6.20E+00
			3.86E+01
			4.50E+00

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	2.37E+02
BOTTOMS, ETC.	CI	1.71E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	2.94E+02
EQUIPMENT, ETC.	CI	1.14E+01
C. IRRADIATED COMPONENTS, CONTROL	M3	0.00E+00
RODS, ETC.	CI	
D. OTHER	M3	
	CI	

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.:50-338
COOLING WATER SOURCE:LAKE ANNA
UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.:50-339
COOLING WATER SOURCE:LAKE ANNA

LICENSEE:VIRGINIA ELECTRIC &POWER
LICENSED POWER (MWT):2775.00
INITIAL CRITICALITY:04/05/78

LICENSEE:VIRGINIA ELECTRIC &POWER
LICENSED POWER (MWT):2775.00
INITIAL CRITICALITY:06/12/80

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	1.03E-03
CO-58	5.02E-03
CO-60	6.19E-03
KR-85M	2.82E-03
KR-88	2.26E-03
SR-89	1.48E-05
SR-90	3.34E-07
I-131	4.66E-01
XE-131M	5.76E+00
I-133	7.03E-02
XE-133	5.20E+03
XE-133M	2.23E+01
CS-134	1.17E-03
I-135	3.06E-03
XE-135	8.03E+01
XE-135M	3.94E-03
CS-137	1.98E-03

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.62E-02
CR-51	3.62E-03
MN-54	3.15E-03
CO-58	1.93E-01
FE-59	1.23E-03
CO-60	1.34E-01
ZR-NB-95	1.55E-03
TC-99M	5.59E-04
AG-110M	1.13E-02
SB-124	3.30E-03
I-131	9.75E-02
TE-131M	1.05E-04
I-133	5.71E-03
XE-133	4.28E+00
XE-133M	2.10E-02
CS-134	7.22E-02
XE-135	4.51E-02
CS-137	1.22E-01
BA-LA-140	2.72E-04

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 1981
AIRBORNE AND LIQUID EFFLUENTS

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	3.14E+01
TOTAL LIQUID RELEASE	1.28E+03

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.85E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.70E+12

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
27	PRIVATE VEHICLE	BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
CO-57	%		1.50E-01
CO-58	%	2.80E+01	1.52E+00
CO-60	%	3.80E+01	5.57E+01
CS-134	%	1.20E+01	1.26E+01
CS-137	%	1.50E+01	3.74E+01
MN-54	%	6.90E+00	2.68E+00

B

CO-58	%	2.80E+01	5.39E+01
CO-60	%	3.80E+01	9.88E+00
CS-134	%	1.20E+01	1.18E+01
CS-137	%	1.50E+01	2.24E+01
MN-54	%	6.90E+00	2.08E+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	8.14E+01
CI	2.52E+03
M3	2.21E+02
CI	1.03E+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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.:50-269
COOLING WATER SOURCE:KEOWEE LAKE
UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.:50-270
COOLING WATER SOURCE:KEOWEE LAKE
UNIT NUMBER: 3
TYPE: PWR
DOCKET NO.:50-287
COOLING WATER SOURCE:KEOWEE LAKE

LICENSEE:DUKE POWER
LICENSED POWER (MWT):2568.00
INITIAL CRITICALITY:04/19/73

LICENSEE:DUKE POWER
LICENSED POWER (MWT):2568.00
INITIAL CRITICALITY:11/11/73

LICENSEE:DUKE POWER
LICENSED POWER (MWT):2568.00
INITIAL CRITICALITY:09/05/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.14E+01
CR-51	1.40E-03
MN-54	1.45E-04
CO-58	6.74E-03
FE-59	1.18E-04
CO-60	1.58E-03
ZN-65	1.25E-04
KR-85	3.02E+02
KR-85M	5.85E+00
KR-87	1.06E+01
KR-88	2.58E+00
KR-89	4.84E+01
SR-89	2.98E-08
SR-90	2.97E-09
NB-95	5.04E-05
ZR-95	5.26E-04
MO-99	9.19E-04
RU-103	9.68E-05
RU-106	1.10E-03
AG-110M	8.84E-04
SB-125	2.16E-04
I-131	2.50E-01
XE-131M	1.85E+02
I-133	2.78E-02
XE-133	1.54E+04
XE-133M	1.18E+02
CS-134	5.39E-03
I-135	1.99E-02
XE-135	2.07E+02
XE-135M	6.77E+00
CS-136	2.67E-04
CS-137	6.15E-03
BA-140	5.24E-04
CE-144	7.62E-04

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	2.29E-04
AR-41	8.70E-05
CR-51	3.82E-02
MN-54	1.05E-02
CO-57	1.56E-04
CO-58	1.98E-01
FE-59	1.13E-04
CO-60	2.83E-02
ZN-65	2.32E-05
KR-85	1.15E+00
KR-85M	5.53E-04
KR-87	8.87E-06
KR-88	2.95E-04
Y-88	2.12E-05
SR-89	1.54E-02
SR-90	1.74E-03
SR-91	3.56E-03
SR-92	7.16E-04
NB-95	5.11E-04
ZR-95	4.05E-05
NB-97	1.44E-02
ZR-97	3.73E-05
MO-99	2.41E-02
TC-99M	3.33E-05
RU-103	1.63E-05
RU-106	3.33E-02
AG-108M	2.50E-06
AG-110M	3.08E-03
CD-115	3.14E-03
SB-125	7.79E-03
I-131	1.16E-01
XE-131M	9.93E-02
I-132	1.70E-04
I-133	1.91E-03
XE-133	5.37E+00
XE-133M	5.39E-02
CS-134	4.85E-01
I-134	1.52E-03
I-135	2.23E-03
XE-135	1.67E-01
CS-136	1.50E-02
CS-137	6.72E-01
CS-138	1.97E-03
BA-LA-140	1.75E-02
CE-144	2.61E-02
W-187	1.37E-02
NP-239	9.50E-03

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 1981
AIRBORNE AND LIQUID EFFLUENTS

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	5.77E+01
TOTAL LIQUID RELEASE	5.07E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.56E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.20E+11

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

INSTALLATION:OCONEE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
193 TRUCK

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 2.48E+03

CI 1.12E+04

M3

CI

M3

CI

M3

CI

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: OYSTER CREEK

LOCATION: 9 MI S TOMS RIVER, NJ

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.: 50-219
COOLING WATER SOURCE: BARNEGAT BAY

LICENSEE: JERSEY CENTRAL POWER & LIGHT
LICENSED POWER (MWT): 1930.00
INITIAL CRITICALITY: 05/03/69

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	2.94E-03
MN-54	1.79E-02
CO-57	2.40E-04
CO-58	1.49E-03
CO-60	4.50E-03
KR-85M	1.92E+03
KR-87	6.99E+03
KR-88	5.85E+03
KR-89	1.67E-01
SR-89	4.72E-01
SR-90	6.84E-03
SR-91	2.98E+00
NB-95	5.11E-03
ZR-95	2.12E-04
MO-99	1.13E-02
TC-99M	3.03E-01
I-131	9.15E-01
I-133	3.38E+00
XE-133	1.03E+03
XE-133M	3.32E+01
I-135	4.83E+00
XE-135	1.20E+04
XE-135M	4.14E+03
CS-137	4.11E-02
XE-137	3.68E+03
XE-138	1.53E+04
BA-140	7.35E-01
LA-140	5.37E-01
CE-141	7.35E-04
CE-143	1.40E-03
CE-144	3.41E-02
PA-233	9.89E-05
NP-239	1.20E-02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	3.95E-02
MN-54	8.66E-03
CO-57	8.40E-04
CO-58	6.13E-05
CO-60	7.97E-02
SR-89	6.68E-03
SR-90	5.63E-04
SR-91	8.14E-04

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MO-99	9.08E-05
TC-99M	7.18E-03
RU-103	1.26E-04
SB-124	1.65E-03
SB-125	3.48E-04
I-131	3.30E-03
I-133	8.84E-03
XE-135	1.04E-01
XE-133M	3.87E-04
CS-134	3.01E-03
I-135	5.16E-02
XE-135	2.89E-01
CS-137	1.74E-02
BA-140	4.36E-03
LA-140	6.32E-03
CE-141	6.16E-04
CE-143	1.44E-04
CE-144	6.18E-03
PA-233	4.04E-05
NP-239	4.92E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	3.22E+00
TOTAL LIQUID RELEASE	2.67E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	8.42E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.52E+12

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

INSTALLATION: OYSTER CREEK

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
139	MOTOR VEHICLE	BARNWELL, S.C.
1	MOTOR VEHICLE	BEATTY, NV
15	MOTOR VEHICLE	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		
1	MOTOR VEHICLE	COLUMBUS, OH

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

	%	JAN-JUNE	JULY-DEC
BA-140	%		4.00E+00
CO-60	%	5.40E+01	3.20E+01
CS-137	%	8.20E+00	
I-133	%		3.60E+00
LA-140	%	4.30E+00	
MN-54	%	7.90E+00	8.40E+00
SR-89	%	1.30E+01	2.90E+01

B

CO-58	%	5.50E+00	
CO-60	%	2.80E+01	6.30E+01
CS-137	%	1.00E+01	3.70E+00
I-133	%		2.10E+00
MN-54	%	3.40E+01	1.50E+01
SR-89	%	7.20E+00	4.50E+00

TYPE OF WASTE

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

UNIT YEAR TOTAL

M3 5.78E+02
CI 2.83E+02

B. DRY COMPRESSIBLE WASTE, CONTAMINATED
EQUIPMENT, ETC.

M3 1.20E+03
CI 1.38E+02

C. IRRADIATED COMPONENTS, CONTROL
RODS, ETC.

M3 0.00E+00
CI 0.00E+00

D. OTHER

M3
CI

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-255
COOLING WATER SOURCE: LAKE MICHIGAN

LICENSEE: CONSUMERS POWER
LICENSED POWER (MWT): 2530.00
INITIAL CRITICALITY: 05/24/71

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	9.67E-05
MN-54	7.58E-05
CO-58	3.15E-04
CO-60	2.40E-04
SE-75	1.51E-05
KR-85	5.21E+00
KR-85M	1.55E-01
KR-87	2.16E-01
KR-88	3.23E-01
MO-99	4.07E-07
RU-103	1.17E-06
I-131	4.05E-02
XE-131M	2.44E+00
I-132	1.66E-03
I-133	1.15E-02
XE-133	2.99E+03
XE-133M	2.60E-01
CS-134	2.63E-05
I-135	3.44E-03
XE-135	1.08E+00
XE-135M	5.02E-01
CS-137	2.50E-04
BA-140	1.13E-06
LA-140	3.00E-06
UNIDENTIFIED	5.79E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	5.12E-04
MN-54	3.60E-03
CO-57	4.04E-06
CO-58	1.06E-02
CO-60	6.85E-03
NB-95	1.59E-04
ZR-95	6.71E-05
RU-103	3.87E-05
SB-125	2.22E-04
I-131	8.16E-05
XE-133	2.45E-03
CS-134	2.55E-03
CS-137	6.25E-03
UNIDENTIFIED	2.08E-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 1981
AIRBORNE AND LIQUID EFFLUENTS

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	6.42E+00
TOTAL LIQUID RELEASE	2.78E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.60E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	8.54E+10

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

INSTALLATION: PALISADES

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
5	TRUCK	BARNWELL, S.C.
34	TRUCK	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS (DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.33E+02
	CI	1.02E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	7.20E+02
	CI	2.29E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	3.70E-01
	CI	1.56E+04
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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2	LICENSEE: PHILADELPHIA ELECTRIC
TYPE: BWR	LICENSED POWER (MWT): 3293.00
DOCKET NO.: 50-277	INITIAL CRITICALITY: 09/16/73
COOLING WATER SOURCE: CONOWINGO POND/SUSQUEHANNA RIVER	
UNIT NUMBER: 3	LICENSEE: PHILADELPHIA ELECTRIC
TYPE: BWR	LICENSED POWER (MWT): 3293.00
DOCKET NO.: 50-278	INITIAL CRITICALITY: 08/07/74
COOLING WATER SOURCE: CONOWINGO POND/SUSQUEHANNA RIVER	

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
N-13	1.95E+00
NA-24	2.10E-04
AR-41	4.70E+00
CR-51	3.18E-04
MN-54	1.76E-05
CO-58	2.05E-04
CO-60	1.57E-03
ZN-65	1.83E-03
KR-85M	3.28E+01
KR-87	6.24E+01
KR-88	1.43E+01
RB-89	1.75E-04
SR-89	<1.66E-03
SR-90	<8.93E-05
SR-91	8.20E-04
Y-91M	6.35E-03
NB-95	1.35E-06
TC-99M	8.11E-05
CD-109	2.06E-04
I-131	3.34E-02
I-133	9.95E-01
XE-133	1.41E+04
XE-133M	3.84E+02
CS-134	6.53E-04
I-135	4.67E-01
XE-135	1.25E+03
XE-135M	4.63E+01
CS-137	1.04E-03
CS-138	4.79E-02
XE-138	1.10E+02
BA-140	1.02E-03
LA-140	7.32E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	2.49E+01
NA-24	6.73E-01
P-32	1.74E-02
CR-51	2.33E-02
MN-54	2.57E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
FE-55	2.44E-03
CO-58	9.76E-03
CO-60	1.30E-01
NI-63	3.99E-03
ZN-65	2.90E-01
SR-89	1.48E-03
SR-90	1.59E-03
SR-91	1.46E-03
Y-91M	2.68E-03
SR-92	1.05E-03
NB-95	4.98E-04
TC-99M	7.06E-03
AG-110M	1.84E-03
I-131	5.39E-02
XE-131M	4.14E-04
I-132	2.76E-03
TE-132	8.04E-03
I-133	8.12E-02
XE-133	5.31E-01
XE-133M	1.25E-03
CS-134	9.92E-02
I-135	2.28E-02
XE-135	2.34E-01
XE-135M	3.46E-02
CS-137	1.70E-01
BA-140	3.71E-04
LA-140	4.73E-03
NP-239	1.27E-02

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	2.85E+01
TOTAL LIQUID RELEASE	3.68E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.69E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.66E+11

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

INSTALLATION: PEACH BOTTOM

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
303	TRUCK	BARNWELL SC
32	TRUCK	RICHLAND 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 2.34E+03
CI 5.33E+03

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.: 50-293
COOLING WATER SOURCE: CAPE COD BAY

LICENSEE: BOSTON EDISON
LICENSED POWER (MWT): 1998.00
INITIAL CRITICALITY: 06/16/72

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	5.58E-05
CO-58	1.05E-05
CO-60	7.23E-04
KR-85	<6.32E-02
KR-85M	<8.12E+02
KR-87	<1.33E+02
KR-88	<7.86E+02
SR-89	1.56E-02
SR-90	2.75E-05
I-131	<5.24E-02
I-133	<2.04E-01
XE-133	<3.09E+03
XE-133M	1.48E+01
CS-134	8.18E-06
I-135	<2.79E-01
XE-135	4.22E+02
XE-135M	<9.18E+00
CS-137	2.15E-04
XE-138	<3.22E+01
BA-LA-140	<9.88E-03
CE-144	1.70E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.79E-02
MN-54	8.43E-02
FE-55	<5.18E-01
CO-58	4.05E-02
FE-59	2.40E-03
CO-60	6.24E-01
ZN-65	4.09E-03
SR-89	<2.26E-02
SR-90	<5.18E-03
ZR-NB-95	6.75E-04
MO99-TC99M	3.06E-03
I-131	2.19E-03
I-133	1.46E-03
XE-133	3.17E-04
CS-134	6.04E-02
XE-135	1.72E-04
CS-137	3.48E-01
BA-LA-140	1.58E-02
CE-141	8.18E-05
UNIDENTIFIED	1.96E-01

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 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS
NUCLIDES RELEASED

ACTIVITY (CI)

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	7.69E+01
TOTAL LIQUID RELEASE	3.41E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.68E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.15E+10

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

INSTALLATION: PILGRIM

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
78	TRACTOR TRAILER	BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
BA-140	%		2.98E+00
BA-LA-140	%	4.20E-01	
CE-141	%	2.00E-02	8.60E-02
CO-58	%	1.47E+00	3.78E+00
CO-60	%	4.16E+01	3.65E+01
CR-51	%	1.01E+00	6.16E+00
CS-134	%	1.28E+01	2.54E+00
CS-137	%	1.79E+01	1.49E+01
FE-55	%	3.88E+00	1.30E+01
FE-59	%	1.00E-02	1.01E-01
I-131	%	1.00E-01	1.20E+00
I-133	%	2.00E-03	2.68E-01
LA-140	%		1.38E+00
MN-54	%	9.32E+00	4.19E+00
MO-99	%		6.15E-01
MO-99/TC-99M	%	8.00E-02	
RU-103	%	1.00E-03	
SR-89	%	1.07E+01	1.03E+01
SR-90	%	2.00E-01	2.15E-01
TC-99M	%		8.63E-01
XE-131M	%	1.00E-02	4.28E-01
ZN-65	%	4.60E-01	5.58E-01

B

BA-140	%		1.85E-01
CO-58	%	4.61E+01	2.04E+00
CO-60	%	3.59E+01	8.48E+01
CR-51	%		1.32E+00
CS-134	%		8.99E-01
CS-137	%	1.50E-01	4.96E+00
FE-55	%	1.70E+00	1.60E+00
FE-59	%	2.90E+00	1.70E-01
I-131	%		1.93E-01
LA-140	%		1.10E-02
MN-54	%	5.83E+00	2.75E+00
NB-97	%		1.86E-01
SB-122	%		7.20E-02
SR-89	%		5.19E-01

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: PILGRIM

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)		JAN-JUNE	JULY-DEC
SR-90	%		1.20E-02
ZN-65	%	7.35E+00	3.01E-01
ZR-NB-95	%	4.00E-02	

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	2.10E+02
	CI	8.59E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	8.54E+02
	CI	7.88E+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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.:50-266
COOLING WATER SOURCE:LAKE MICHIGAN
UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.:50-301
COOLING WATER SOURCE:LAKE MICHIGAN

LICENSEE:WISCONSIN ELECTRIC POWER COMPANY
LICENSED POWER (MWT):1518.50
INITIAL CRITICALITY:11/02/70

LICENSEE:WISCONSIN ELECTRIC POWER COMPANY
LICENSED POWER (MWT):1518.50
INITIAL CRITICALITY:05/30/72

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	1.68E-07
NA-24	3.45E-08
AR-41	3.85E+01
CR-51	5.38E-06
MN-54	1.19E-06
CO-58	8.20E-05
CO-60	1.96E-04
KR-85	2.00E+01
KR-85M	4.15E+01
KR-87	2.87E+01
KR-88	6.88E+01
RB-88	1.76E-01
SR-89	9.50E-07
SR-90	2.15E-07
NB-95	1.18E-04
ZR-95	9.77E-05
ZR-97	1.27E-07
RU-103	5.13E-06
CD-109	6.72E-09
AG-110M	1.24E-09
SN-113	3.01E-06
SB-125	1.28E-08
I-131	4.49E-03
XE-131M	1.04E-01
I-132	4.40E-03
TE-132	3.00E-06
BA-133	9.34E-09
I-133	1.08E-03
XE-133	1.53E+02
XE-133M	6.57E+00
CS-134	4.01E-05
I-134	2.96E-04
I-135	9.80E-05
XE-135	1.78E+02
XE-135M	2.57E+01
CS-137	6.90E-05
CS-138	1.53E-02
XE-138	4.94E+01
CE-139	1.03E-06
LA-140	1.95E-09

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CE-144	7.67E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	6.52E+02
F-18	6.16E-02
NA-24	7.02E-03
CR-51	2.12E-03
MN-54	6.75E-04
CO-57	8.81E-06
CO-58	2.91E-03
CO-60	6.57E-03
KR-85M	6.93E-04
KR-88	3.52E-04
RB-88	4.23E-04
SR-89	5.65E-04
SR-90	7.36E-04
NB-95	5.84E-05
MO-99	8.19E-04
RU-103	1.23E-04
AG-110M	6.50E-05
SN-113	3.18E-04
SB-125	3.11E-04
I-131	1.83E-01
I-132	4.69E-02
TE-132	5.58E-06
I-133	2.92E-01
XE-133	7.26E-02
XE-133M	2.60E-04
CS-134	4.61E-02
I-134	6.92E-02
I-135	1.92E-01
XE-135	4.98E-03
CS-136	7.20E-04
CS-137	9.18E-02
CS-138	4.77E-03
CE-141	2.26E-04
CE-144	2.22E-05

TRITIUM

(CI)

TOTAL AIRBORNE RELEASE	4.80E+02
TOTAL LIQUID RELEASE	6.52E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.78E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.50E+11

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

INSTALLATION:POINT BEACH

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
24	TRUCK	N/R

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

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	1.77E+02
CI	4.87E+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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-282
COOLING WATER SOURCE: MISSISSIPPI RIVER
UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.: 50-306
COOLING WATER SOURCE: MISSISSIPPI RIVER

LICENSEE: NORTHERN STATES POWER
LICENSED POWER (MWT): 1650.00
INITIAL CRITICALITY: 12/01/73

LICENSEE: NORTHERN STATES POWER
LICENSED POWER (MWT): 1650.00
INITIAL CRITICALITY: 12/17/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.17E+00
CO-58	4.20E-05
CO-60	1.39E-05
KR-85	1.21E-01
KR-85M	3.49E-01
KR-87	6.06E-01
KR-88	1.88E+00
RB-88	1.48E+00
Y-88	3.52E-02
AG-110M	3.06E-05
I-131	3.61E-04
I-133	7.37E-04
XE-133	3.39E+01
XE-133M	1.69E-01
XE-135	4.19E+00
XE-135M	4.70E-01
CS-138	1.70E+00
XE-138	1.70E+00
CE-144	1.82E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	5.31E-05
CO-58	3.84E-03
CO-60	1.38E-03
ZR-NB-97	1.13E-05
SB-124	6.76E-04
XE-133	1.35E-02
XE-133M	9.70E-05
XE-135	3.38E-04
CS-137	1.78E-05
BA-LA-140	2.82E-05

TRITIUM

	(CI)
TOTAL AIRBORNE RELEASE	7.35E+01
TOTAL LIQUID RELEASE	5.62E+02

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 1981
AIRBORNE AND LIQUID EFFLUENTS

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.65E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.22E+12

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

INSTALLATION: PRAIRIE ISLAND

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 18
MODE OF TRANSPORTATION TRUCK

DESTINATION
RICHLAND, WA

IRRADIATED FUEL SHIPMENTS (DISPOSITION)

NUMBER OF SHIPMENTS 0
MODE OF TRANSPORTATION

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

		JAN-JUNE	JULY-DEC
A			
	CO-58	% 2.40E+00	2.00E+00
	CO-60	% 7.96E+01	3.60E+01
	CS-134	% 3.00E+00	1.50E+01
	CS-137	% 1.15E+01	4.50E+01
	MN-54	% 3.50E+00	2.00E+00
B			
	CO-58	% 7.40E+00	1.50E+01
	CO-60	% 6.45E+01	3.50E+01
	CS-134	% 2.00E+00	1.00E+01
	CS-137	% 1.95E+01	2.50E+01
	MISC	% 6.60E+00	
	MN-54	%	1.50E+01
C			
	NONE	%	N/A
D			
	CO-58	%	8.50E+00
	CO-60	%	9.15E+01

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	2.07E+01
	CI	4.36E+01
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3	1.82E+02
	CI	1.27E+01
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	
	CI	
D. OTHER	M3	9.37E+01
	CI	9.60E-02

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.:50-254
COOLING WATER SOURCE:MISSISSIPPI RIVER
UNIT NUMBER: 2
TYPE: BWR
DOCKET NO.:50-265
COOLING WATER SOURCE:MISSISSIPPI RIVER

LICENSEE:COMMONWEALTH EDISON AND IOWA-ILLINOIS GAS & ELECTRIC
LICENSED POWER (MWT):2511.00
INITIAL CRITICALITY:10/18/71

LICENSEE:COMMONWEALTH EDISON AND IOWA-ILLINOIS GAS & ELECTRIC
LICENSED POWER (MWT):2511.00
INITIAL CRITICALITY:04/26/72

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	2.15E-02
MN-54	3.51E-04
CO-58	6.53E-04
CO-60	1.14E-02
ZN-65	8.75E-04
KR-85	N/D
KR-85M	2.63E+03
KR-87	2.02E+03
KR-88	4.74E+03
SR-89	8.92E-02
SR-90	3.97E-04
RU-103	4.90E-06
AG-110M	2.53E-05
SB-124	3.40E-05
I-131	5.12E-01
I-133	2.24E+00
XE-133	4.07E+03
CS-134	6.15E-04
I-135	5.35E+00
XE-135	3.96E+03
XE-135M	4.48E+03
CS-136	7.09E-04
CS-137	1.81E-02
XE-138	9.12E+03
BA-140	2.00E-01
LA-140	N/D
CE-141	7.80E-03
CE-144	1.90E-03
UNIDENTIFIED	N/D

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	8.30E-04
CR-51	3.86E-03
MN-54	8.09E-03
CO-58	5.58E-03
FE-59	N/D
CO-60	2.54E-01
ZN-65	2.05E-03
SR-89	6.21E-03

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SR-90	1.28E-03
SR-91	1.85E-03
SR-92	9.93E-05
NB-95	2.80E-05
ZR-95	N/D
MO-99	2.07E-03
TC-99M	2.93E-03
AG-110M	N/D
I-131	1.22E-02
I-133	1.14E-02
XE-133	1.48E+00
XE-133M	1.28E-02
CS-134	6.98E-01
I-135	5.62E-03
XE-135	2.48E-01
CS-136	1.25E-04
CS-137	2.29E+00
CS-138	2.60E-03
BA-140	5.43E-03
LA-140	1.44E-03
CE-141	2.67E-04
NP-239	1.10E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	8.59E+01
TOTAL LIQUID RELEASE	1.19E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	6.11E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.08E+09

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

INSTALLATION:RANCHO SECO

LOCATION:25 MI SE SACRAMENTO, CA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.:50-312
COOLING WATER SOURCE:COOLING TOWERS-FOLSOM CANAL

LICENSEE:SACRAMENTO MUNICIPAL UTILITY
LICENSED POWER (MWT):2772.00
INITIAL CRITICALITY:09/16/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.01E-02
CO-58	1.94E-04
CO-60	4.33E-04
KR-85	1.32E+01
KR-85M	1.45E-01
KR-87	N/D
KR-88	1.45E+00
I-131	3.84E-03
XE-131M	7.64E-01
I-133	1.33E-04
XE-133	1.33E+03
XE-133M	2.35E+00
I-135	N/D
XE-135	1.63E+01
XE-135M	N/D
CS-137	2.20E-04
XE-138	N/D

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	8.35E+01
CR-51	N/D
MN-54	4.22E-02
CO-57	1.47E-04
CO-58	3.04E-01
FE-59	3.92E-04
CO-60	6.09E-02
ZN-65	N/D
SR-89	N/D
SR-90	N/D
ZR-NB-95	4.53E-03
MO-99	N/D
TC-99M	N/D
AG-110M	6.34E-04
I-131	3.47E-02
I-133	4.70E-03
XE-133	N/D
CS-134	4.95E-02
XE-135	N/D
CS-137	8.92E-02
BA-LA-140	1.36E-02
UNIDENTIFIED	N/D

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: RANCHO SECO

LOCATION: 25 MI SE SACRAMENTO, CA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

TRITIUM	(C1)
TOTAL AIRBORNE RELEASE	1.41E+02
TOTAL LIQUID RELEASE	8.35E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	9.11E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.76E+09

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

INSTALLATION: RANCHO SECO

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
2	TRUCK (SOLE USE)	BEATTY, NV
13	TRUCK (SOLE USE)	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS (DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

	JAN-JUNE	JULY-DEC
A		
NOT APPLICABLE	%	N/A
B		
CO-58	%	3.00E+01
CO-60	%	5.30E+01
CR-51/AG-110M	%	5.00E+00
MN-54	%	1.20E+01
C		
NOT APPLICABLE	%	N/A
D		
AG-110M	%	3.00E+00
CO-58	%	2.70E+01
CO-60	%	5.80E+01
CR-51/NB-95	%	2.00E+00
CS-134/CS-137	%	1.00E+00
MN-54	%	8.00E+00

TYPE OF WASTE

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	1.22E+02
	CI	6.59E+00
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	0.00E+00
	CI	0.00E+00
D. OTHER	M3	1.09E+02
	CI	1.37E+02

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.:50-261
COOLING WATER SOURCE:ROBINSON INPOUNDMENT

LICENSEE:CAROLINA POWER &LIGHT
LICENSED POWER (MWT):2300.00
INITIAL CRITICALITY:09/20/70

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	1.10E-05
AR-41	4.78E+01
CO-58	3.75E-05
CO-60	2.74E-04
KR-85M	2.60E+00
KR-87	1.87E+00
KR-88	1.35E+00
NB-97	1.28E-05
I-131	2.00E-05
I-133	7.86E-05
XE-133	3.49E+02
XE-133M	2.89E+00
XE-135	1.04E+02
XE-135M	4.37E+00
CS-137	8.58E-07

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	2.56E-03
NA-24	1.56E+00
AR-41	3.96E-02
CR-51	1.29E-03
MN-54	3.16E-03
CO-57	1.28E-07
CO-58	3.94E-02
FE-59	5.03E-05
CO-60	4.06E-02
ZN-65	4.57E-04
KR-85M	1.25E-04
KR-87	2.51E-06
SR-89	1.06E-03
SR-90	5.60E-03
SR-92	2.14E-06
NB-95	1.40E-03
ZR-95	6.76E-04
NB-97	8.46E-04
MO-99	8.73E-04
TC-99M	8.49E-04
AG-110M	3.35E-04
SN-113	2.36E-05
SB-124	9.91E-05
I-131	3.90E-03
I-133	1.71E-01
XE-133	1.20E-02

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

INSTALLATION:H.B.ROBINSON

LOCATION:4.5 MI WNW HARTSVILLE, SC

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-134	7.45E-04
XE-135	9.70E-03
XE-135M	4.67E-04
CS-137	1.12E-02
CE-144	7.34E-06

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	1.06E+01
TOTAL LIQUID RELEASE	1.86E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.09E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	8.42E+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 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
54	TRUCK

DESTINATION
BARNWELL, S.C.

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
0	
2	RAIL

DESTINATION
SOUTHPORT, N.C.

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

JAN-JUNE	JULY-DEC
----------	----------

A			
AG-110M	%		3.18E-02
CO-58	%	1.08E-01	5.88E-01
CO-60	%	3.93E-01	4.93E-01
CR-51	%		3.18E-02
CS-137	%	2.50E-02	1.43E-01
MN-54	%	3.24E-03	3.18E-02
NB-95	%		3.18E-02
NB-97	%	2.12E-02	3.18E-02
OTHERS	%	1.76E-02	7.95E-02
SB-124	%		1.27E-01
B			
CO-58	%	1.49E-01	1.30E-01
CO-60	%	2.02E+00	3.07E-01
CR-51	%		1.56E-02
CS-137	%	9.88E-03	
MN-54	%	3.40E-02	1.56E-02
NB-97	%		3.12E-02
OTHERS	%		2.08E-02

TYPE OF WASTE

UNIT	YEAR TOTAL
------	------------

A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3 2.50E+02
	CI 4.99E+00
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3 6.52E+02
	CI 1.38E+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 1981
AIRBORNE AND LIQUID EFFLUENTSUNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-272
COOLING WATER SOURCE:DELAWARE RIVERLICENSEE:PSE&G
LICENSED POWER (MWT):3338.00
INITIAL CRITICALITY:12/11/76

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-139	6.99E-04
F-18	3.09E-04
AR-41	2.43E-03
MN-54	4.12E-03
CO-58	2.12E-07
CO-60	3.80E-01
KR-85	4.62E-01
KR-85M	2.02E+00
KR-87	6.36E-03
KR-88	2.76E-02
RB-88	8.31E-02
Y-88	4.44E-03
I-131	9.31E-03
I-133	1.64E-03
XE-133	6.24E+02
XE-133M	2.91E+00
XE-135	5.24E+01
XE-135M	2.99E-01
CS-137	4.63E-05
CS-138	5.82E-04
UNIDENTIFIED	3.81E+02

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	4.93E+02
NA-24	2.40E-02
CR-51	5.92E-02
MN-54	7.39E-02
CO-58	4.51E-01
FE-59	3.75E-03
CO-60	3.20E-01
NB-95	1.81E-02
ZR-95	1.04E-02
MO-99	2.52E-04
SN-113	8.91E-04
SB-124	6.15E-04
SB-125	2.95E-01
TE-125M	5.62E-03
I-131	1.10E-01
I-133	8.80E-02
XE-133	5.38E+00
XE-133M	5.24E-02
CS-134	5.95E-02
XE-135	9.64E-02

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

INSTALLATION:SALEM 1

LOCATION:20 MI S WILMINGTON, DL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-136	1.42E-03
CS-137	7.60E-02
CE-144	5.98E-04

TRITIUM

	(CI)
TOTAL AIRBORNE RELEASE	2.74E+00
TOTAL LIQUID RELEASE	4.93E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.29E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.35E+10

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.:50-311
COOLING WATER SOURCE:DELAWARE RIVER

LICENSEE:PSE&G
LICENSED POWER (MWT):3338.00
INITIAL CRITICALITY:08/02/80

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	2.96E-06
MN-54	2.39E-04
CO-58	2.12E-07
CO-60	4.60E-03
KR-85	1.65E-01
KR-85M	1.99E+00
SR-85	6.33E-04
KR-88	1.69E-03
I-131	8.36E-04
I-133	1.82E-05
XE-133	5.42E+02
XE-133M	3.15E-01
CS-134	1.05E-06
XE-135	1.38E+01
XE-135M	2.99E-01
CS-137	8.01E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	8.43E+02
NA-24	2.05E-01
CR-51	9.46E-02
MN-54	4.43E-02
CO-58	8.12E-01
FE-59	5.84E-03
CO-60	2.56E-01
NB-95	1.50E-02
ZR-95	1.05E-02
MO-99	7.41E-05
SN-113	2.65E-04
SB-124	9.07E-04
SB-125	8.37E-03
TE-125M	3.77E-02
I-131	2.57E-02
I-133	6.03E-04
XE-133	5.59E+00
XE-133M	5.65E-02
CS-134	1.79E-02
XE-135	6.99E-02
CS-137	2.94E-02
CE-139	1.45E-04
W-187	2.49E-04

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

INSTALLATION:SALEM 2

LOCATION:20 M S WILMINGTON, DL

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	1.13E+00
TOTAL LIQUID RELEASE	8.43E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.70E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.20E+10

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
86	TRUCK
4	TRUCK
NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
0	

DESTINATION
BARNWELL, S.C.
BEATTY, NV
DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

CO-58	%	7.30E+01	7.30E+01
CO-60	%	1.50E+01	1.50E+01
FE-55	%	9.00E+00	9.00E+00
MN-54	%	3.00E+00	3.00E+00

B

CO-58	%	7.30E+01	7.30E+01
CO-60	%	1.50E+01	1.50E+01
FE-55	%	9.00E+00	9.00E+00
MN-54	%	3.00E+00	3.00E+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	2.34E+02
CI	1.10E+03
M3	7.02E+02
CI	3.70E+01
M3	
CI	
M3	
CI	

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

INSTALLATION: SAN ONOFRE

LOCATION: 2.5 MI S SAN CLEMENTE, CA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1

TYPE: PWR

DOCKET NO.: 50-206

COOLING WATER SOURCE: PACIFIC OCEAN

LICENSEE: SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS & ELECTRIC

LICENSED POWER (MWT): 1347.00

INITIAL CRITICALITY: 06/14/67

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.27E-01
CR-51	9.43E-03
MN-54	2.03E-07
CO-57	7.46E-09
CO-58	8.62E-07
CO-60	4.15E-06
KR-85	1.07E-01
KR-85M	1.75E+00
KR-87	5.73E-02
KR-88	5.59E-01
SR-89	N/D
SR-90	N/D
I-131	2.39E-03
XE-131	N/D
XE-131M	2.69E-01
XE-133	4.01E+02
XE-133M	3.48E+00
CS-134	N/D
XE-135	9.47E+00
XE-135M	8.79E-03
CS-137	1.86E-06
BA-LA-140	N/D

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	2.97E+02
CR-51	1.74E-01
MN-54	1.99E-01
CO-57	4.42E-03
CO-58	2.67E-01
FE-59	2.46E-02
CO-60	2.14E+00
ZN-65	1.03E-02
KR-85	2.67E-01
KR-85M	N/D
SR-89	N/D
SR-90	N/D
ZR-NB-95	5.35E-03
MO-99	N/D
TC-99M	1.79E-03
AG-110M	9.70E-03
SB-122	1.72E-03
I-131	1.33E-02
I-133	N/D

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION: SAN ONOFRE

LOCATION: 2.5 MI S SAN CLEMENTE, CA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
XE-133	1.07E-01
CS-134	2.27E-01
I-135	N/D
XE-135	N/D
CS-137	5.19E-01
BA-LA-140	N/D
CE-141	N/D
CE-144	4.99E-02

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	1.20E+01
TOTAL LIQUID RELEASE	2.97E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	3.41E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.02E+11

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

INSTALLATION: SAN ONOFRE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
9	
73	

DESTINATION

RICHLAND 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	1.62E+03
CI	1.26E+03
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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-327
COOLING WATER SOURCE: TENNESSEE RIVER

LICENSEE: TENNESSEE VALLEY AUTHORITY
LICENSED POWER (MWT): 2815.00
INITIAL CRITICALITY: 07/05/80

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	9.90E+00
CR-51	1.22E-05
CO-58	1.75E-05
KR-85	1.10E+01
KR-85M	7.41E-01
RB-88	5.39E-04
SR-89	2.06E-07
SR-90	1.24E-06
NB-95	1.96E-13
TC-99M	1.16E-02
I-131	7.99E-04
XE-131M	2.31E+01
I-133	1.54E-03
XE-133	8.87E+03
XE-133M	1.59E+01
XE-135	9.74E+01

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	1.22E-02
P-32	2.63E-01
AR-41	6.57E-05
CR-51	6.06E-01
MN-54	3.52E-01
FE-55	8.60E-02
CO-58	1.01E+00
FE-59	3.86E-02
CO-60	6.46E-02
ZN-65	2.68E-04
KR-85M	8.40E-04
SR-89	1.62E-03
SR-90	4.88E-03
ZR-NB-95	7.89E-02
ZR-97	1.57E-04
TC-99M	1.47E-04
RH-105	1.63E-03
SB-124	1.11E-03
I-131	6.60E-02
XE-131M	6.26E-02
TE-132	8.15E-07
I-133	2.88E-03
XE-133	2.44E+00
CS-134	2.81E-02
XE-135	1.02E-02

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-136	4.23E-03
CS-137	9.54E-02
BA-LA-140	2.68E-02
CE-144	1.72E-02
W-187	5.02E-03

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	9.19E-01
TOTAL LIQUID RELEASE	7.65E+01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.15E+09
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	8.47E+09

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

INSTALLATION: SEQUOYAH

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 12
MODE OF TRANSPORTATION TRUCK

DESTINATION
BARNWELL SC

IRRADIATED FUEL SHIPMENTS (DISPOSITION)

NUMBER OF SHIPMENTS 0
MODE OF TRANSPORTATION

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
CO-58	%	3.15E+01	5.52E+01
CO-60	%	3.24E+00	1.75E+01
CR-51	%	1.41E+01	7.55E+00
CS-134	%	1.51E-01	9.59E-01
CS-137	%	3.68E-01	3.00E+00
FE-59	%	9.57E-01	6.24E-01
I-131	%	4.22E+00	4.61E+00
MN-54	%	2.96E+01	3.65E+00
NB-95	%	1.34E+00	1.98E+00
UNIDENTIFIED	%	1.27E+01	3.79E+00
ZR-95	%	9.40E-01	1.08E-01

D

CO-58	%	6.72E+01	4.32E+01
CO-60	%	7.38E+00	1.39E+01
CR-51	%	1.07E+01	7.17E+00
CS-134	%		5.60E-01
CS-137	%	5.96E-01	2.21E-01
FE-59	%	9.02E-01	1.07E+00
I-131	%	6.99E-01	2.60E+01
MN-54	%	1.17E+01	2.15E+00
NB-95	%		1.37E+00
UNIDENTIFIED	%	7.98E-01	3.54E+00
ZR-95	%		7.63E-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
BOXES AND DRUMS

UNIT YEAR TOTAL

M3 3.81E+01
CI 2.04E+01
M3
CI
M3
CI
M3 1.23E+02
CI 8.80E+00

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1

TYPE: PWR

DOCKET NO.:50-335

COOLING WATER SOURCE:ATLANTIC OCEAN

LICENSEE:FLORIDA POWER &LIGHT

LICENSED POWER (MWT):2560.00

INITIAL CRITICALITY:04/22/76

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	8.30E+00
CO-58	3.32E-05
CO-60	1.45E-04
KR-85	1.17E+02
KR-85M	3.79E+02
KR-87	1.79E+02
KR-88	5.18E+02
RB-88	4.38E-02
ZR-95	8.40E-07
I-131	5.85E-02
XE-131M	1.11E+03
I-132	5.04E-04
I-133	1.59E-01
XE-133	1.92E+04
XE-133M	2.64E+02
I-135	1.14E-03
XE-135	9.74E+02
XE-135M	4.67E+01
XE-138	1.88E+02
BA-140	2.51E-06
LA-140	2.51E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	4.32E-04
AR-41	6.85E-04
CR-51	2.58E-01
MN-54	2.99E-02
MN-56	8.45E-03
CO-57	1.47E-03
CO-58	4.69E-01
FE-59	9.64E-03
CO-60	1.19E+00
NI-65	2.88E-03
ZN-65	2.57E-03
BR-82	9.39E-05
KR-85	8.81E-02
KR-85M	9.68E-05
KR-87	2.53E-05
KR-88	6.19E-05
SR-89	2.53E-03
SR-90	3.68E-04
NB-95	1.03E-02
ZR-95	4.58E-02

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NB-97	5.91E-03
ZR-97	8.01E-03
MO-99	3.61E-03
TC-99M	1.94E-03
RU-103	1.83E-04
AG-110M	9.70E-03
SN-113	3.89E-03
SB-122	1.05E-02
SB-124	6.79E-02
SB-125	3.01E-02
I-131	7.15E-02
XE-131M	8.02E-03
I-132	7.39E-04
I-133	1.09E-02
XE-133	5.16E-01
XE-133M	5.85E-03
CS-134	9.22E-02
I-134	4.36E-04
I-135	7.53E-03
XE-135	1.01E-02
XE-135M	3.04E-05
CS-136	1.44E-03
CS-137	9.42E-02
XE-138	3.50E-05
BA-140	7.83E-04
LA-140	1.40E-03
CE-141	2.25E-04
CE-144	6.30E-03
W-187	6.23E-03
NP-239	3.36E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	3.70E+02
TOTAL LIQUID RELEASE	3.25E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	4.16E+06
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	3.34E+10

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

INSTALLATION:ST. LUCIE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS 15
MODE OF TRANSPORTATION TRUCK

DESTINATION
BARNWELL SC

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS 0
MODE OF TRANSPORTATION

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
CO-58	%	7.00E+00	2.40E+01
CO-60	%	6.70E+01	6.00E+01
CS-134	%	8.00E+00	6.00E+00
CS-137	%	1.20E+01	1.00E+01
MN-54	%	6.00E+00	

B

CO-58	%	1.00E+01	1.50E+01
CO-60	%	6.20E+01	3.50E+01
CS-134	%	7.00E+00	1.50E+01
CS-137	%	1.80E+01	3.00E+01
MN-54	%	3.00E+00	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	1.89E+01	
CI	2.90E+02	
M3	2.31E+02	
CI	6.12E+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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-280
COOLING WATER SOURCE: JAMES RIVER
UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.: 50-281
COOLING WATER SOURCE: JAMES RIVER

LICENSEE: VIRGINIA ELECTRIC & POWER
LICENSED POWER (MWT): 2441.00
INITIAL CRITICALITY: 07/01/72

LICENSEE: VIRGINIA ELECTRIC & POWER
LICENSED POWER (MWT): 2441.00
INITIAL CRITICALITY: 03/07/73

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	6.85E-01
CR-51	7.11E-05
MN-54	8.14E-05
CO-58	7.80E-04
FE-59	2.37E-06
CO-60	1.90E-03
ZN-65	2.01E-07
KR-85	6.49E+00
KR-85M	4.89E+00
KR-88	5.95E+00
RB-88	2.77E-01
NB-95	1.61E-05
ZR-95	6.64E-06
RU-103	1.03E-06
I-131	4.50E-02
I-132	1.68E-07
I-133	1.65E-02
XE-133	1.34E+04
XE-133M	6.64E+01
CS-134	1.23E-04
I-135	1.50E-03
XE-135	5.67E+02
CS-137	5.48E-04
CS-138	9.33E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
C-14	4.69E-03
NA-24	2.10E+00
AR-41	1.29E-02
CR-51	5.25E-02
MN-54	2.21E-02
CO-57	1.23E-03
CO-58	1.30E+00
FE-59	7.69E-04
CO-60	1.23E+00
RB-88	2.32E-01
SR-89	2.47E-04
SR-90	1.87E-05
NB-95	5.22E-03

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SB-124	1.65E-02
SB-125	2.89E-02
I-131	1.56E+00
XE-131M	8.35E-02
I-132	1.73E-03
I-133	2.41E-01
XE-133	8.15E+00
XE-133M	2.11E-01
CS-134	1.23E+00
I-134	2.27E-05
I-135	7.66E-03
XE-135	2.34E+00
CS-136	8.31E-02
CS-137	1.81E+00
BA-LA-140	2.06E-04
CE-141	7.39E-05
CE-144	4.69E-03

TRITIUM

(CI)

TOTAL AIRBORNE RELEASE	6.19E+01
TOTAL LIQUID RELEASE	5.31E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	6.09E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.11E+12

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

INSTALLATION: SURRY

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION

126

12

DESTINATION

BARNWELL SC

RICHLAND 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 2.80E+03

CI 1.36E+03

M3

CI

M3

CI

M3

CI

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1

TYPE: PWR

DOCKET NO.:50-289

COOLING WATER SOURCE:SUSQUEHANNA RIVER

LICENSEE:METROPOLITAN EDISON & JERSEY CENTRAL POWER & LIGHT

LICENSED POWER (MWT):2535.00

INITIAL CRITICALITY:06/05/74

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	5.16E-06
KR-85	5.81E-02
SR-89	6.87E-06
SR-90	1.24E-05
CS-137	4.73E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
P-32	2.70E-07
MN-54	1.23E-04
FE-55	2.22E-03
CO-57	2.99E-06
CO-58	3.40E-05
CO-60	5.91E-03
ZN-65	4.45E-06
SR-90	7.10E-05
AG-110M	4.36E-04
SB-125	2.10E-03
CS-134	1.29E-02
CS-137	6.32E-02

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	1.49E-02
TOTAL LIQUID RELEASE	7.11E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.89E+09
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.58E+10

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
7	SHIPPING CASK	BARNWELL SC
1	TRACTOR/FLATBED TRAILER	BARNWELL SC
6	TRACTOR/FLATBED TRAILER	WASHINGTON STATE
14	TRACTOR/TRAILER (CASK)	BARNWELL SC
3	TRACTOR/TRAILER (FLATBED)	BARNWELL SC
14	TRACTOR/TRAILER (FLATBED)	RICHLAND WA
9	TRACTOR/TRAILER (VAN)	BARNWELL SC
2	TRACTOR/TRAILER (VAN)	WASHINGTON STATE

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
BA-137M	%	1.80E+01	3.00E+01
CO-60	%	6.00E-01	1.35E+01
CS-134	%	1.50E+01	8.50E+00
CS-137	%	5.80E+01	4.12E+01

B

AG-110M	%		1.80E+00
BA-137M	%	3.10E+01	3.46E+01
CO-60	%	7.70E+00	8.40E+00
CS-134	%	1.90E+01	1.82E+01
CS-137	%	3.10E+01	3.63E+01
MN-54	%	6.10E+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	2.96E+02
CI	2.31E+02
M3	5.01E+02
CI	2.51E+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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.:50-320
COOLING WATER SOURCE:SUSQUEHANNA RIVER

LICENSEE:METROPOLITAN EDISON & JERSEY CENTRAL POWER
LICENSED POWER (MWT):2772.00
INITIAL CRITICALITY:03/28/78

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	1.07E-05
KR-85	2.88E+02
SR-89	1.40E-12
SR-90	1.02E-09
NB-95	1.30E-09
CS-134	2.23E-08
CS-137	7.16E-06
UNIDENTIFIED	2.90E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CS-137	1.41E-05
UNIDENTIFIED	8.08E-06

TRITIUM

	(CI)
TOTAL AIRBORNE RELEASE	6.56E+01
TOTAL LIQUID RELEASE	5.06E-02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.81E+05
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	5.58E+10

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
1	TRACTOR/TRAILER (VAN)	BARNWELL SC
2	TRACTOR/TRAILER (VAN)	RICHLAND WA
5	TRACTOR/TRAILER (VAN)	WASHINGTON STATE

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

		JAN-JUNE	JULY-DEC
A			
CO-58	%		4.30E-01
CO-60	%		8.00E+01
MN-54	%		1.88E+01
SR-90/Y-90	%		3.50E-01
B			
BA-137M	%	4.10E+01	4.39E+01
CS-134	%	9.00E+00	5.10E+00
CS-137	%	4.30E+01	4.64E+01
SR-90	%	3.00E+00	2.32E+00
Y-90	%	3.00E+00	2.32E+00
D			
BA-137M	%		1.67E+01
CS-137	%		1.75E+01
SR-89	%		7.95E+00
SR-90	%		2.75E+01
Y-90	%		2.75E+01

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	4.42E+00
BOTTOMS, ETC.	CI	4.00E-02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	2.67E+02
EQUIPMENT, ETC.	CI	4.79E+01
C. IRRADIATED COMPONENTS, CONTROL	M3	
RODS, ETC.	CI	
D. OTHER	M3	3.16E+00
	CI	3.17E+00

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

INSTALLATION:TMI 2/EPICOR

LOCATION:10 MI SE HARRISBURG, PA

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 2

TYPE: PWR

DOCKET NO.:50-320

COOLING WATER SOURCE:SUSQUEHANNA RIVER

LICENSEE:METROPOLITAN EDISON & JERSEY CENTRAL POWER & LIGHT

LICENSED POWER (MWT):2772.00

INITIAL CRITICALITY:03/28/78

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
KR-85	1.84E+02
CS-134	8.70E-08
CS-137	9.99E-07
UNIDENTIFIED	1.53E-06

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	5.59E-02
TOTAL LIQUID RELEASE	0.00E+00

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	0.00E+00
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	4.17E+10

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
22	SHIPPING CASK/TRUCK	WASHINGTON STATE
1	TRACTOR/FLATBED TRAILER	WASHINGTON STATE
23	TRACTOR/TRAILER (CASK)	RICHLAND WA

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

A

		JAN-JUNE	JULY-DEC
BA-137M	%	3.35E+01	7.47E+00
CS-134	%	4.60E+00	
CS-137	%	3.54E+01	6.61E+00
SB-125	%		1.85E+01
SR-90	%	9.90E+00	2.94E+01
Y-90	%	9.90E+00	2.94E+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 1.51E+02
CI 3.50E+02
M3
CI
M3
CI
M3
CI

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.:50-344
COOLING WATER SOURCE:COLUMBIA RIVER

LICENSEE:PORTLAND GENERAL ELECTRIC
LICENSED POWER (MWT):3411.00
INITIAL CRITICALITY:12/15/75

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	1.42E+00
MN-54	1.28E-07
CO-57	1.06E-08
CO-58	1.08E-05
CO-60	9.02E-06
KR-85	2.57E+00
KR-85M	2.01E+00
KR-87	3.00E+00
KR-88	3.66E+00
SR-89	3.95E-05
SR-90	3.95E-05
NB-95	3.43E-07
ZR-95	2.33E-08
RU-103	1.04E-06
I-131	3.77E-02
XE-131M	2.69E+00
I-132	2.16E-04
I-133	5.52E-03
XE-133	1.05E+03
XE-133M	7.30E+00
CS-134	5.60E-06
I-134	3.32E-05
I-135	<6.76E-03
XE-135	5.62E+01
XE-135M	1.54E+01
CS-137	5.85E-05
XE-137	6.43E+00
XE-138	7.71E+00
BA-140	<1.06E-03
LA-140	<3.35E-04
CE-144	2.65E-08
UNIDENTIFIED	8.50E-06

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	1.82E-03
NA-24	4.99E-04
CR-51	7.74E-02
MN-54	3.99E-02
CO-57	5.30E-04
CO-58	1.49E-01
FE-59	2.37E-03
CO-60	2.65E-01
ZN-65	2.57E-04

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
KR-85M	6.34E-06
SR-89	<8.23E-03
SR-90	<1.67E-03
NB-95	2.01E-02
ZR-95	1.05E-02
MO-99	3.34E-04
TC-99M	2.94E-04
RU-103	6.34E-03
AG-110M	1.53E-03
SN-113	4.13E-04
SB-124	1.14E-02
SB-125	6.83E-02
I-131	<5.69E-02
XE-131M	3.55E-03
I-132	7.16E-05
TE-132	3.63E-04
I-133	1.24E-02
XE-133	6.93E-01
XE-133M	7.85E-04
CS-134	6.30E-02
I-135	2.15E-03
XE-135	1.59E+00
XE-135M	1.02E+00
CS-136	1.96E-03
CS-137	9.08E-02
BA-140	<6.99E-02
LA-140	<1.65E-02
CE-141	4.36E-04
CE-144	9.14E-03
NP-239	1.89E-03
UNIDENTIFIED	7.62E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	4.03E+01
TOTAL LIQUID RELEASE	1.03E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	5.06E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	4.35E+10

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

INSTALLATION:TROJAN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
27 TRUCK

DESTINATION
RICHLAND WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
0

DESTINATION

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

JAN-JUNE JULY-DEC

A

BA-140	%	1.98E-03	
CE-144	%	9.48E-01	3.09E-01
CO-57	%	1.99E-01	5.21E-02
CO-58	%	1.32E+01	5.55E-01
CO-60	%	6.56E+01	3.74E+01
CR-51	%	1.03E+00	4.68E-03
CS-134	%	5.31E+00	4.16E+00
CS-136	%	2.97E-03	
CS-137	%	1.19E+01	1.02E+01
FE-55	%		3.19E+01
FE-59	%	4.35E-02	
I-131	%	2.47E-02	
I-133	%	9.89E-04	
LA-140	%	9.89E-04	
MN-54	%	1.14E+00	2.30E+00
NB-95	%	2.93E-01	3.19E-03
NI-63	%		1.28E+01
RU-103	%	8.51E-02	
SB-125	%	8.91E-03	2.06E-02
SR-90	%		2.61E-01
ZR-95	%	1.76E-01	4.68E-03

B

CE-141	%	1.04E-01	1.22E-01
CE-144	%	2.16E+01	3.28E+00
CO-58	%	2.45E+01	2.52E+01
CO-60	%	1.86E+01	2.90E+01
CR-51	%	1.79E+01	1.30E+01
CS-134	%	1.11E+00	5.59E+00
CS-136	%	3.48E-02	1.22E-01
CS-137	%	3.17E+00	7.78E+00
FE-59	%	5.57E-01	3.65E-01
I-131	%	5.57E-01	1.70E+00
MN-54	%	3.17E+00	3.40E+00
NB-95	%	5.22E+00	5.71E+00
RU-103	%	6.96E-01	8.51E-01
ZN-65	%		1.22E-01
ZR-95	%	2.68E+00	3.65E+00

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

INSTALLATION:TROJAN

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

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

TYPE OF WASTE	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR	M3	1.49E+02
BOTTOMS, ETC.	CI	1.04E+03
B. DRY COMPRESSIBLE WASTE, CONTAMINATED	M3	2.26E+02
EQUIPMENT, ETC.	CI	3.70E+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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 3
TYPE: PWR
DOCKET NO.: 50-250
COOLING WATER SOURCE: CLOSED CANAL SYSTEM
UNIT NUMBER: 4
TYPE: PWR
DOCKET NO.: 50-251
COOLING WATER SOURCE: CLOSED CANAL SYSTEM

LICENSEE: FLORIDA POWER & LIGHT
LICENSED POWER (MWT): 2200.00
INITIAL CRITICALITY: 10/20/72

LICENSEE: FLORIDA POWER & LIGHT
LICENSED POWER (MWT): 2200.00
INITIAL CRITICALITY: 06/11/73

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	3.53E+01
CR-51	4.98E-05
MN-54	2.65E-05
CO-57	1.10E-07
CO-58	3.64E-04
CO-60	6.24E-04
BR-82	2.99E-03
KR-85	2.79E+00
KR-85M	4.65E-01
KR-87	5.29E-02
KR-88	2.32E-01
SR-89	1.59E-05
SR-90	6.90E-07
NB-95	1.00E-05
RU-103	2.60E-07
SB-125	1.30E-06
I-131	2.80E-02
XE-131	4.84E+00
XE-131M	2.52E+00
I-133	9.31E-03
XE-133	4.26E+03
XE-133M	8.87E+00
CS-134	6.58E-05
I-135	8.39E-04
XE-135	8.87E+00
XE-135M	3.39E-01
CS-136	2.70E-06
CS-137	1.51E-04
BA-140	1.60E-05
LA-140	1.30E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
F-18	1.23E-02
NA-24	2.61E-03
CR-51	2.00E-02
MN-54	2.42E-03
CO-57	1.76E-05
CO-58	6.55E-02
FE-59	1.30E-03

N/A=NOT APPLICABLE

N/D=NOT DETECTED

N/R=NOT REPORTED

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CO-60	6.17E-02
ZN-65	2.38E-04
SR-89	3.39E-03
SR-90	3.49E-05
NB-95	3.97E-03
ZR-95	1.69E-03
ZR-97	1.01E-03
RU-103	4.01E-05
AG-110M	2.03E-03
SB-124	4.61E-03
SB-125	1.13E-02
I-131	1.63E-02
I-132	3.28E-03
I-133	1.54E-02
CS-134	2.95E-02
I-134	6.70E-04
I-135	1.48E-03
CS-136	1.03E-04
CS-137	4.18E-02
LA-140	2.66E-04
CE-144	1.52E-04

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	6.86E-01
TOTAL LIQUID RELEASE	1.95E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	2.04E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.33E+12

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

INSTALLATION: TURKEY POINT

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
55	
27	

DESTINATION
BARNWELL SC
RICHLAND 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		1.25E+03
CI		1.17E+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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: BWR
DOCKET NO.:50-271
COOLING WATER SOURCE:CONNECTICUT RIVER

LICENSEE:VERMONT YANKEE NUCLEAR POWER
LICENSED POWER (MWT):1593.00
INITIAL CRITICALITY:03/24/72

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
MN-54	<2.96E-04
CO-58	5.66E-05
CO-60	1.60E-03
ZN-65	<5.52E-04
KR-85	N/D
KR-85M	<2.86E+01
KR-87	<8.35E+01
KR-88	<7.40E+01
SR-89	5.79E-05
SR-90	3.13E-06
I-131	1.63E-03
I-133	<6.22E-03
XE-133	<4.68E+02
CS-134	<1.84E-04
I-135	<3.29E-02
XE-135	<1.48E+02
XE-135M	<5.13E+02
CS-137	6.60E-04
XE-138	<1.86E+03
BA-LA-140	<8.44E-04

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
NA-24	3.79E-04
CR-51	N/D
MN-54	N/D
CO-58	N/D
FE-59	N/D
CO-60	2.13E-03
ZN-65	6.54E-04
SR-89	1.41E-05
SR-90	1.35E-06
ZR-NB-95	N/D
MO-99	N/D
TC-99M	N/D
I-131	N/D
XE-133	N/D
CS-134	1.58E-03
XE-135	9.65E-05
CS-137	5.48E-03
BA-LA-140	N/D
CE-141	N/D

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 1981
AIRBORNE AND LIQUID EFFLUENTS

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	1.96E+01
TOTAL LIQUID RELEASE	3.70E-01

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	6.74E+04
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	1.11E+08

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
36	TRUCK	BARNWELL, S.C.
5	TRUCK	BEATTY, NV
3	TRUCK	RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION	DESTINATION
0		

ESTIMATE OF MAJOR NUCLIDE COMPOSITION(BY TYPE OF WASTE)

		JAN-JUNE	JULY-DEC
A			
BA-140	%	6.70E-03	
CO-58	%	1.90E+00	2.00E+00
CO-60	%	1.60E+01	1.60E+01
CS-134	%	1.90E+01	2.00E+01
CS-137	%	5.30E+01	5.30E+01
I-131	%	1.30E-01	
MN-54	%	2.10E+00	2.00E+00
SB-124	%	2.40E-01	
ZN-65	%	7.30E+00	7.00E+00
ZR-95	%	3.20E-01	
B			
CO-58	%	9.80E-01	9.80E-01
CO-60	%	2.40E+01	2.40E+01
CS-134	%	2.30E+01	2.30E+01
CS-137	%	4.10E+01	4.10E+01
MN-54	%	2.50E+00	2.50E+00
ZN-65	%	8.40E+00	8.40E+00
C			
CO-58	%		9.80E-01
CO-60	%		2.40E+01
CS-134	%		2.30E+01
CS-137	%		4.10E+01
MN-54	%		2.50E+00
ZN-65	%		8.40E+00

TYPE OF WASTE

	UNIT	YEAR TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.72E+02
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	CI	1.02E+03
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3	2.65E+02
	CI	8.03E+00
D. OTHER	M3	1.20E+00
	CI	7.90E+01
	M3	
	CI	

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.:50-29
COOLING WATER SOURCE:DEERFIELD RIVER

LICENSEE:YANKEE ATOMIC ELECTRIC
LICENSED POWER (MWT): 600.00
INITIAL CRITICALITY:08/19/60

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	3.07E+00
C-14	4.71E-01
AR-37	5.96E-01
AR-41	1.33E+00
CR-51	<1.54E-05
MN-54	9.61E-06
CO-58	<8.90E-06
FE-59	<3.28E-06
CO-60	<1.10E-05
KR-85	6.53E+00
KR-85M	1.44E+00
KR-87	1.52E+00
KR-88	2.48E+00
SR-89	<1.50E-06
SR-90	<1.11E-06
ZR-NB-95	<3.41E-06
AG-110M	<3.14E-06
SB-124	<3.12E-06
SB-125	<1.18E-05
I-131	1.68E-04
XE-131M	1.18E+00
I-133	<5.76E-05
XE-133	8.03E+01
XE-133M	<1.19E+00
CS-134	<1.93E-06
I-135	<1.09E-04
XE-135	2.90E+01
XE-135M	4.55E+01
CS-137	<3.18E-06
XE-138	1.40E+00
BA-LA-140	<7.25E-06
CE-141	<2.63E-06
CE-144	<1.23E-05

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
H-3	1.03E+02
C-14	5.25E-03
CR-51	<1.64E-04
MN-54	3.44E-04
CO-58	2.09E-04
FE-59	4.60E-05
CO-60	4.14E-04
ZN-65	<7.40E-05

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

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
SE-75	<3.57E-05
SR-89	3.19E-04
SR-90	1.88E-05
ZR-NB-95	<1.86E-05
MO-99	<1.68E-04
TC-99M	<1.93E-05
RU-103	<1.40E-05
RU-106	<1.93E-05
AG-110M	<4.91E-05
SB-124	<3.00E-05
SB-125	6.71E-06
I-131	3.32E-03
TE-132	8.15E-06
I-133	4.07E-04
XE-133	9.01E-01
CS-134	1.14E-03
XE-135	<4.10E-03
CS-137	2.47E-03
BA-LA-140	<1.65E-04
CE-141	<1.10E-05
CE-144	<7.80E-05
UNIDENTIFIED	<9.62E-05

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	3.07E+00
TOTAL LIQUID RELEASE	1.03E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.63E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	2.12E+11

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

INSTALLATION:YANKEE ROWE

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
23	TRUCK
3	TRUCK

DESTINATION
BARNWELL, S.C.
RICHLAND, WA

IRRADIATED FUEL SHIPMENTS(DISPOSITION)

NUMBER OF SHIPMENTS	MODE OF TRANSPORTATION
0	

DESTINATION

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	5.95E+01
CI	5.47E+00
M3	2.49E+02
CI	6.24E+01
M3	0.00E+00
CI	0.00E+00
M3	0.00E+00
CI	0.00E+00

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 1981
AIRBORNE AND LIQUID EFFLUENTS

UNIT NUMBER: 1
TYPE: PWR
DOCKET NO.: 50-295
COOLING WATER SOURCE: LAKE MICHIGAN
UNIT NUMBER: 2
TYPE: PWR
DOCKET NO.: 50-304
COOLING WATER SOURCE: LAKE MICHIGAN

LICENSEE: COMMONWEALTH EDISON
LICENSED POWER (MWT): 3250.00
INITIAL CRITICALITY: 06/19/73

LICENSEE: COMMONWEALTH EDISON
LICENSED POWER (MWT): 3250.00
INITIAL CRITICALITY: 12/24/73

AIRBORNE EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
AR-41	2.69E+01
CO-58	1.08E-03
CO-60	3.33E-04
KR-85	9.42E-01
KR-85M	1.70E+01
KR-87	9.31E+00
KR-88	3.05E+01
SR-89	1.31E-04
SR-90	1.86E-05
NB-95	1.05E-04
I-131	5.15E-03
XE-131M	4.09E+00
I-132	1.23E-05
I-133	9.22E-04
XE-133	6.37E+03
XE-133M	7.60E+00
CS-134	1.56E-08
I-134	4.66E-06
I-135	6.58E-04
XE-135	2.92E+02
XE-135M	2.64E+01
CS-137	2.45E-05
CS-138	1.53E-05
XE-138	1.14E+00

TRITIUM	(CI)
TOTAL AIRBORNE RELEASE	N/A

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EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	2.25E-01
MN-54	3.63E-04
CO-58	4.89E-01
FE-59	3.39E-03
CO-60	4.31E-01
KR-85	7.43E-01
SR-89	8.36E-03
SR-90	1.20E-03
SR-92	3.40E-02
NB-95	2.49E-02
ZR-95	2.75E-03
AG-110M	1.76E-01
SB-124	7.50E-02
I-131	4.88E-03
XE-133	4.26E+00
XE-133M	1.13E-02
CS-134	1.53E-02
XE-135	1.16E-02
CS-136	5.60E-03
CS-137	2.60E-02
BA-LA-140	1.96E-03
W-187	9.40E-02
TOTAL LIQUID RELEASE	6.04E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.14E+08
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	7.81E+11

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EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
AIRBORNE AND LIQUID EFFLUENTS

LIQUID EFFLUENTS

NUCLIDES RELEASED	ACTIVITY (CI)
CR-51	1.48E-01
MN-54	1.43E-03
CO-58	3.48E-01
FE-59	5.05E-04
CO-60	2.66E-01
KR-85	4.20E-01
SR-92	8.04E-03
NB-95	3.17E-02
ZR-95	8.54E-03
AG-110M	7.44E-02
SB-124	4.03E-02
I-131	1.82E-03
I-133	1.92E-04
XE-133	1.66E+00
XE-133M	1.82E-03
CS-134	9.93E-03
XE-135	2.99E-03
CS-136	1.15E-03
CS-137	3.96E-02
BA-LA-140	1.32E-04
CE-144	9.27E-04
W-187	4.64E-02
TOTAL LIQUID RELEASE	2.66E+02

VOLUME OF LIQUID WASTE RELEASED (PRIOR TO DILUTION)	LITERS	5.09E+07
VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	7.82E+11

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INSTALLATION: ZION 1&2

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT FOR YEAR 1981
SOLID EFFLUENTS

SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS MODE OF TRANSPORTATION
167

DESTINATION

TYPE OF WASTE	UNIT	YEAR	TOTAL
A. SPENT RESINS, FILTER SLUDGES, EVAPORATOR BOTTOMS, ETC.	M3	1.53E+03	
	CI	3.44E+03	
B. DRY COMPRESSIBLE WASTE, CONTAMINATED EQUIPMENT, ETC.	M3		
	CI		
C. IRRADIATED COMPONENTS, CONTROL RODS, ETC.	M3		
	CI		
D. OTHER	M3		
	CI		

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