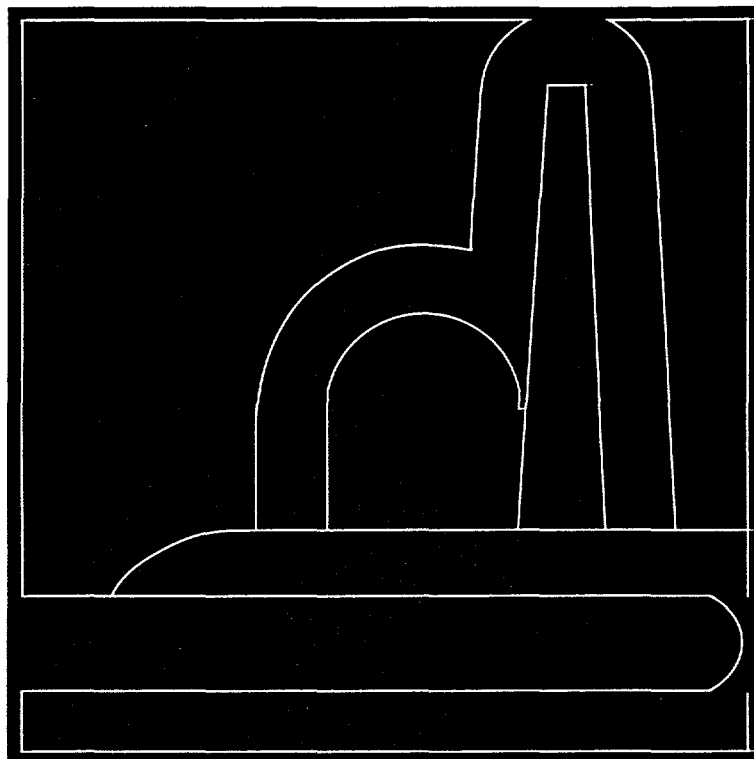


Nuclear Reactors Built, Being Built, or Planned: 1996



Prepared for:

U.S. DEPARTMENT OF ENERGY
Director, Office of Nuclear Energy,
Science and Technology

Prepared by:

**Office of Scientific and
Technical Information**

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Nuclear Reactors Built, Being Built, or Planned 1996

Prepared for:

U.S. DEPARTMENT OF ENERGY

**Director, Office of Nuclear Energy,
Science and Technology**

Washington, D.C. 20585-0117

Prepared by:

**Office of Scientific and
Technical Information**

Preface

Nuclear Reactors Built, Being Built, or Planned contains unclassified information about facilities built, being built, or planned in the United States for domestic use or export as of December 31, 1996. The Office of Scientific and Technical Information, U.S. Department of Energy, gathers this information annually from Washington headquarters and field offices of DOE; from the U.S. Nuclear Regulatory Commission (NRC); from the U.S. reactor manufacturers who are the principal nuclear contractors for foreign reactor locations; from U.S. and foreign embassies; and from foreign governmental nuclear departments.

The book consists of three divisions, as follows:

- a commercial reactor locator map and tables of the characteristic and statistical data that follow; a table of abbreviations;
- tables of data for reactors operating, being built, or planned; and
- tables of data for reactors that have been shut down permanently or dismantled.

The reactors are subdivided into the following parts: Civilian, Production, Military, Export, and Critical Assembly. *Export reactor* refers to a reactor for which the principal nuclear contractor is a U.S. company—working either independently or in cooperation with a foreign company (Part IV). *Critical assembly* refers to an assembly of fuel and moderator that requires an external source of neutrons to initiate and maintain fission. A critical assembly is used for experimental measurements (Part V).

Various classes of reactors within these parts are defined as follows:

Central-Station Electric Power Plant: A nuclear power facility designed and constructed for operation on a utility system (Part I, Section 1A).

Dual-Purpose Plant: A nuclear power facility designed, constructed, and operated for more than one primary purpose, for example, the production of nuclear materials and the generation of electricity or the use of reactor thermal energy for electrical generation and process-heat applications including desalting (Part I, Section 1B).

Experimental Power Reactor: A facility designed, engineered, constructed, and operated to test the technical feasibility of a concept or to provide the technical basis for a similar type nuclear power plant in a larger size. Design flexibility permits changes to prove various aspects of reactor technology including fuel, components, and configurations. Power-conversion equipment may or may not be included as part of the facility (Part I, Section 2).

General Irradiation Test Reactor: A reactor having (1) a thermal power level exceeding 10 MW; (2) test loops or experimental facilities within, or in proximity to, the core; and (3) the use

of nuclear radiation for testing the life or performance of reactor components as its major function (Part I, Section 3A; Part IV, Section 2A).

High-Power Research and Test Reactor: A reactor having a relatively high thermal power level (5MW or greater) but not classed as a general irradiation test reactor (Part I, Section 3B).

Safety-Research and Test Reactor: A reactor associated with a nuclear safety research or engineering-scale test program conducted for the purpose of developing basic design information or demonstrating safety characteristics of terrestrial and aerospace nuclear reactor systems (Part I, Section 3C).

General Research Reactor: A reactor—excluding that located at a university—whose nuclear radiations are used primarily as a research tool for basic or applied research and whose thermal power level is 10 MW or less. It may include facilities for testing reactor materials (Part I, Section 3D; Part IV, Section 2B). Also included are Research Reactors (Part III, Section 3B).

University Research and Teaching Reactor: A reactor located at a university and usually operated for the primary purpose of training in the operation and utilization of reactors and for instruction in reactor theory and performance (Part I, Section 3E; Part IV, Section 2C).

Reactors are further grouped according to status:

Reactors are listed as *operable* under the following circumstances:

1. Reactors regulated by the NRC
 - when an operating license is issued.
 - when a reactor is temporarily shut down because of technical reasons, modifications, or refueling.
2. Federal Government reactors
 - when criticality is achieved.
 - when a reactor is temporarily shut down for safety improvements.
3. Reactors for export
 - when criticality is achieved.

Reactors are listed as *being built* under the following circumstances:

1. Reactors regulated by NRC
 - when a construction permit is issued.
 - when limited work authorization is issued.
2. Federal Government reactors
 - when ground is broken.
 - when components are ordered.
 - when a construction contract is awarded.

3. Reactors for export

- when an application for an export license is received by NRC.
- when reliable information is received relating to the fabrication of reactor components.

Reactors are listed as *planned* under the following circumstances:

1. Reactors regulated by NRC

- when a public announcement that includes the principal vendor supplier is made by the sponsoring organization.
- when an application for a construction permit is received by NRC.

2. Federal Government reactors

- when a public announcement is made by the agency involved.
- when the project is otherwise appropriately authorized.

3. Reactors for export

- when a public announcement that includes principal contractor and reactor type is made.
- when NRC receives information that a U.S. reactor manufacturer is proceeding with preconstruction design and development on the basis of a letter of intent.

Reactors are considered to be *shutdown or dismantled* under the following circumstances:

1. Reactors regulated by NRC

- when the licensee has applied to the Commission for authority to surrender a license voluntarily and to dismantle the facility and dispose of its component parts. A reactor shut down because of technical problems, modifications, or refueling, continues to be listed as operable.

2. Federal Government reactors

- when the facility has ceased operation and the agency has declared officially that the agency does not intend to operate the reactor further. However, within this category, a few reactors are identified as being in *standby* mode, the condition in which documentary authorization exists to maintain the reactor for possible future operation.

3. Reactors for export

- when the plant is officially declared shut down by the owner and taken out of operation permanently.

Table 2 presents a statistical summary of reactors, other than critical assemblies, in each class and status. Shutdown and dismantled reactors are included since such facilities have made significant contributions to reactor technology.

The reactor tables have the following column headings:

- *Location.* The city and state or country where located originally. For a portable facility or one that has been relocated, the most recent location is given.
- *Principal nuclear contractor, operator, designer, ship-builder.* The abbreviations used in this column are spelled out in Table 3, which appears just before the reactor tables.
- *Type.* Entries in this column are based on coolant, moderator, and neutron energy.
- *Power.* MD capacity [MW(e)] is the maximum dependable capacity (net electrical output to grid) for plants having an operating history. Otherwise, it is the design capacity. Licensed power and authorized power are given where appropriate.
- *Designation.* The common name, abbreviation or acronym used for the facility. For the naval reactors, it is the hull number.
- *Date columns.* The initial criticality date, year of operation, and year of shutdown are given as appropriate.

Nuclear Reactors Built, Being Built, or Planned (DOE/OSTI--8200-R60) is sponsored by the DOE Office of Nuclear Energy, Science and Technology, LaRue E. Moxley, Program Officer.

The participation and assistance of many individuals, agencies, and companies in providing data and updating the entries in this revision are gratefully acknowledged. Comments and suggestions about this publication are welcome. To ensure that the wide range of information included in this publication will continue to be timely and accurate, please direct any information related to updating the items to Janice Pitsenbarger, U.S. Department of Energy, Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831; (423) 576-5636. Questions of a technical nature should be addressed to Lamar Cason at the same address.

CONTENTS

Preface	iii
Map: Commercial Nuclear Power Reactors in the United States	viii
Table 1. Commercial Nuclear Power Reactors in the United States as of 31 Dec 1996	ix
Table 2. Statistical Summary of Nuclear Reactors as of 31 Dec 1996	xv
Table 3. Abbreviations of Contractors, Designers, Shipbuilders, and Facility Operators	xvi

REACTORS AND FACILITIES OPERABLE, BEING BUILT, OR PLANNED

Part I. Civilian Reactors (Domestic)

1. Power Reactors	1
A. Central-Station Electric Power Plants	1
B. Dual-Purpose Plants (<i>No reactors currently in this category</i>)	6
C. Propulsion (Maritime) (<i>No reactors currently in this category</i>)	6
2. Experimental Power-Reactor Systems	6
A. Electric-Power Systems (<i>No reactors currently in this category</i>)	6
B. Space Nuclear Auxiliary Power (SNAP) (<i>No reactors currently in this category</i>)	6
C. Space Propulsion (<i>No reactors currently in this category</i>)	6
3. Test, Research, and University Reactors	6
A. General Irradiation Test	6
B. High-Power Research and Test	7
C. Safety Research and Test (<i>No reactors currently in this category</i>)	7
D. General Research	7
E. University Research and Teaching	8

Part II. Production Reactors

1. Materials Production (<i>No reactors currently in this category</i>)	10
2. Process Development (<i>No reactors currently in this category</i>)	10

CONTENTS (Continued)

Part III. Military Reactors

1. Defense Power-Reactor Applications	11
A. Remote Installations (<i>No reactors currently in this category</i>)	11
B. Propulsion (Naval)	11
2. Developmental Power	14
A. Electric-Power Experiments and Prototypes (<i>No reactors currently in this category</i>)	14
B. Propulsion Experiments and Prototypes	14
3. Test and Research	14
A. Test (<i>No reactors currently in this category</i>)	14
B. Research	15

Part IV. Export Reactors

1. Power Reactors	15
A. Central-Station Electric Power Plants	15
B. Propulsion (<i>No reactors currently in this category</i>)	19
2. Test, Research, and Teaching	19
A. General Irradiation Test	19
B. General Research	19
C. University Research and Teaching	21

Part V. Critical Assemblies

1. Civilian	22
2. Military	23

REACTORS AND FACILITIES SHUTDOWN OR DISMANTLED

Part I. Civilian Reactors (Domestic)

1. Power Reactors	27
A. Central-Station Electric Power Plants	27
B. Dual-Purpose Plants	29
C. Propulsion (Maritime)	29
2. Experimental Power-Reactor Systems	29
A. Electric-Power Systems	29
B. Space Nuclear Auxiliary Power (SNAP)	32
C. Space Propulsion	32
3. Test, Research, and University Reactors	34
A. General Irradiation Test	34
B. High-Power Research and Test	34
C. Safety Research and Test	34
D. General Research	35
E. University Research and Teaching	39

CONTENTS (Continued)

Part II. Production Reactors

- 1. Materials Production 41
- 2. Process Development 42

Part III. Military Reactors

- 1. Defense Power-Reactor Applications 42
 - A. Remote Installations 42
 - B. Propulsion (Naval) 43
- 2. Developmental Power 45
 - A. Electric-Power Experiments and Prototypes 45
 - B. Propulsion Experiments and Prototypes 45
- 3. Test and Research 46
 - A. Test 46
 - B. Research 46

Part IV. Export Reactors

- 1. Power Reactors 46
 - A. Central-Station Electric Power Plants 46
 - B. Propulsion 47
- 2. Test, Research, and Teaching 47
 - A. General Irradiation Test (*No reactors currently in this category*) 47
 - B. General Research 47
 - C. University Research and Teaching 47

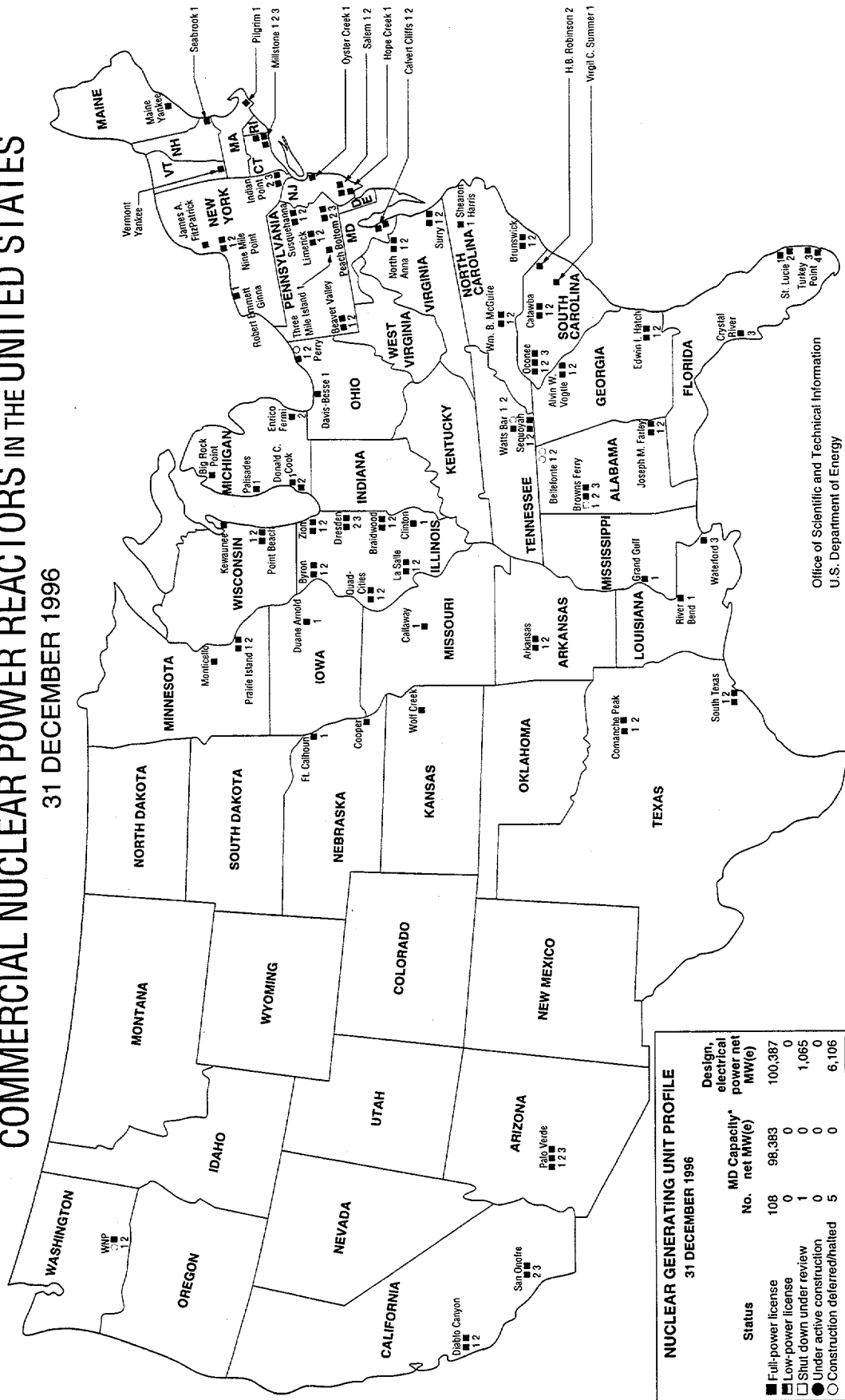
Part V. Critical Assemblies

- 1. Civilian 48
- 2. Military 49

- REACTOR INDEX 53

COMMERCIAL NUCLEAR POWER REACTORS IN THE UNITED STATES

31 DECEMBER 1996



Office of Scientific and Technical Information
U.S. Department of Energy

NUCLEAR GENERATING UNIT PROFILE				
31 DECEMBER 1996				
Status	No.	MD Capacity* net MW(e)	Design, electrical power net MW(e)	
■ Full-power license	108	98,383	100,387	
□ Low-power license	0	0	0	
▤ Shut down under review	1	0	1,065	
● Under active construction	0	0	0	
○ Construction deferred/halted	5	0	6,106	
Total	114	98,383	107,558	

*Maximum Dependable Capacity or Design Electrical Rating

Because of space limitations, symbols do not reflect precise locations.

TABLE 1

COMMERCIAL NUCLEAR POWER REACTORS IN THE UNITED STATES AS OF 31 DEC 1996

SITE	PLANT NAME	STATUS	CAPACITY, NET MW(e)	DESIGN ELECTRICAL RATING, NET MW(e)	LICENSEE	STARTUP
ALABAMA						
Decatur	Browns Ferry Nuclear Power Station, Unit 1	SDUR		1,065	Tennessee Valley Authority	73 08
Decatur	Browns Ferry Nuclear Power Station, Unit 2	FPL	1,065	1,065	Tennessee Valley Authority	74 07
Decatur	Browns Ferry Nuclear Power Station, Unit 3	FPL	1,065	1,065	Tennessee Valley Authority	76 08
Dothan	Joseph M. Farley Nuclear Plant, Unit 1	FPL	812	829	Southern Nuclear Operating Co.	77 08
Dothan	Joseph M. Farley Nuclear Plant, Unit 2	FPL	822	829	Southern Nuclear Operating Co.	81 05
Scottsboro	Bellefonte Nuclear Plant, Unit 1	CDH		1,235	Tennessee Valley Authority	Indef.
Scottsboro	Bellefonte Nuclear Plant, Unit 2	CDH		1,235	Tennessee Valley Authority	Indef.
Total			3,764	7,323		
ARIZONA						
Wintersburg	Palo Verde Nuclear Generating Station, Unit 1	FPL	1,221	1,270	Arizona Public Service Co.	85 05
Wintersburg	Palo Verde Nuclear Generating Station, Unit 2	FPL	1,221	1,270	Arizona Public Service Co.	86 04
Wintersburg	Palo Verde Nuclear Generating Station, Unit 3	FPL	1,304	1,270	Arizona Public Service Co.	87 10
Total			3,746	3,810		
ARKANSAS						
Russellville	Arkansas Nuclear One, Unit 1	FPL	836	850	Entergy Operations Inc.	74 08
Russellville	Arkansas Nuclear One, Unit 2	FPL	858	912	Entergy Operations Inc.	78 12
Total			1,694	1,762		
CALIFORNIA						
Diablo Canyon	Diablo Canyon Nuclear Power Plant, Unit 1	FPL	1,073	1,086	Pacific Gas & Electric Co.	84 04
Diablo Canyon	Diablo Canyon Nuclear Power Plant, Unit 2	FPL	1,087	1,119	Pacific Gas & Electric Co.	85 08
San Clemente	San Onofre Nuclear Generating Station, Unit 2	FPL	1,070	1,070	Southern California Edison	82 07
San Clemente	San Onofre Nuclear Generating Station, Unit 3	FPL	1,080	1,080	Southern California Edison	83 08
Total			4,310	4,355		
CONNECTICUT						
Waterford	Millstone Nuclear Power Station, Unit 1	FPL	641	660	Northeast Nuclear Energy Co.	70 10
Waterford	Millstone Nuclear Power Station, Unit 2	FPL	873	870	Northeast Nuclear Energy Co.	75 10
Waterford	Millstone Nuclear Power Station, Unit 3	FPL	1,137	1,154	Northeast Nuclear Energy Co.	86 01
Total			2,651	2,684		

TABLE 1 (Continued)

SITE	PLANT NAME	STATUS	CAPACITY, NET MW(e)	DESIGN	LICENSEE	STARTUP
				ELECTRICAL RATING, NET MW(e)		
FLORIDA						
Florida City	Turkey Point Plant, Unit 3	FPL	666	693	Florida Power & Light Co.	72 10
Florida City	Turkey Point Plant, Unit 4	FPL	666	693	Florida Power & Light Co.	73 06
Fort Pierce	St. Lucie Plant, Unit 1	FPL	839	830	Florida Power & Light Co.	76 04
Fort Pierce	St. Lucie Plant, Unit 2	FPL	839	830	Florida Power & Light Co.	83 06
Red Level	Crystal River Nuclear Plant, Unit 3	FPL	821	825	Florida Power Corp.	77 01
Total			3,831	3,871		
GEORGIA						
Baxley	Edwin I. Hatch Nuclear Plant, Unit 1	FPL	737	776	Georgia Power Co.	74 09
Baxley	Edwin I. Hatch Nuclear Plant, Unit 2	FPL	757	784	Georgia Power Co.	78 07
Waynesboro	Alvin W. Vogtle Nuclear Plant, Unit 1	FPL	1,158	1,101	Georgia Power Co.	87 03
Waynesboro	Alvin W. Vogtle Nuclear Plant, Unit 2	FPL	1,157	1,101	Georgia Power Co.	89 03
Total			3,809	3,762		
ILLINOIS						
Braidwood	Braidwood Station, Unit 1	FPL	1,120	1,120	Commonwealth Edison Co.	87 05
Braidwood	Braidwood Station, Unit 2	FPL	1,120	1,120	Commonwealth Edison Co.	88 03
Byron	Byron Station, Unit 1	FPL	1,105	1,120	Commonwealth Edison Co.	85 02
Byron	Byron Station, Unit 2	FPL	1,105	1,120	Commonwealth Edison Co.	87 01
Clinton	Clinton Power Station, Unit 1	FPL	930	933	Illinois Power Co.	87 02
Cordova	Quad-Cities Station, Unit 1	FPL	769	789	Commonwealth Edison Co.	71 10
Cordova	Quad-Cities Station, Unit 2	FPL	769	789	Commonwealth Edison Co.	72 04
Morris	Dresden Nuclear Power Station, Unit 2	FPL	772	794	Commonwealth Edison Co.	70 01
Morris	Dresden Nuclear Power Station, Unit 3	FPL	773	794	Commonwealth Edison Co.	71 01
Seneca	La Salle County Station, Unit 1	FPL	1,036	1,078	Commonwealth Edison Co.	82 06
Seneca	La Salle County Station, Unit 2	FPL	1,036	1,078	Commonwealth Edison Co.	84 03
Zion	Zion Nuclear Plant, Unit 1	FPL	1,040	1,040	Commonwealth Edison Co.	73 06
Zion	Zion Nuclear Plant, Unit 2	FPL	1,040	1,040	Commonwealth Edison Co.	73 12
Total			12,615	12,815		
IOWA						
Palo	Duane Arnold Energy Center, Unit 1	FPL	515	538	Iowa Electric Light & Power Co.	74 03
Total			515	538		
KANSAS						
Burlington	Wolf Creek Generating Station	FPL	1,134	1,170	Wolf Creek Nuclear Operating Corp.	85 05
Total			1,134	1,170		
LOUISIANA						
St. Francisville	River Bend Station, Unit 1	FPL	936	936	Entergy Operations Inc.	85 10
Taft	Waterford Generating Station, Unit 3	FPL	1,075	1,104	Entergy Operations Inc.	85 03
Total			2,011	2,040		

TABLE 1 (Continued)

SITE	PLANT NAME	STATUS	CAPACITY, NET MW(e)	DESIGN ELECTRICAL RATING, NET MW(e)	LICENSEE	STARTUP
MAINE						
Wiscasset	Maine Yankee Atomic Power Plant	FPL	860	870	Maine Yankee Atomic Power Co.	72 10
Total			860	870		
MARYLAND						
Lusby	Calvert Cliffs Nuclear Power Plant, Unit 1	FPL	830	845	Baltimore Gas & Electric Co.	74 10
Lusby	Calvert Cliffs Nuclear Power Plant, Unit 2	FPL	830	845	Baltimore Gas & Electric Co.	76 11
Total			1,660	1,690		
MASSACHUSETTS						
Plymouth	Pilgrim Nuclear Power Station, Unit 1	FPL	670	655	Boston Edison Co.	72 06
Total			670	655		
MICHIGAN						
Big Rock Point	Big Rock Point Nuclear Plant	FPL	67	72	Consumers Power Co.	62 09
Bridgman	Donald C. Cook Nuclear Power Plant, Unit 1	FPL	1,000	1,020	Indiana and Michigan Electric Co.	75 01
Bridgman	Donald C. Cook Nuclear Power Plant, Unit 2	FPL	1,060	1,090	Indiana and Michigan Electric Co.	78 03
Newport	Enrico Fermi Atomic Power Plant, Unit 2	FPL	1,085	1,116	Detroit Edison Co.	85 06
South Haven	Palisades Nuclear Plant, Unit 1	FPL	730	805	Consumers Power Co.	71 05
Total			3,942	4,103		
MINNESOTA						
Monticello	Monticello Nuclear Generating Plant	FPL	536	545	Northern States Power Co.	70 12
Red Wing	Prairie Island Nuclear Generating Plant, Unit 1	FPL	513	530	Northern States Power Co.	73 12
Red Wing	Prairie Island Nuclear Generating Plant, Unit 2	FPL	512	530	Northern States Power Co.	74 12
Total			1,561	1,605		
MISSISSIPPI						
Port Gibson	Grand Gulf Nuclear Station, Unit 1	FPL	1,143	1,250	Entergy Operations Inc.	82 08
Total			1,143	1,250		
MISSOURI						
Fulton	Callaway Plant, Unit 1	FPL	1,120	1,171	Union Electric Co.	84 10
Total			1,120	1,171		
NEBRASKA						
Brownville	Cooper Nuclear Station	FPL	764	778	Nebraska Public Power District	74 02
Fort Calhoun	Fort Calhoun Station, Unit 1	FPL	478	478	Omaha Public Power District	73 08
Total			1,242	1,256		

TABLE 1 (Continued)

SITE	PLANT NAME	STATUS	CAPACITY, NET MW(e)	DESIGN ELECTRICAL RATING, NET MW(e)	LICENSEE	STARTUP
NEW HAMPSHIRE						
Seabrook	Seabrook Nuclear Station, Unit 1	FPL	1,150	1,148	North Atlantic Energy Service Corp.	89 06
Total			1,150	1,148		
NEW JERSEY						
Salem	Hope Creek Nuclear Generating Station, Unit 1	FPL	1,031	1,067	Public Service Electric & Gas Co.	86 06
Salem	Salem Nuclear Generating Station, Unit 1	FPL	1,106	1,115	Public Service Electric & Gas Co.	76 12
Salem	Salem Nuclear Generating Station, Unit 2	FPL	1,106	1,115	Public Service Electric & Gas Co.	80 08
Toms River	Oyster Creek Nuclear Power Plant, Unit 1	FPL	610	650	GPU Nuclear Corp.	69 05
Total			3,853	3,947		
NEW YORK						
Buchanan	Indian Point Station, Unit 2	FPL	951	986	Consolidated Edison Co. of New York, Inc.	73 05
Buchanan	Indian Point Station, Unit 3	FPL	965	965	New York Power Authority	76 04
Ontario	Robert Emmett Ginna Nuclear Power Plant, Unit 1	FPL	470	470	Rochester Gas & Electric Corp.	69 11
Scriba	James A. FitzPatrick Nuclear Power Plant	FPL	780	816	New York Power Authority	74 11
Scriba	Nine Mile Point Nuclear Station, Unit 1	FPL	565	625	Niagara Mohawk Power Corp.	69 09
Scriba	Nine Mile Point Nuclear Station, Unit 2	FPL	994	1,062	Niagara Mohawk Power Corp.	87 05
Total			4,725	4,924		
NORTH CAROLINA						
Bonsal	Shearon Harris Nuclear Power Plant, Unit 1	FPL	860	900	Carolina Power & Light Co.	87 01
Cowans Ford Dam	William B. McGuire Nuclear Station, Unit 1	FPL	1,129	1,180	Duke Power Co.	81 08
Cowans Ford Dam	William B. McGuire Nuclear Station, Unit 2	FPL	1,129	1,180	Duke Power Co.	83 05
Southport	Brunswick Steam Electric Plant, Unit 1	FPL	767	821	Carolina Power & Light Co.	76 10
Southport	Brunswick Steam Electric Plant, Unit 2	FPL	754	821	Carolina Power & Light Co.	75 03
Total			4,639	4,902		
OHIO						
Oak Harbor	Davis-Besse Nuclear Power Station, Unit 1	FPL	877	906	Toledo Edison Co.	77 08
Perry	Perry Nuclear Power Plant, Unit 1	FPL	1,166	1,191	Cleveland Electric Illuminating Co.	86 06
Perry	Perry Nuclear Power Plant, Unit 2	CDH		1,205	Cleveland Electric Illuminating Co.	Indef.
Total			2,043	3,302		

TABLE 1 (Continued)

SITE	PLANT NAME	STATUS	CAPACITY, NET MW(e)	DESIGN ELECTRICAL RATING, NET MW(e)	LICENSEE	STARTUP
PENNSYLVANIA						
Berwick	Susquehanna Steam Electric Station, Unit 1	FPL	1,040	1,050	Pennsylvania Power & Light Co.	82 09
Berwick	Susquehanna Steam Electric Station, Unit 2	FPL	1,044	1,050	Pennsylvania Power & Light Co.	84 05
Lancaster	Peach Bottom Atomic Power Station, Unit 2	FPL	1,055	1,065	Philadelphia Electric Co.	73 09
Lancaster	Peach Bottom Atomic Power Station, Unit 3	FPL	1,035	1,065	Philadelphia Electric Co.	74 08
Middletown	Three Mile Island Nuclear Station, Unit 1	FPL	786	819	GPU Nuclear Corp.	74 06
Pottstown	Limerick Generating Station, Unit 1	FPL	1,055	1,055	Philadelphia Electric Co.	84 12
Pottstown	Limerick Generating Station, Unit 2	FPL	1,055	1,055	Philadelphia Electric Co.	89 08
Shippingport	Beaver Valley Power Station, Unit 1	FPL	810	835	Duquesne Light Co.	76 05
Shippingport	Beaver Valley Power Station, Unit 2	FPL	820	836	Duquesne Light Co.	87 08
Total			8,700	8,830		
SOUTH CAROLINA						
Hartsville	H.B. Robinson Plant, Unit 2	FPL	683	700	Carolina Power & Light Co.	70 09
Jenkinsville	Virgil C. Summer Nuclear Station, Unit 1	FPL	885	900	South Carolina Electric & Gas Co.	82 10
Lake Wylie	Catawba Nuclear Station, Unit 1	FPL	1,129	1,145	Duke Power Co.	85 01
Lake Wylie	Catawba Nuclear Station, Unit 2	FPL	1,129	1,145	Duke Power Co.	86 05
Seneca	Oconee Nuclear Station, Unit 1	FPL	846	886	Duke Power Co.	73 04
Seneca	Oconee Nuclear Station, Unit 2	FPL	846	886	Duke Power Co.	73 11
Seneca	Oconee Nuclear Station, Unit 3	FPL	846	886	Duke Power Co.	74 09
Total			6,364	6,548		
TENNESSEE						
Daisy	Sequoyah Nuclear Plant, Unit 1	FPL	1,122	1,148	Tennessee Valley Authority	80 07
Daisy	Sequoyah Nuclear Plant, Unit 2	FPL	1,122	1,148	Tennessee Valley Authority	81 11
Spring City	Watts Bar Nuclear Plant, Unit 1	FPL	1,165	1,165	Tennessee Valley Authority	95 11
Spring City	Watts Bar Nuclear Plant, Unit 2	CDH		1,165	Tennessee Valley Authority	Indef.
Total			3,409	4,626		
TEXAS						
Bay City	South Texas Project, Unit 1	FPL	1,251	1,251	Houston Lighting & Power Co.	88 03
Bay City	South Texas Project, Unit 2	FPL	1,251	1,251	Houston Lighting & Power Co.	89 02
Glen Rose	Comanche Peak Steam Electric Station, Unit 1	FPL	1,150	1,150	Texas Utilities Generating Co.	90 04
Glen Rose	Comanche Peak Steam Electric Station, Unit 2	FPL	1,150	1,150	Texas Utilities Generating Co.	93 08
Total			4,802	4,802		
VERMONT						
Vernon	Vermont Yankee Nuclear Power Station	FPL	504	514	Vermont Yankee Nuclear Power Corp.	72 03
Total			504	514		

TABLE 1 (Continued)

SITE	PLANT NAME	STATUS	CAPACITY, NET MW(e)	DESIGN ELECTRICAL	LICENSEE	STARTUP
				RATING, NET MW(e)		
VIRGINIA						
Gravel Neck	Surry Power Station, Unit 1	FPL	781	788	Virginia Electric & Power Co.	72 07
Gravel Neck	Surry Power Station, Unit 2	FPL	781	788	Virginia Electric & Power Co.	73 03
Mineral	North Anna Power Station, Unit 1	FPL	900	907	Virginia Electric & Power Co.	78 04
Mineral	North Anna Power Station, Unit 2	FPL	887	907	Virginia Electric & Power Co.	80 06
Total			3,349	3,390		
WASHINGTON						
Richland	Washington Nuclear Project, Unit 1	CDH		1,266	Washington Public Power Supply System	Indef.
Richland	Washington Nuclear Project, Unit 2	FPL	1,086	1,100	Washington Public Power Supply System	84 01
Total			1,086	2,366		
WISCONSIN						
Carlton	Kewaunee Nuclear Power Plant	FPL	511	535	Wisconsin Public Service Corp.	74 03
Two Creeks	Point Beach Nuclear Plant, Unit 1	FPL	485	497	Wisconsin Electric Power Co.	70 11
Two Creeks	Point Beach Nuclear Plant, Unit 2	FPL	485	497	Wisconsin Electric Power Co.	72 05
Total			1,481	1,529		
U.S. Total			98,383	107,558		

FPL, Full-Power License
LPL, Low-Power License
UC, Under Active Construction

CDH, Construction Deferred/Halted
SDUR, Shut Down Under Review

TABLE 2
STATISTICAL SUMMARY OF NUCLEAR REACTORS
AS OF 31 DEC 1996

	Operable	Being built	Planned	Shutdown	Totals
U.S. REACTORS					
CIVILIAN REACTORS (DOMESTIC)					
Power Reactors					
Central-Station Electric Power Plants	109	5		21	135
Dual-Purpose Plants				1	1
Propulsion (Maritime)				1	1
Experimental Power-Reactor Systems					
Electric-Power Systems				24	24
Space Nuclear Auxiliary Power (SNAP)				9	9
Space Propulsion (Rover)				21	21
Test, Research, and University Reactors					
General Irradiation Test	1			6	7
High-Power Research and Test	4			8	12
Safety-Research and Test				10	10
General Research	14			57	71
University Research and Teaching	34			31	65
PRODUCTION REACTORS					
Materials Production				13	13
Process Development				5	5
MILITARY REACTORS					
Defense Power-Reactor Applications					
Remote Installations				6	6
Propulsion (Naval)	106	4		103	213
Developmental Power					
Electric-Power Experiments and Prototypes				3	3
Propulsion Experiments and Prototypes	2			13	15
Test and Research					
Test				3	3
Research	4			6	10
EXPORT REACTORS					
POWER REACTORS					
Central-Station Electric Power Plants	50	8	6	8	72
Propulsion				1	1
TEST, RESEARCH, AND TEACHING					
General Irradiation Test	7				7
General Research	27	1	1	10	39
University Research and Teaching	19			6	25
Totals	377	18	7	366	768

TABLE 3

ABBREVIATIONS OF CONTRACTORS, DESIGNERS, SHIPBUILDERS, AND FACILITY OPERATORS

This list contains references to current and historical corporate and government structure.

AC	Allis-Chalmers Mfg. Co.	Fluor	The Fluor Corporation, Ltd.
ACEC	Ateliers de Construction Electrique de Charleroi S.A. (Belgium)	Fram.	Framatome
ACF	ACF Industries, Inc. (reactor activities abandoned by AC)	FW	Foster Wheeler Corp.
AEC	Atomic Energy Commission, a predecessor of the Department of Energy	GA	General Atomics Technologies
AG	Aerojet-General Corporation	GD (Quincy)	Quincy Division, General Dynamics Corp.
AGN	Aerojet-General Nuclear, formerly a subsidiary and then a division of Aerojet-General Corporation	GE	General Electric Company
AI	Atomics International, a division of Rockwell International	GNEC	General Nuclear Engineering Corp. (became a division of Combustion Engineering, Inc., in 1964)
Alco	Alco Products, Inc. (reactor activities absorbed by AC)	IC	Internuclear Co.
AMF	AMF Atomics, Inc., a division of American Machine & Foundry Co.	INC	Idaho Nuclear Corporation
ANL	Argonne National Laboratory	INEEL	Idaho National Engineering and Environmental Laboratory
ANPD	Aircraft Nuclear Propulsion Department, General Electric Company (name changed to Flight Propulsion Laboratory Department)	Ingalls	Ingalls Shipbuilding Corp.
AR	American Radiator	Kaman	Kaman Nuclear, a division of Kaman Aircraft Corp.
AS Inc.	American Standard Inc.	KAPL	Knolls Atomic Power Laboratory
AU	Associated Universities, Inc. (Brookhaven National Laboratory)	KE	Kaiser Engineers, a division of Henry J. Kaiser Co.
BAC	Bendix Aviation Corp.	LANL	Los Alamos National Laboratory
Bethlehem	Shipbuilding Division, Bethlehem Steel Co. (now Quincy Division, General Dynamics Corp.)	LMITCO	Lockheed Martin Idaho Technologies Company
Bettis	Bettis Atomic Power Laboratory	LLNL	Lawrence Livermore National Laboratory
Blaw-Knox	Blaw-Knox Co.	Lockheed	Lockheed Aircraft Corp.
B&R	Burns & Roe, Inc.	Mare Island	Mare Island Naval Shipyard
B&W	Babcock & Wilcox Co.	Martin	Martin Marietta Corp.
BNL	Brookhaven National Laboratory	Maxon	Maxon Construction Co.
CL	Clinton Laboratory of the Manhattan Engineer District	Met. Lab	Metallurgical Laboratory of the Manhattan Engineer District
Comb.	Combustion Engineering, Inc.	NASA	National Aeronautics and Space Administration
Convair	Convair Division, General Dynamics Corp.	NBS	National Bureau of Standards
Cook	Nucledyne Co., a division of Cook Electric Company	Newport News	Newport News Shipbuilding & Dry Dock Co.
CW	Curtiss-Wright Corporation	NRDS	Nuclear Rocket Development Station
Daystrom	Daystrom, Inc.	NRL	Naval Research Laboratory
DECON	A method of decommissioning in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations.	NSA	Nuclear Systems Associates
DNA	Defense Nuclear Agency, Department of Defense	NTS	Nevada Test Site
DOD	Department of Defense	NYSC	New York Shipbuilding Corp.
DOE	Department of Energy	ORNL	Oak Ridge National Laboratory
Du Pont	E.I. Du Pont de Nemours & Company, Inc.	PNNL	Pacific Northwest National Laboratory
EG&G-ID	EG&G Idaho, Inc. (a division of EG&G, Inc.)	Portsmouth	Portsmouth Naval Shipyard
Electric Boat	Electric Boat Division, General Dynamics Corp.	PPC	Phillips Petroleum Co.
		PRDC	Power Reactor Development Company
		RI	Rockwell International
		SAFSTOR	A method of decommissioning in which the nuclear facility is placed and maintained in such condition that the nuclear facility can be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use.

Sandia
UNC
Vitro
West.
WHC

Sandia National Laboratories
United Nuclear Corporation, Development Division
Vitro Corporation of America
Westinghouse Electric Corporation
Westinghouse Hanford Co.

**REACTORS AND FACILITIES OPERABLE,
BEING BUILT, OR PLANNED**

REACTORS AND FACILITIES OPERABLE, BEING BUILT, OR PLANNED

1. POWER REACTORS

A. Central-Station Electric Power Plants

PART I CIVILIAN REACTORS (DOMESTIC)

Name (licensee) [docket number]	Location	Principal nuclear contractor	Type	Power MD capacity net MW(e)	Power Licensed MW(t)	Initial criticality (yr mo)	Comment
OPERABLE							
Alvin W. Vogtle Nuclear Plant, Unit 1 (Georgia Power Co.) [50-424]	Waynesboro, GA	West.	Pressurized water	1158.0	3565.0	87 03	SAFSTOR decommissioning plan submitted for review 2/95. NRC conducted public meeting on decommissioning 3/97. Plant continues to operate.
Alvin W. Vogtle Nuclear Plant, Unit 2 (Georgia Power Co.) [50-425]	Waynesboro, GA	West.	Pressurized water	1157.0	3565.0	89 03	
Arkansas Nuclear One, Unit 1 (Entergy Operations Inc.) [50-313]	Russellville, AR	B&W	Pressurized water	836.0	2568.0	74 08	
Arkansas Nuclear One, Unit 2 (Entergy Operations Inc.) [50-368]	Russellville, AR	Comb.	Pressurized water	858.0	2815.0	78 12	
Beaver Valley Power Station, Unit 1 (Duquesne Light Co., Ohio Edison Co.) [50-334]	Shippingport, PA	West.	Pressurized water	810.0	2652.0	76 05	
Beaver Valley Power Station, Unit 2 (Duquesne Light Co.) [50-412]	Shippingport, PA	West.	Pressurized water	820.0	2652.0	87 08	
Big Rock Point Nuclear Plant (Consumers Power Co.) [50-155]	Big Rock Point, MI	GE	Boiling water	67.0	240.0	62 09	
Braidwood Station, Unit 1 (Commonwealth Edison Co.) [50-456]	Braidwood, IL	West.	Pressurized water	1120.0	3411.0	87 05	
Braidwood Station, Unit 2 (Commonwealth Edison Co.) [50-457]	Braidwood, IL	West.	Pressurized water	1120.0	3411.0	88 03	
Browns Ferry Nuclear Power Station, Unit 1 (Tennessee Valley Authority) [50-259]	Decatur, AL	GE	Boiling water	0.0	3293.0	73 08	
Browns Ferry Nuclear Power Station, Unit 2 (Tennessee Valley Authority) [50-260]	Decatur, AL	GE	Boiling water	1065.0	3293.0	74 07	
Browns Ferry Nuclear Power Station, Unit 3 (Tennessee Valley Authority) [50-296]	Decatur, AL	GE	Boiling water	1065.0	3293.0	76 08	
Brunswick Steam Electric Plant, Unit 1 (Carolina Power & Light Co.) [50-325]	Southport, NC	GE	Boiling water	767.0	2436.0	76 10	
Brunswick Steam Electric Plant, Unit 2 (Carolina Power & Light Co.) [50-324]	Southport, NC	GE	Boiling water	754.0	2436.0	75 03	
Byron Station, Unit 1 (Commonwealth Edison Co.) [50-454]	Byron, IL	West.	Pressurized water	1105.0	3411.0	85 02	
Byron Station, Unit 2 (Commonwealth Edison Co.) [50-455]	Byron, IL	West.	Pressurized water	1105.0	3411.0	87 01	
Callaway Plant, Unit 1 (Union Electric Co.) [50-483]	Fulton, MO	West.	Pressurized water	1120.0	3565.0	84 10	
Calvert Cliffs Nuclear Power Plant, Unit 1 (Baltimore Gas & Electric Co.) [50-317]	Lusby, MD	Comb.	Pressurized water	830.0	2700.0	74 10	
Calvert Cliffs Nuclear Power Plant, Unit 2 (Baltimore Gas & Electric Co.) [50-318]	Lusby, MD	Comb.	Pressurized water	830.0	2700.0	76 11	
Catawba Nuclear Station, Unit 1 (Duke Power Co.) [50-413]	Lake Wylie, SC	West.	Pressurized water	1129.0	3411.0	85 01	

1. POWER REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

A. Central-Station Electric Power Plants (Continued)

Name (licensee) [docket number]	Location	Principal nuclear contractor	Type	Power MD capacity net MW(e)	Power Licensed MW(l)	Initial criticality (yr mo)	Comment
OPERABLE (Continued)							
Catawba Nuclear Station, Unit 2 (Duke Power Co.) [50-414]	Lake Wylie, SC	West.	Pressurized water	1129.0	3411.0	86 05	
Clinton Power Station, Unit 1 (Illinois Power Co.) [50-461]	Clinton, IL	GE	Boiling water	930.0	2894.0	87 02	
Comanche Peak Steam Electric Station, Unit 1 (Texas Utilities Generating Co.) [50-445]	Glen Rose, TX	West.	Pressurized water	1150.0	3411.0	90 04	
Comanche Peak Steam Electric Station, Unit 2 (Texas Utilities Generating Co.) [50-446]	Glen Rose, TX	West.	Pressurized water	1150.0	3411.0	93 08	Commercial operation, 8/3/93.
Cooper Nuclear Station (Nebraska Public Power District) [50-298]	Brownville, NE	GE	Boiling water	764.0	2381.0	74 02	
Crystal River Nuclear Plant, Unit 3 (Florida Power Corp.) [50-302]	Red Level, FL	B&W	Pressurized water	821.0	2544.0	77 01	
Davis-Besse Nuclear Power Station, Unit 1 (Toledo Edison Co.) [50-346]	Oak Harbor, OH	B&W	Pressurized water	877.0	2772.0	77 08	
Diablo Canyon Nuclear Power Plant, Unit 1 (Pacific Gas & Electric Co.) [50-275]	Diablo Canyon, CA	West.	Pressurized water	1073.0	3338.0	84 04	
Diablo Canyon Nuclear Power Plant, Unit 2 (Pacific Gas & Electric Co.) [50-323]	Diablo Canyon, CA	West.	Pressurized water	1087.0	3411.0	85 08	
Donald C. Cook Nuclear Power Plant, Unit 1 (Indiana and Michigan Electric Co.) [50-315]	Bridgman, MI	West.	Pressurized water	1000.0	3250.0	75 01	
Donald C. Cook Nuclear Power Plant, Unit 2 (Indiana and Michigan Electric Co.) [50-316]	Bridgman, MI	West.	Pressurized water	1060.0	3411.0	78 03	
Dresden Nuclear Power Station, Unit 2 (Commonwealth Edison Co.) [50-237]	Morris, IL	GE	Boiling water	772.0	2527.0	70 01	
Dresden Nuclear Power Station, Unit 3 (Commonwealth Edison Co.) [50-249]	Morris, IL	GE	Boiling water	773.0	2527.0	71 01	
Duane Arnold Energy Center, Unit 1 (Iowa Electric Light & Power Co.) [50-331]	Palo, IA	GE	Boiling water	515.0	1658.0	74 03	
Edwin I. Hatch Nuclear Plant, Unit 1 (Georgia Power Co.) [50-321]	Baxley, GA	GE	Boiling water	737.0	2436.0	74 09	
Edwin I. Hatch Nuclear Plant, Unit 2 (Georgia Power Co.) [50-366]	Baxley, GA	GE	Boiling water	757.0	2436.0	78 07	
Entero Fermi Atomic Power Plant, Unit 2 (Detroit Edison Co.) [50-341]	Newport, MI	GE	Boiling water	1085.0	3430.0	85 06	
Fort Calhoun Station, Unit 1 (Omaha Public Power District) [50-285]	Fort Calhoun, NE	Comb.	Pressurized water	478.0	1500.0	73 08	
Grand Gulf Nuclear Station, Unit 1 (Energy Operations Inc.) [50-416]	Port Gibson, MS	GE	Boiling water	1143.0	3833.0	82 08	
H.B. Robinson Plant, Unit 2 (Carolina Power & Light Co.) [50-261]	Hartsville, SC	West.	Pressurized water	683.0	2300.0	70 09	
Hope Creek Nuclear Generating Station, Unit 1 (Public Service Electric & Gas Co.) [50-354]	Salem, NJ	GE	Boiling water	1031.0	3293.0	86 06	
Indian Point Station, Unit 2 (Consolidated Edison Co. of New York, Inc.) [50-247]	Buchanan, NY	West.	Pressurized water	951.0	3071.0	73 05	
Indian Point Station, Unit 3 (New York Power Authority) [50-286]	Buchanan, NY	West.	Pressurized water	965.0	3025.0	76 04	

James A. FitzPatrick Nuclear Power Plant (New York Power Authority) [50-333]	Scriba, NY	GE	Boiling water	780.0	2436.0	74 11
Joseph M. Farley Nuclear Plant, Unit 1 (Southern Nuclear Operating Co.) [50-348]	Dothan, AL	West.	Pressurized water	812.0	2652.0	77 08
Joseph M. Farley Nuclear Plant, Unit 2 (Southern Nuclear Operating Co.) [50-364]	Dothan, AL	West.	Pressurized water	822.0	2652.0	81 05
Kewaunee Nuclear Power Plant (Wisconsin Public Service Corp.) [50-305]	Carlton, WI	West.	Pressurized water	511.0	1650.0	74 03
La Salle County Station, Unit 1 (Commonwealth Edison Co.) [50-373]	Seneca, IL	GE	Boiling water	1036.0	3323.0	82 06
La Salle County Station, Unit 2 (Commonwealth Edison Co.) [50-374]	Seneca, IL	GE	Boiling water	1036.0	3323.0	84 03
Limerick Generating Station, Unit 1 (Philadelphia Electric Co.) [50-352]	Pottstown, PA	GE	Boiling water	1055.0	3293.0	84 12
Limerick Generating Station, Unit 2 (Philadelphia Electric Co.) [50-353]	Pottstown, PA	GE	Boiling water	1055.0	3293.0	89 08
Maine Yankee Atomic Power Plant (Maine Yankee Atomic Power Co.) [50-309]	Wiscasset, ME	Comb.	Pressurized water	860.0	2700.0	72 10
Millstone Nuclear Power Station, Unit 1 (Northeast Nuclear Energy Co.) [50-245]	Waterford, CT	GE	Boiling water	641.0	2011.0	70 10
Millstone Nuclear Power Station, Unit 2 (Northeast Nuclear Energy Co.) [50-336]	Waterford, CT	Comb.	Pressurized water	873.0	2700.0	75 10
Millstone Nuclear Power Station, Unit 3 (Northeast Nuclear Energy Co.) [50-423]	Waterford, CT	West.	Pressurized water	1137.0	3411.0	86 01
Monticello Nuclear Generating Plant (Northern States Power Co.) [50-263]	Monticello, MN	GE	Boiling water	536.0	1670.0	70 12
Nine Mile Point Nuclear Station, Unit 1 (Niagara Mohawk Power Corp.) [50-220]	Scriba, NY	GE	Boiling water	565.0	1850.0	69 09
Nine Mile Point Nuclear Station, Unit 2 (Niagara Mohawk Power Corp.) [50-410]	Scriba, NY	GE	Boiling water	994.0	3323.0	87 05
North Anna Power Station, Unit 1 (Virginia Electric & Power Co.) [50-338]	Mineral, VA	West.	Pressurized water	900.0	2893.0	78 04
North Anna Power Station, Unit 2 (Virginia Electric & Power Co.) [50-339]	Mineral, VA	West.	Pressurized water	887.0	2893.0	80 06
Oconee Nuclear Station, Unit 1 (Duke Power Co.) [50-269]	Seneca, SC	B&W	Pressurized water	846.0	2568.0	73 04
Oconee Nuclear Station, Unit 2 (Duke Power Co.) [50-270]	Seneca, SC	B&W	Pressurized water	846.0	2568.0	73 11
Oconee Nuclear Station, Unit 3 (Duke Power Co.) [50-287]	Seneca, SC	B&W	Pressurized water	846.0	2568.0	74 09
Oyster Creek Nuclear Power Plant, Unit 1 (GPU Nuclear Corp.) [50-219]	Toms River, NJ	GE	Boiling water	610.0	1930.0	69 05
Palisades Nuclear Plant, Unit 1 (Consumers Power Co.) [50-255]	South Haven, MI	Comb.	Pressurized water	730.0	2530.0	71 05
Palo Verde Nuclear Generating Station, Unit 1 (Arizona Public Service Co.) [50-528]	Wintersburg, AZ	Comb.	Pressurized water	1221.0	3800.0	85 05
Palo Verde Nuclear Generating Station, Unit 2 (Arizona Public Service Co.) [50-529]	Wintersburg, AZ	Comb.	Pressurized water	1221.0	3800.0	86 04
Palo Verde Nuclear Generating Station, Unit 3 (Arizona Public Service Co.) [50-530]	Wintersburg, AZ	Comb.	Pressurized water	1304.0	3817.0	87 10
Peach Bottom Atomic Power Station, Unit 2 (Philadelphia Electric Co.) [50-277]	Lancaster, PA	GE	Boiling water	1055.0	3293.0	73 09
Peach Bottom Atomic Power Station, Unit 3 (Philadelphia Electric Co.) [50-278]	Lancaster, PA	GE	Boiling water	1035.0	3293.0	74 08

1. POWER REACTORS

A. Central-Station Electric Power Plants (Continued)

PART I CIVILIAN REACTORS (DOMESTIC)

Name (licensee) [docket number]	Location	Principal nuclear contractor	Type	Power MD capacity net MW(e)	Power Licensed MW(t)	Initial criticality (yr mo)	Comment
OPERABLE (Continued)							
Perry Nuclear Power Plant, Unit 1 (Cleveland Electric Illuminating Co.) [50-440]	Perry, OH	GE	Boiling water	1166.0	3579.0	86 06	
Pilgrim Nuclear Power Station, Unit 1 (Boston Edison Co.) [50-293]	Plymouth, MA	GE	Boiling water	670.0	1998.0	72 06	
Point Beach Nuclear Plant, Unit 1 (Wisconsin Electric Power Co.) [50-266]	Two Creeks, WI	West.	Pressurized water	485.0	1519.0	70 11	
Point Beach Nuclear Plant, Unit 2 (Wisconsin Electric Power Co.) [50-301]	Two Creeks, WI	West.	Pressurized water	485.0	1519.0	72 05	
Prairie Island Nuclear Generating Plant, Unit 1 (Northern States Power Co.) [50-282]	Red Wing, MN	West.	Pressurized water	513.0	1650.0	73 12	
Prairie Island Nuclear Generating Plant, Unit 2 (Northern States Power Co.) [50-306]	Red Wing, MN	West.	Pressurized water	512.0	1650.0	74 12	
Quad-Cities Station, Unit 1 (Commonwealth Edison Co.) [50-254]	Cordova, IL	GE	Boiling water	769.0	2511.0	71 10	
Quad-Cities Station, Unit 2 (Commonwealth Edison Co.) [50-265]	Cordova, IL	GE	Boiling water	769.0	2511.0	72 04	
River Bend Station, Unit 1 (Entergy Operations Inc.) [50-458]	St. Francisville, LA	GE	Boiling water	936.0	2894.0	85 10	
Robert Emmett Ginna Nuclear Power Plant, Unit 1 (Rochester Gas & Electric Corp.) [50-244]	Ontario, NY	West.	Pressurized water	470.0	1520.0	69 11	
Salem Nuclear Generating Station, Unit 1 (Public Service Electric & Gas Co.) [50-272]	Salem, NJ	West.	Pressurized water	1106.0	3411.0	76 12	
Salem Nuclear Generating Station, Unit 2 (Public Service Electric & Gas Co.) [50-311]	Salem, NJ	West.	Pressurized water	1106.0	3411.0	80 08	
San Onofre Nuclear Generating Station, Unit 2 (Southern California Edison) [50-361]	San Clemente, CA	Comb.	Pressurized water	1070.0	3390.0	82 07	
San Onofre Nuclear Generating Station, Unit 3 (Southern California Edison) [50-362]	San Clemente, CA	Comb.	Pressurized water	1080.0	3390.0	83 08	
Seabrook Nuclear Station, Unit 1 (North Atlantic Energy Service Corp.) [50-443]	Seabrook, NH	West.	Pressurized water	1150.0	3411.0	89 06	
Squoyah Nuclear Plant, Unit 1 (Tennessee Valley Authority) [50-327]	Daisy, TN	West.	Pressurized water	1122.0	3411.0	80 07	
Squoyah Nuclear Plant, Unit 2 (Tennessee Valley Authority) [50-328]	Daisy, TN	West.	Pressurized water	1122.0	3411.0	81 11	
Shearon Harris Nuclear Power Plant, Unit 1 (Carolina Power & Light Co.) [50-400]	Bonsal, NC	West.	Pressurized water	860.0	2775.0	87 01	
South Texas Project, Unit 1 (Houston Lighting & Power Co.) [50-498]	Bay City, TX	West.	Pressurized water	1251.0	3800.0	88 03	
South Texas Project, Unit 2 (Houston Lighting & Power Co.) [50-499]	Bay City, TX	West.	Pressurized water	1251.0	3800.0	89 02	
St. Lucie Plant, Unit 1 (Florida Power & Light Co.) [50-335]	Fort Pierce, FL	Comb.	Pressurized water	839.0	2700.0	76 04	
St. Lucie Plant, Unit 2 (Florida Power & Light Co.) [50-389]	Fort Pierce, FL	Comb.	Pressurized water	839.0	2700.0	83 06	

Surry Power Station, Unit 1 (Virginia Electric & Power Co.) [50-280]	Gravel Neck, VA	West.	Pressurized water	781.0	2441.0	72 07	
Surry Power Station, Unit 2 (Virginia Electric & Power Co.) [50-281]	Gravel Neck, VA	West.	Pressurized water	781.0	2441.0	73 03	
Susquehanna Steam Electric Station, Unit 1 (Pennsylvania Power & Light Co.) [50-387]	Berwick, PA	GE	Boiling water	1040.0	3293.0	82 09	
Susquehanna Steam Electric Station, Unit 2 (Pennsylvania Power & Light Co.) [50-388]	Berwick, PA	GE	Boiling water	1044.0	3293.0	84 05	
Three Mile Island Nuclear Station, Unit 1 (GPU Nuclear Corp.) [50-289]	Middletown, PA	B&W	Pressurized water	786.0	2568.0	74 06	
Turkey Point Plant, Unit 3 (Florida Power & Light Co.) [50-250]	Florida City, FL	West.	Pressurized water	666.0	2200.0	72 10	
Turkey Point Plant, Unit 4 (Florida Power & Light Co.) [50-251]	Florida City, FL	West.	Pressurized water	666.0	2200.0	73 06	
Vermont Yankee Nuclear Power Station (Vermont Yankee Nuclear Power Corp.) [50-271]	Vernon, VT	GE	Boiling water	504.0	1593.0	72 03	
Virgil C. Summer Nuclear Station, Unit 1 (South Carolina Electric & Gas Co.) [50-395]	Jenkinsville, SC	West.	Pressurized water	885.0	2775.0	82 10	
Washington Nuclear Project, Unit 2 (Washington Public Power Supply System) [50-397]	Richland, WA	GE	Boiling water	1086.0	3323.0	84 01	
Waterford Generating Station, Unit 3 (Entergy Operations Inc.) [50-382]	Taft, LA	Comb.	Pressurized water	1075.0	3390.0	85 03	
Watts Bar Nuclear Plant, Unit 1 (Tennessee Valley Authority) [50-390]	Spring City, TN	West.	Pressurized water	1165.0	3411.0	95 11	Received low power operating license on 11/9/95.
William B. McGuire Nuclear Station, Unit 1 (Duke Power Co.) [50-369]	Cowans Ford Dam, NC	West.	Pressurized water	1129.0	3411.0	81 08	
William B. McGuire Nuclear Station, Unit 2 (Duke Power Co.) [50-370]	Cowans Ford Dam, NC	West.	Pressurized water	1129.0	3411.0	83 05	
Wolf Creek Generating Station (Wolf Creek Nuclear Operating Corp.) [50-482]	Burlington, KS	West.	Pressurized water	1134.0	3565.0	85 05	Received full power operating license on 2/7/96.
Zion Nuclear Plant, Unit 1 (Commonwealth Edison Co.) [50-295]	Zion, IL	West.	Pressurized water	1040.0	3250.0	73 06	
Zion Nuclear Plant, Unit 2 (Commonwealth Edison Co.) [50-304]	Zion, IL	West.	Pressurized water	1040.0	3250.0	73 12	

Name (licensee) [docket number]	Location	Principal nuclear contractor	Type	Design, electrical power net MW(e)	Design, thermal power net MW(t)	Estimated initial criticality (yr mo)	Comment
BEING BUILT							
Bellefonte Nuclear Plant, Unit 1 (Tennessee Valley Authority) [50-438]	Scottsboro, AL	B&W	Pressurized water	1235.0	3760.0	Indef.	
Bellefonte Nuclear Plant, Unit 2 (Tennessee Valley Authority) [50-439]	Scottsboro, AL	B&W	Pressurized water	1235.0	3760.0	Indef.	
Perry Nuclear Power Plant, Unit 2 (Cleveland Electric Illuminating Co.) [50-441]	Perry, OH	GE	Boiling water	1205.0	3759.0	Indef.	
Washington Nuclear Project, Unit 1 (Washington Public Power Supply System) [50-460]	Richland, WA	B&W	Pressurized water	1266.0	3760.0	Indef.	
Watts Bar Nuclear Plant, Unit 2 (Tennessee Valley Authority) [50-391]	Spring City, TN	West.	Pressurized water	1165.0	3411.0	Indef.	

1. POWER REACTORS

B. Dual-Purpose Plants

(No reactors currently in this category)

C. Propulsion (Maritime)

(No reactors currently in this category)

2. EXPERIMENTAL POWER-REACTOR SYSTEMS

A. Electric-Power Systems

(No reactors currently in this category)

B. Space Nuclear Auxiliary Power (SNAP)

(No reactors currently in this category)

C. Space Propulsion

(No reactors currently in this category)

3. TEST, RESEARCH, AND UNIVERSITY REACTORS

A. General Irradiation Test

Name (Regulatory agency). Location	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(T)	Initial criticality (yr mo)	Desig. Type. Principal nucl. contr.	Comment
OPERABLE Advanced Test Reactor (DOE). INEEL, ID			250,000.0			68 00	ATR, Tank. LIMITCO	Operating.

B. High-Power Research and Test

Name (Regulatory agency). Location	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(T)	Initial criticality (yr mo)	Desig. Type. Principal nucl. contr.	Comment
OPERABLE								
Brookhaven Medical Research Reactor (DOE), Upton, NY			3,000.0			59 00	BMRR. Tank. Daysstrom	
High Flux Beam Reactor (DOE), Upton, NY			30,000.0			65 10	HFBR. Heavy water. BNL	Power derated subject to further safety tests.
High Flux Isotope Reactor (DOE), Oak Ridge, TN			85,000.0			65 00	HFIR. Tank flux trap. ORNL	Operating.
National Institute of Standards & Technology (NRC), Gaithersburg, MD			20,000.0			67 00	NIST. Heavy water. NBS-B&R	

C. Safety Research and Test

(No reactors currently in this category)

D. General Research

OPERABLE								
Advanced Reactivity Measurement Facility (DOE), INEEL Site, ID			100.0			60 00	ARMF. Pool. LIMITCO	Fast and thermal neutron irradiations and reactivity measurements. Reactor currently shut down.
Aerotest Operations, Inc. (NRC), San Ramon, CA			250.0			65 00	AGNIR. Pool-TRIGA core. GA	
Coupled Fast Reactivity Measurement Facility (DOE), INEEL Site, ID			100.0			68 00	CFRME. Pool. LIMITCO	Fast and thermal neutron irradiations, neutron radiography, and thermal and fast fissile assay. Reactor currently shut down.
Dow Chemical Co. (NRC), Midland, MI			300.0			67 00	TRIGA-Mk I. U-Zr hydride. GA	
General Atomics, Advanced TRIGA-Mk F Prototype Reactor (NRC), La Jolla, CA			1,500.0			60 00	TRIGA-Mk F. U-Zr hydride. Owner	Possession only license. 3/22/95.
General Atomics, TRIGA-Mk I Prototype Reactor (NRC), La Jolla, CA			250.0			58 00	TRIGA-Mk I. U-Zr hydride. Owner	Possession only license requested.
General Electric Nuclear Test Reactor (NRC), Pleasanton, CA			100.0			57 00	NTR. LWR. GE	
Neutron Radiography Facility (DOE), INEEL, ID			250.0			77 00	NRAD. Pool-TRIGA core. ANL	
Omaha Veterans Administration Hospital (NRC), Omaha, NE			18.0			59 00	TRIGA-Mk I. U-Zr hydride. GA	
Rhode Island Nuclear Science Center (NRC), Narragansett, RI			2,000.0			64 00	RINSC. Pool. RI	

3. TEST, RESEARCH, AND UNIVERSITY REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

D. General Research (Continued)

Name (Regulatory agency). Location	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(T)	Initial criticality (yr mo)	Desig. Type. Principal nucl. contr.	Comment
Sandia Pulsed Reactor II (DOE). Kirtland AFB, East, NM			25.0			67 00	SPR-II. Bare metal fast burst. Sandia	Pulse, steady state.
Sandia Pulsed Reactor III (DOE). Kirtland AFB, East, NM			25.0			75 00	SPR-III. Bare metal fast burst. Sandia	Pulse, steady state.
SNL Annular Core Research Reactor (DOE). Kirtland AFB, East, NM			2,000.0			78 00	ACRR. Pool-UO ₂ BeO core. Sandia	Pulse, computer transient steady state.
U.S. Geological Survey Laboratory (Department of the Interior) (NRC). Denver, CO			1,000.0			69 00	TRIGA-Mk I. U-Zr hydride. GA	

E. University Research and Teaching

OPERABLE

Arizona, University of (NRC). Tucson, AZ			100.0			58 00	TRIGA-Mk I. U-Zr hydride. GA	
California, Irvine, University of (NRC). Irvine, CA			250.0			69 00	TRIGA-Mk I. U-Zr hydride. GA	
Cornell University (NRC), Ithaca, NY			500.0			62 00	TRIGA-Mk II. U-Zr hydride. GA	
Cornell University Zero Power Reactor (NRC), Ithaca, NY						62 00	ZPR. Tank. Vitrø	Possession only license, 2/12/97.
Florida, University of (NRC). Gainesville, FL			100.0			59 00	UFTR. Graphite/water. GNEC	
Georgia Institute of Technology (NRC). Atlanta, GA			5,000.0			64 00	GTRR. Heavy water. GNEC	
Idaho State University (NRC). Pocatello, ID						67 00	AGN-201P-103. Homog. solid. AGN	The AGN-201P-103 was operated at San Ramon, CA, by Aerojet-General Corporation from 1957 to 1966. In 4/67 Idaho State University applied for a license to operate the reactor at Pocatello, ID. Authorized power is negligible. DECON approved.
Illinois, University of (NRC), Urbana, IL			10.0			71 00	LOPRA. U-Zr hydride. GA	
Illinois, University of (NRC). Champaign-Urbana, IL			1,500.0			60 00	TRIGA-Mk II. U-Zr hydride. GA	
Iowa State University (NRC), Ames, IA			10.0			59 00	UTR-10. Graphite/water. AS Inc.	

Kansas State University (NRC), Manhattan, KS	250.0	62 00	TRIGA-Mk II. U-Zr hydride. GA	Authorized power is negligible.
Manhattan College (NRC). New York, NY		64 00	MCZPR. Tank. AMF	
Maryland, University of (NRC). College Park, MD	250.0	74 00	TRIGA. Tank-TRIGA core. GA	
Massachusetts, University of (NRC). Lowell, MA	1,000.0	74 00	ULR. Pool. GE	
Massachusetts Institute of Technology (NRC). Cambridge, MA	5,000.0	58 00	MITR-II. Heavy-water reflected. ACF	
Michigan, University of (Ford Nuclear Reactor) (NRC). Ann Arbor, MI	2,000.0	57 00	FNR. Pool. B&W	
Missouri at Rolla, University of (NRC). Rolla, MO	200.0	61 00	UMR-R. Pool. CW	AGN-201M-112 was operated at the University of California, Berkeley, beginning in 1957. The University of New Mexico filed an application in 4/66 for transfer and reconstruction of the reactor at a site on its campus. The reactor achieved criticality at the University of New Mexico on 10/7/66. Authorized power is negligible.
Missouri, University of (NRC). Columbia, MO	10,000.0	66 00	MURR. Tank. Owner-IC	
New Mexico, University of (NRC). Albuquerque, NM		66 00	AGN-201M-112. Homog. Solid. AGN	
North Carolina State University (NRC). Raleigh, NC	1,000.0	72 00	PULSTAR. Pool. AMF	
Ohio State University (NRC). Columbus, OH	500.0	61 00	OSURR. Pool. Lockheed	
Oregon State University (NRC). Corvallis, OR	1,000.0	67 00	OSTR. U-Zr hydride. GA	
Penn State TRIGA Reactor (NRC). University Park, PA	1,000.0	65 00	PSTR. Pool-TRIGA core. GA	Owner: Pennsylvania State University. From 1955 to 1965, the Penn State reactor was operated as a 200-kW(t) pool-type reactor fueled with MTR-type elements.
Purdue University (NRC). West Lafayette, IN	1.0	62 00	PUR-1. Pool. Lockheed	
Reed College (NRC). Portland, OR	250.0	68 00	TRIGA-Mk I. U-Zr hydride. GA	
State University of New York (NRC). Buffalo, NY	2,000.0	61 00	PULSTAR. Pool. AMF	
Texas A&M University (NRC). College Station, TX		57 00	AGN-201M-106. Homog. solid. AGN	
Texas A&M University (NRC). College Station, TX	1,000.0	61 00	TRIGA. U-Zr hydride. GA	
Texas at Austin, University of (NRC). Austin, TX	1,100.0	89 00	TRIGA-Mk II. U-Zr hydride. GA	The Nuclear Science Center Reactor at Texas A&M University has been modified for 1000-kW steady- state operation with a TRIGA-type core. Power level was 100 kW prior to modification in 1968.

3. TEST, RESEARCH, AND UNIVERSITY REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

E. University Research and Teaching (Continued)

Name (Regulatory agency), Location	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(T)	Initial criticality (yr mo)	Desig. Type, Principal nucl. contr.	Comment
Utah, University of (NRC), Salt Lake City, UT			100.0			75 00	TRIGA-Mk I. U-Zr hydride, GA	
Virginia, University of (NRC), Charlottesville, VA			2,000.0			60 00	UVAR, Pool. Owner-B&W WSTR.	
Washington State University (NRC), Pullman, WA			1,000.0			67 00	Pool-TRIGA core, GA	In 1967 the original MTR-type core of the Washington State University reactor was replaced by a modified TRIGA-type core and control system, and the steady-state power level was increased from 100 to 1000 kW(t).
Wisconsin, University of (NRC), Madison, WI			1,000.0			67 00	TRIGA, Pool-TRIGA core, GA	The University of Wisconsin reactor has been modified for 1000-kW steady-state operation with a TRIGA- type core. Power level was 250 kW prior to modification in 1967.
Worcester Polytechnic Institute (NRC), Worcester, MA			10.0			59 00	No Desg. Pool. GE	

1. MATERIALS PRODUCTION

(No reactors currently in this category)

2. PROCESS DEVELOPMENT

(No reactors currently in this category)

PART II PRODUCTION REACTORS

1. DEFENSE POWER-REACTOR APPLICATIONS

PART III MILITARY REACTORS

A. Remote Installations

(No reactors currently in this category)

B. Propulsion (Naval)

The abbreviations used here are defined as follows:

SSN, Submarine (Nuclear Propulsion)
SSBN, Fleet Ballistic Missile Submarine (Nuclear Propulsion)
CGN, Guided Missile Cruiser (Nuclear Propulsion)
CVN, Aircraft Carrier (Nuclear Propulsion)

Name (all owned by U.S. Navy)	Designation	Shipbuilder	Startup	Comment
OPERABLE				
DANIEL WEBSTER	ex-SSBN626	Electric Boat (Groton)	64 00	Removed from sea-going service and converted to training platform.
SAM RAYBURN	ex-SSBN635	Newport News	64 00	Removed from sea-going service and converted to training platform.
USS KAMEHAMEHA	SSN642	Mare Island	65 00	
USS JAMES K. POLK	SSN645	Electric Boat (Groton)	66 00	
USS POGY	SSN647	NYSC/Ingalls	70 00	
USS SAND LANCE	SSN660	Portsmouth	71 00	
USS HAWKBILL	SSN666	Mare Island	70 00	
USS NARWHAL	SSN671	Electric Boat (Groton)	69 00	
USS PINTADO	SSN672	Mare Island	70 00	
USS TREPANG	SSN674	Electric Boat (Groton)	70 00	
USS BILLFISH	SSN676	Electric Boat (Groton)	70 00	
USS ARCHERFISH	SSN678	Electric Boat (Groton)	71 00	
USS WILLIAM H. BATES	SSN680	Ingalls	72 00	
USS BATFISH	SSN681	Electric Boat (Groton)	72 00	
USS TUNNY	SSN682	Ingalls	73 00	
USS PARCHE	SSN683	Ingalls	74 00	
USS CAVALLA	SSN684	Electric Boat (Groton)	72 00	
USS L. MENDELL RIVERS	SSN686	Newport News	74 00	
USS LOS ANGELES	SSN688	Newport News	76 00	
USS PHILADELPHIA	SSN690	Electric Boat (Groton)	76 00	
USS MEMPHIS	SSN691	Newport News	77 00	
USS BIRMINGHAM	SSN695	Newport News	78 00	
USS INDIANAPOLIS	SSN697	Electric Boat (Groton)	79 00	
USS BREMERTON	SSN698	Electric Boat (Groton)	79 00	
USS JACKSONVILLE	SSN699	Electric Boat (Groton)	79 00	
USS DALLAS	SSN700	Electric Boat (Groton)	80 00	
USS LA JOLLA	SSN701	Electric Boat (Groton)	81 00	

1. DEFENSE POWER-REACTOR APPLICATIONS

B. Propulsion (Naval) (Continued)

Name (all owned by U.S. Navy)	Designation	Shipbuilder	Startup
USS PHOENIX	SSN702	Electric Boat (Groton)	81 00
USS BOSTON	SSN703	Electric Boat (Groton)	81 00
USS BALTIMORE	SSN704	Electric Boat (Groton)	82 00
USS CITY OF CORPUS CHRISTI	SSN705	Electric Boat (Groton)	82 00
USS ALBUQUERQUE	SSN706	Electric Boat (Groton)	82 00
USS PORTSMOUTH	SSN707	Electric Boat (Groton)	83 00
USS MINNEAPOLIS-SAINT PAUL	SSN708	Electric Boat (Groton)	83 00
USS HYMAN G. RICKOVER	SSN709	Electric Boat (Groton)	84 00
USS AUGUSTA	SSN710	Electric Boat (Groton)	84 00
USS SAN FRANCISCO	SSN711	Newport News	80 00
USS ATLANTA	SSN712	Newport News	81 00
USS HOUSTON	SSN713	Newport News	82 00
USS NORFOLK	SSN714	Newport News	83 00
USS BUFFALO	SSN715	Newport News	83 00
USS SALT LAKE CITY	SSN716	Newport News	83 00
USS OLYMPIA	SSN717	Newport News	84 00
USS HONOLULU	SSN718	Newport News	85 00
USS PROVIDENCE	SSN719	Electric Boat (Groton)	85 00
USS PITTSBURGH	SSN720	Electric Boat (Groton)	85 00
USS CHICAGO	SSN721	Newport News	86 00
USS KEY WEST	SSN722	Newport News	87 00
USS OKLAHOMA CITY	SSN723	Newport News	87 00
USS LOUISVILLE	SSN724	Electric Boat (Groton)	86 00
USS HELENA	SSN725	Electric Boat (Groton)	87 00
USS OHIO	SSBN726	Electric Boat (Groton)	80 00
USS MICHIGAN	SSBN727	Electric Boat (Groton)	82 00
USS FLORIDA	SSBN728	Electric Boat (Groton)	82 00
USS GEORGIA	SSBN729	Electric Boat (Groton)	83 00
USS HENRY M. JACKSON	SSBN730	Electric Boat (Groton)	84 00
USS ALABAMA	SSBN731	Electric Boat (Groton)	84 00
USS ALASKA	SSBN732	Electric Boat (Groton)	85 00
USS NEVADA	SSBN733	Electric Boat (Groton)	86 00
USS TENNESSEE	SSBN734	Electric Boat (Groton)	87 00
USS PENNSYLVANIA	SSBN735	Electric Boat (Groton)	88 00
USS WEST VIRGINIA	SSBN736	Electric Boat (Groton)	90 00
USS KENTUCKY	SSBN737	Electric Boat (Groton)	90 00
USS MARYLAND	SSBN738	Electric Boat (Groton)	91 00
USS NEBRASKA	SSBN739	Electric Boat (Groton)	93 00
USS RHODE ISLAND	SSBN740	Electric Boat (Groton)	94 00
USS MAINE	SSBN741	Electric Boat (Groton)	95 00
USS WYOMING	SSBN742	Electric Boat (Groton)	96 00
USS LOUISIANA	SSBN743	Electric Boat (Groton)	97 00
USS NEWPORT NEWS	SSN750	Newport News	88 00

USS SAN JUAN	SSN751	Electric Boat (Grotton)	87 00
USS PASADENA	SSN752	Electric Boat (Grotton)	88 00
USS ALBANY	SSN753	Newport News	89 00
USS TOPEKA	SSN754	Electric Boat (Grotton)	89 00
USS MIAMI	SSN755	Electric Boat (Grotton)	89 00
USS SCRANTON	SSN756	Newport News	90 00
USS ALEXANDRIA	SSN757	Electric Boat (Grotton)	91 00
USS ASHEVILLE	SSN758	Newport News	91 00
USS JEFFERSON CITY	SSN759	Newport News	91 00
USS ANNAPOLIS	SSN760	Electric Boat (Grotton)	91 00
USS SPRINGFIELD	SSN761	Electric Boat (Grotton)	92 00
USS COLUMBUS	SSN762	Electric Boat (Grotton)	93 00
USS SANTA FE	SSN763	Electric Boat (Grotton)	93 00
USS BOISE	SSN764	Newport News	92 00
USS MONTPELIER	SSN765	Newport News	92 00
USS CHARLOTTE	SSN766	Newport News	94 00
USS HAMPTON	SSN767	Newport News	93 00
USS HARTFORD	SSN768	Electric Boat (Grotton)	94 00
USS TOLEDO	SSN769	Newport News	94 00
USS TUCSON	SSN770	Newport News	94 00
USS COLUMBIA	SSN771	Electric Boat (Grotton)	95 00
USS GREENVILLE	SSN772	Newport News	95 00
USS CHEYENNE	SSN773	Newport News	95 00
USS SEAWOLF	SSN21	Electric Boat (Grotton)	95 00
USS CALIFORNIA (2 reactors)	CGN36	Newport News	73 00
USS SOUTH CAROLINA (2 reactors)	CGN37	Newport News	74 00
USS ARKANSAS (2 reactors)	CGN41	Newport News	80 00
USS ENTERPRISE (8 reactors)	CVN65	Newport News	60 00
USS NIMITZ (2 reactors)	CVN68	Newport News	74 00
USS DWIGHT D. EISENHOWER (2 reactors)	CVN69	Newport News	77 00
USS CARL VINSON (2 reactors)	CVN70	Newport News	81 00
USS THEODORE ROOSEVELT (2 reactors)	CVN71	Newport News	86 00
USS ABRAHAM LINCOLN (2 reactors)	CVN72	Newport News	89 00
USS GEORGE WASHINGTON (2 reactors)	CVN73	Newport News	92 00
USS JOHN C. STENNIS (2 reactors)	CVN74	Newport News	95 00
Deep Submergence Research Vehicle	NR-1	Electric Boat (Grotton)	69 00

1. DEFENSE POWER-REACTOR APPLICATIONS

PART III MILITARY REACTORS

B. Propulsion (Naval) (Continued)

Name (all owned by U.S. Navy)	Designation	Shipbuilder	Startup
BEING BUILT			
CONNECTICUT	SSN22	Electric Boat (Groton)	
(UNNAMED)	SSN23	Electric Boat (Groton)	
HARRY S. TRUMAN	CVN75	Newport News	
RONALD REAGAN	CVN76	Newport News	

2. DEVELOPMENTAL POWER

A. Electric-Power Experiments and Prototypes

(No reactors currently in this category)

B. Propulsion Experiments and Prototypes

Name (Owner), Location	Designation	Power capacity net kW(e)	Authorized power kW(l)	Initial criticality (yr mo)	Reactor type. Principal nuclear contractor	Comment
OPERABLE						
Modifications and Additions to Reactor Facility (DOE), West Milton, NY	MARF			76 00	Pressurized water. Lockheed Martin. (Formerly GE).	
Trident Prototype, (DOE) West Milton, NY	S8G			78 00	Pressurized water. Lockheed Martin. (Formerly GE).	

3. TEST AND RESEARCH

A. Test

(No reactors currently in this category)

B. Research

Name (Owner), Location	Designation	Power capacity net kW(e)	Authorized power kW(t)	Initial criticality (yr mo)	Reactor type, Principal nuclear contractor	Comment
OPERABLE						
Armed Forces Radiobiology Research Institute, DNA (DOD), Regulated by NRC, Bethesda, MD	AFRRI		1,100.0	62 00	TRIGA-Mk F, GA	
Army Pulse Radiation Facility, Test and Evaluation Command (USA), Aberdeen, MD	APRF		10.0	68 07	Bare, fast, prompt burst, UNC	
Fast Burst Reactor Facility, Test and Evaluation Command (USA), White Sands, NM	FBRF		10.0	64 08	Bare, fast, prompt burst, Kaman	
McClellan Nuclear Radiation Center (USAF), McClellan AFB, CA	MNRC		1,300.0	91 01	TRIGA Mod Mark II, GA	

1. POWER REACTORS

PART IV EXPORT REACTORS

A. Central-Station Electric Power Plants

Reactor Name (Owner), Location	NRC export license No. and date	Principal nuclear reactor type	Power design net MW(e)	Power MW(t)	Authorized power kW(t)	Initial criticality (yr mo)	Comment
OPERABLE							
Belgium, Doel, Unit 1, Antwerp		West. Pressurized water	392.0	1,192.0		75 00	
Belgium, Doel, Unit 2, Antwerp		West. Pressurized water	392.0	1,192.0		75 00	
Belgium, Doel, Unit 4, Antwerp		West. Pressurized water	1,006.0	3,000.0		85 00	
Belgium, Tihange, Unit 1, Huy, Liege		West. Pressurized water	870.0	2,660.0		75 00	
Belgium, Tihange, Unit 3, Huy, Liege		West. Pressurized water	1,006.0	3,000.0		85 00	
Brazil, Angra 1, Central Electrica de Furnas, Angra dos Reis	XR-081 04/13/73	West. Pressurized water	626.0	1,882.0		85 00	
England, Sizewell B (Nuclear Electric), Suffolk	XR-148 07/30/86	West. Pressurized water	1,188.0	3,425.0		94 00	Former owner: Central Electricity Generating Board.
Germany, Muelheim-Kaerlich (Rheinsch-Westfaelisches Elektrizitaetswerk AG), Muelheim-Kaerlich	XR-118 06/28/77	Pressurized water	1,200.0			87 10	
India, Tarapur Nuclear Power Station, Unit 1, Tarapur (near Bombay)	XR-054 07/07/64	GE. Boiling water	200.0	707.0		69 00	

1. POWER REACTORS

PART IV EXPORT REACTORS

A. Central-Station Electric Power Plants (Continued)

Reactor Name (Owner), Location	NRC export license No. and date	Principal nuclear contractor, Reactor type	Power design net MW(e)	Power MW(t)	Author- ized power kW(t)	Initial crite- riality (yr mo)	Comment
India, Tarapur Nuclear Power Station, Unit 2, Tarapur (near Bombay)	XR-054 07/07/64	GE, Boiling water	200.0	707.0		69 00	
Japan, Fukushima Dai-ichi Power Station, Unit 1 (Tokyo Electric Power Co.), Okuma, Fukushima Pref.	XR-066 08/15/67	GE, Boiling water	439.0	1,380.0		70 10	
Japan, Fukushima Dai-ichi Power Station, Unit 2 (Tokyo Electric Power Co.), Okuma, Fukushima Pref.	XR-072 04/22/70	GE, Toshiba, Boiling water	760.0	2,381.0		73 05	
Japan, Fukushima Dai-ichi Power Station, Unit 6 (Tokyo Electric Power Co.), Futaba, Fukushima Pref.	XR-084 05/25/73	GE, Toshiba, Boiling water	1,067.0	3,293.0		79 03	
Japan, Kashiwazaki-Kariwa, Unit 6 (Tokyo Electric Power Co.), Kashiwazaki, Niigata Pref.	XR-067 08/15/67	GE, Toshiba, Hitachi, Advanced boiling water	1,311.0	3,930.0			Commercial operation 11/7/97.
Japan, Mihama Power Station, Unit 1 (Kansai Electric Power Co.), Mihama, Fukui Pref.	XR-082 04/17/73	West., Mitsubishi, Pressurized water	320.0	1,031.0		70 07	
Japan, Ohi Power Station, Unit 1 (Kansai Electric Power Co.), Ohi, Fukui Pref.	XR-082 04/17/73	West., Mitsubishi, Pressurized water	1,120.0	3,423.0		77 12	
Japan, Ohi Power Station, Unit 2 (Kansai Electric Power Co.), Ohi, Fukui Pref.	XR-082 04/17/73	West., Mitsubishi, Pressurized water	1,120.0	3,423.0		78 09	
Japan, Takahama Power Station, Unit 1 (Kansai Electric Power Co.), Takahama, Fukui Pref.	XR-079 07/23/71	West., Mitsubishi, Pressurized water	780.0	2,440.0		74 03	
Japan, Tokai No. 2 Power Station (Japan Atomic Power Co.), Tokai-Mura, Ibaraki Pref.	XR-085 05/25/73	GE, Hitachi, Shimizu, Boiling water	1,080.0	3,293.0		78 01	
Japan, Tsuruga Power Station, Unit 1 (Japan Atomic Power Co.), Tsuruga, Fukui Pref.	XR-065 06/22/67	GE, Boiling water	341.0	1,064.0		69 10	
Korea, Kori-1 (Korea Electric Power Co.), Kori (near Pusan)	XR-083 05/04/73	West., Pressurized water	564.0	1,729.0		78 00	Formerly, Korea, Unit 1.
Korea, Kori-2 (Korea Electric Power Co.), Kori (near Pusan)	XR-119 04/08/77	West., Pressurized water	605.0	1,876.0		83 00	Formerly, Korea, Unit 2.
Korea, Kori-3 (Korea Electric Power Co.), Kori (near Pusan)	XR-131 10/04/78	West., Pressurized water	900.0	2,775.0		85 00	Formerly, Korea, Unit 5.
Korea, Kori-4 (Korea Electric Power Co.), Kori (near Pusan)	XR-131 10/04/78	West., Pressurized water	900.0	2,775.0		85 00	Formerly, Korea, Unit 6.
Korea, Yonggwang-1 (Korea Electric Power Co.), Gyeongna (near Kwang Ju)	XR-133 09/22/80	West., Pressurized water	900.0	2,775.0		86 00	Formerly, Korea, Unit 7.
Korea, Yonggwang-2 (Korea Electric Power Co.), Gyeongna (near Kwang Ju)	XR-133 09/22/80	West., Pressurized water	900.0	2,777.0		87 00	Formerly, Korea, Unit 8.

Mexico, Laguna Verde Station, Unit 1, Laguna Verde	XR-098 05/17/74	GE. Boiling water	654.0	1,931.0	88 11	Commercial operation, 7/29/90.
Mexico, Laguna Verde Station, Unit 2, Laguna Verde	XR-102 10/24/74	GE. Boiling water	654.0	1,931.0	94 09	Began commercial operation 4/95.
Slovenia, Krsko (Nuklearna Elektrarna Krsko)	XR-107 05/20/77	West. Pressurized water	615.0	1,882.0	83 00	
Spain, Almaraz, Unit 1 (Union Eléctrica, S.A.), Almaraz	XR-088 07/12/73	West. Pressurized water	902.0	2,696.0	81 00	
Spain, Almaraz, Unit 2 (Union Eléctrica, S.A.), Almaraz	XR-088 07/12/73	West. Pressurized water	902.0	2,696.0	83 00	
Spain, Asco, Unit 1 (FECSA), Asco	XR-090 07/12/73	West. Pressurized water	902.0	2,696.0	83 00	
Spain, Asco, Unit 2 (FECSA), Asco	XR-099 07/12/73	West. Pressurized water	902.0	2,696.0	85 00	
Spain, Cofrentes, Unit 1 (Hidroeléctrica Española S.A.), Cofrentes	XR-097 06/10/74	GE. Boiling water	975.0	2,900.0	84 00	
Spain, José Cabrera (Union Eléctrica, S.A.), Zorita de los Canes	XR-059 10/22/65	West. Pressurized water	160.0	510.0	69 00	
Spain, Santa María de Garroña (Centrales Nucleares del Norte, S.A., Nuclenor), S.M. Garroña Burgos	XR-064 06/09/67	GE. Boiling water	440.0	1,381.0	70 00	
Spain, Vandellòs, Unit 2 (ENHER), Tarragona	XR-122 09/13/87	West. Pressurized water	920.0	2,785.0	88 03	
Sweden, Ringhals, Unit 2 (Vattenfall AB), Våro (near Göteborg)	XR-069 05/09/69	West. Pressurized water	875.0	2,660.0	74 10	
Sweden, Ringhals, Unit 3 (Vattenfall AB), Våro (near Göteborg)	XR-095 02/02/74	West. Pressurized water	915.0	2,783.0	81 00	
Sweden, Ringhals, Unit 4 (Vattenfall AB), Våro (near Göteborg)	XR-103 10/21/75	West. Pressurized water	915.0	2,783.0	83 00	
Switzerland, Beznau, Unit 1 (Nordostschweizerische Kraftwerke AG), Döttingen	XR-063 02/03/67	West. Pressurized water	350.0	1,130.0	69 00	
Switzerland, Beznau, Unit 2 (Nordostschweizerische Kraftwerke AG), Döttingen	XR-070 11/05/69	West. Pressurized water	350.0	1,130.0	71 00	
Switzerland, Leibstadt (Kernkraftwerk Leibstadt).	XR-104 12/31/75	GE. Boiling water	1085.0	3,138.0	84 00	
Switzerland, Mühleberg (Bernische Kraftwerke AG), Mühleberg (near Bern)	XR-068 10/04/67	GE. Boiling water	320.0	997.0	72 00	
Taiwan, Chinshan, Unit 1 (Taiwan Power Co.), Shihmen	XR-080 07/24/72	GE. Boiling water	604.0	1,775.0	77 10	
Taiwan, Chinshan, Unit 2 (Taiwan Power Co.), Shihmen	XR-080 07/24/72	GE. Boiling water	604.0	1,775.0	78 11	
Taiwan, Kuo Sheng, Unit 1 (Taiwan Power Co.), Wanli Hsiang	XR-096 04/17/74	GE. Boiling water	948.0	2,894.0	81 02	
Taiwan, Kuo Sheng, Unit 2 (Taiwan Power Co.), Wanli Hsiang	XR-096 04/17/74	GE. Boiling water	948.0	2,894.0	82 03	
Taiwan, Maanshan, Unit 1 (Taiwan Power Co.), Heng-chun	XR-113 06/08/79	West. Pressurized water	890.0	2,785.0	84 03	
Taiwan, Maanshan, Unit 2 (Taiwan Power Co.), Heng-chun	XR-113 06/08/79	West. Pressurized water	890.0	2,785.0	85 02	

1. POWER REACTORS

PART IV EXPORT REACTORS

A. Central-Station Electric Power Plants (Continued)

Reactor Name (Owner), Location	NRC export license No. and date	Principal nuclear contractor. Reactor type	Power design net MW(e)	Power MW(t)	Author- ized power kW(t)	Initial criti- cality (yr mo)	Comment
BEING BUILT							
Japan, Kashiwazaki-Kariwa, Unit 7 (Tokyo Electric Power Co.). Kashiwazaki, Niigata Pref.		GE, Hitachi, Toshiba. Advanced boiling water	1,311.0	3,930.0			As of 12/96, 96.5% completed. Commercial operation is scheduled for 7/97.
Korea, Yonggwang-3 (Korea Electric Power Co.). Gyema (near Kwang Ju)	XR-150 04/16/87	Comb. Pressurized water	900.0			95 00	Also, Korea, Unit 11.
Korea, Yonggwang-4 (Korea Electric Power Co.). Gyema (near Kwang Ju)	XR-150 04/16/87	Comb. Pressurized water	900.0			96 00	Also, Korea, Unit 12.
Philippines, Republic of the Philippine Nuclear Power Plant, Unit 1 (National Power Corp.). Morong, Bataan Prov., Luzon	XR-120 05/06/80	West. Pressurized water	620.0	1,876.0		Indef.	
Spain, Lemoniz, Unit 1.	XR-089 07/12/73	West. Pressurized water	900.0	2,696.0		Indef.	
Spain, Lemoniz, Unit 2.	XR-089 07/12/73	West. Pressurized water	900.0	2,696.0		Indef.	
Spain, Valdecaballeros, Unit 1 (HE; Sevillana de Electricidad).	XR-110 05/05/77	GE. Boiling water	975.0	2,894.0		Indef.	
Spain, Valdecaballeros, Unit 2 (HE; Sevillana de Electricidad).	XR-110 05/05/77	GE. Boiling water	975.0	2,894.0		Indef.	
PLANNED							
Korea, Ulsin 3 (Korea Electric Power Co.). Kuongsangbuk-do	XR-153 04/06/92	Comb. Pressurized water	950.0	2825.0			
Korea, Ulsin 4 (Korea Electric Power Co.). Kuongsangbuk-do	XR-153 04/06/92	Comb. Pressurized water	950.0	2825.0			
Korea, Yonggwang-5 (Korea Electric Power Co.). Chollanam Province	XR-162	Comb., Hanjung Pressurized water	1,000.0				License pending.
Korea, Yonggwang-6 (Korea Electric Power Co.). Chollanam Province	XR-162	Comb., Hanjung Pressurized water	1,000.0				License pending.
Taiwan, Unit 7 (Taiwan Power Co.). Lungmen	XR-135 01/16/97	GE. Boiling water	1,350.0				
Taiwan, Unit 8 (Taiwan Power Co.). Lungmen	XR-135 01/16/97	GE. Boiling water	1,350.0				

B. Propulsion

(No reactors currently in this category)

2. TEST, RESEARCH, AND TEACHING

A. General Irradiation Test

Reactor Name (Owner), Location	NRC export license No. and date	Principal nuclear contractor, Reactor type	Power design net MW(e)	Power MW(t)	Author- ized power kW(t)	Initial crite- rality (yr mo)	Comment
OPERABLE							
Japan, JRR-2 (Japan Atomic Energy Research Institute), Tokai-Mura, Ibaraki Pref.	XR-015 10/11/57	AMF, Heavy water, CP-5			10,000.0	60 10	
Japan, NSRR (Japan Atomic Energy Research Institute), Tokai-Mura, Ibaraki Pref.	XR-101 10/16/74	GA, TRIGA-ACPR			300.0	75 06	
Netherlands (Energy Center), Petten	XR-017 01/17/58	AC, Tank (MTR)			45,000.0	61 09	In 1985 the reactor vessel was replaced. It is now refurbished. Manufacturer of the vessel: Royal Schelde of Flushing (Vlissingen, Holland).
Romania (Institute for Nuclear Research), Bucharest	XR-091 06/29/73	GA TRIGA-ACPR			500.0	79 00	
Romania (Institute for Nuclear Research), Bucharest	XR-091 06/29/73	GA, TRIGA (MPR 16)			14,000.0	79 00	
South Africa, Safari-1 (Atomic Energy Board), Pelindaba (near Pretoria)	XR-042 06/14/61	AC, Tank			20,000.0	65 00	
Sweden (Studsvik AB), Studsvik	XR-019 05/14/58	AC, Tank (MTR)			50,000.0	60 00	

B. General Research

OPERABLE							
Australia, Moata (Atomic Energy Commission), Lucas Heights, New South Wales	XR-039 09/12/60	AR, UTR-10			15.0	61 00	
Austria, Astra (Selbersdorf Research Center), Selbersdorf	XR-023 09/03/58	AMF, Pool			5,000.0	60 00	
Bangladesh (Institute of Nuclear Technology), Dhaka	XR-126 10/05/82	GA, TRIGA-Mk II			3,000.0	86 00	
Colombia, INEA-R1 (Institute of Nuclear Affairs), Bogotá	XR-164 09/25/96 XSNM-02858	GA, TRIGA [®] Conversion			30.0	65 00	In 1996 NRC issued an export license to DOE to convert the reactor to use low-enriched uranium fuel.
Denmark, DR-1 (Risø National Laboratory), Risø	XR-005 04/04/57	AI, L-55			2.0	57 08	
England (Imperial Chemical Industries), Billingham, Teesside	XR-074 03/23/71	GA, TRIGA-Mk I			250.0	71 00	

2. TEST, RESEARCH, AND TEACHING

B. General Research (Continued)

Reactor Name (Owner), Location	NRC export license No. and date	Principal nuclear contractor, Reactor type	Power design net MW(e)	Power MW(t)	Author- ized power kW(t)	Initial criti- cally (yr mo)	Comment
OPERABLE (Continued)							
Greece, Democritos (Atomic Energy Commission), Athens	XR-014 09/25/57	AMF, Pool			1,000.0	61 00	The original Bandung TRIGA-Mark II reactor was commissioned at 250 kW(t) in 1964. It was upgraded and reached a power level of 1000 kW(t) in 1971 (XR-078, 5/20/71). Upgraded and reached power level of 2000 kW(t) in 1996.
Indonesia (National Atomic Energy Agency), Bandung	XR-048	GA, TRIGA-Mk II			2,000.0	64 00	
Indonesia (National Atomic Energy Agency), Yogyakarta		GA, TRIGA-Mk II			250.0	79 00	This reactor was designed and built by BATAN (National Atomic Energy Agency of Indonesia). The design was based on the design of TRIGA Mark II reactor, with maximum power level of 250 kW. In 1979 this reactor reached initial criticality at 50 kW. After the upgrading and replacing of some components, it reached a power level of 100 kW in 1984.
Israel (Atomic Energy Commission), Nahal Soreq	XR-021 06/12/58	AMF, Pool			5,000.0	60 00	Design power: 10W.
Italy (Italian Agency for New Technology, Energy and the Environment), Rome	XR-026 01/08/59	GA, TRIGA-Mk II			1,000.0	60 00	
Jamaica (Kingston), Kingston	XR-094 06/03/75	Research reactor					
Korea (Advanced Energy Research Institute), Seoul	XR-027 05/21/59	GA, TRIGA-Mk II			250.0	62 00	
Korea (Advanced Energy Research Institute), Seoul	XR-073 05/15/70	GA, TRIGA-Mk III			2,000.0	72 00	
Malaysia (Tun Ismail Atomic Research Centre), Kuala Lumpur	XR-125 02/20/81	GA, TRIGA-Mk II			1,000.0	82 00	
Mexico (National Commission for Nuclear Energy), Salazar	XR-057 02/12/65	GA, TRIGA-Mk III			1,000.0	68 00	
Pakistan, PARR (Atomic Energy Commission), Islamabad	XR-046 04/23/62	AMF, Pool			5,000.0	65 00	
Philippines, Republic of Inc, PRR-1 (Philippine Nuclear Research Institute), Quezon City	XR-034 11/16/59	GA, TRIGA Conversion			3,000.0	88 03	The original Philippine Research Reactor (PRR-1) was designed and built by GE and was commissioned as a 1 MW reactor in 1963. The reactor was shut down in 1/85 for extensive upgrading and has now become a TRIGA Conversion. It has a power level of 3 MW and reached criticality on 3/11/88.
Portugal, RP-1 (National Laboratory of Engineering and Industrial Technology), Sacavém	XR-013 09/13/57	AMF, Pool			1,000.0	61 00	
Slovenia (Josef Stefan Nuclear Institute), Ljubljana	XR-055 01/30/64	GA, TRIGA-Mk II			250.0	66 00	
Spain (Nuclear Energy Board-JEN), Madrid	XR-010 07/29/57	GE, Pool			3,000.0	58 00	
Switzerland (Paul Scherrer Institute), Wuerenlingen		ORNIL, Pool Conversion			10,000.0	57 00	This is the 1955 Geneva conference reactor rebuilt with increased power.

Thailand, TRR-1 (Office of Atomic Energy for Peace), Bangkok	XR-112 05/05/77	GA, TRIGA-Mk III	2,000.0	77 11	The Thai research reactor, TRR-1, built by Curtiss-Wright and started up in 1962, originally operated at 1000 kW(t). In 6/75 the TRR-1 was shut down for conversion to TRR-1/MI, a TRIGA-Mark III system adapted for pool installation. The TRR-1/MI, with a power level of 2000 kW(t)/2000 MW pulsing was commissioned 11/77.
Turkey (Atomic Energy Commission), Istanbul	XR-030 09/04/59	AMF, Pool	1,000.0	62 00	
Turkey (Technical University of Istanbul), Istanbul	XR-108 03/24/76	GA, TRIGA-Mk II	250.0	79 00	
Venezuela (Institute for Scientific Research), Caracas	XR-018 01/16/58	GE, Pool	3,000.0	60 00	
Zaire (Regional Center for Nuclear Studies), Kinshasa		GA, TRIGA-Mk II	1,000.0	59 00	This TRIGA reactor operated at the 1958 International Conference in Geneva prior to shipment to the University of Lovanium in 6/59. It is the first reactor to be operated on the African continent.
BEING BUILT					
Morocco (C.E.N., Maâmora), Rabat	XR-158 10/25/91	GA, TRIGA-Mk II	2,000.0		Originally planned as TRIGA-Mk I, reactor was upgraded to TRIGA-Mk II. Original export license was not used.
PLANNED					
Albania, Tirana	XR-154 Pending	GA, TRIGA-Mk I	250.0		Export license application dated 10/9/90.

C. University Research and Teaching

OPERABLE

Austria (Vienna Polytechnic Institute), Vienna	XR-035 11/24/59	GA, TRIGA-Mk II	250.0	62 00	
Brazil (University of Minas Gerais), Belo Horizonte	XR-028 08/03/59	GA, TRIGA-Mk I	100.0	60 00	
Brazil (University of São Paulo), São Paulo	XR-002 01/22/57	B&W, Pool	5,000.0	57 00	
Canada (McMaster University), Hamilton, Ontario	XR-011 08/27/57	AMF, Pool	5,000.0	59 00	
China, Republic of (National Tsing-Hua University), Hsinchu	XR-020 06/05/58	GE, Pool	1,000.0	62 00	
Finland (Institute of Technology), Helsinki	XR-040 04/05/61	GA, TRIGA-Mk II	250.0	62 00	
Germany (Institute for Nuclear Medicine), Heidelberg	XR-060 02/14/66	GA, TRIGA-Mk I	250.0	66 00	This TRIGA-Mk I reactor was installed in 1966. In 1977, the reactor was shut down, dismantled, and moved to another building. After this move, it was started up again in 1978. This operation was referred to as "TRIGA I" and "TRIGA II."
Germany (Johannes Gutenberg University of Mainz), Mainz	XR-050 04/11/64	GA, TRIGA-Mk II	100.0	65 00	
Germany (Medical College of Hanover), Hanover	XR-076 02/26/71	GA, TRIGA-Mk I	250.0	73 00	
Germany, FRG Garching (Technical University of Munich), Munich	XR-004 03/15/57	AMF, Pool	4,000.0	57 00	
Iran (University of Tehran), Tehran	XR-029 08/05/59	AMF, Pool	5,000.0	67 00	Fuel supplier being sought.

2. TEST, RESEARCH, AND TEACHING

C. University Research and Teaching (Continued)

Reactor Name (Owner), Location	NRC export license No. and date	Principal nuclear contractor, Reactor type	Power design net MW(e)	Power MW(t)	Author- ized power kW(t)	Initial crite- rity (yr mo)	Comment
Italy (University of Palermo), Palermo	XR-025 01/07/59	AGN, 201-110				60 00	Negligible power. Shut down for renewal of operating license.
Italy (University of Pavia), Pavia	XR-056 03/12/65	GA, TRIGA-Mk II		250.0		65 00	Shut down for renewal of operating license.
Japan (Kinki University), Higashi-Osaka	XR-041 04/18/61	AR, UTR-10			1.0	61 11	Negligible power.
Japan (Musashi College of Technology), Kawasaki	XR-037 07/08/60	GA, TRIGA-Mk II		100.0		63 01	
Japan (Rikkyo University), Yokosuka	XR-038 07/08/60	GA, TRIGA-Mk II		100.0		61 12	
Korea (University of Kyung Hee), Seoul	XR-105 11/18/75	AGN, 201				82 00	Negligible power.
Netherlands (Delft Technical University), Delft	XR-003 02/01/57	AMF, Pool (MTR)		2,000.0		63 04	The Netherlands research reactor was originally operated at the Amsterdam International Exhibition in 6/57; major portions of the exhibition reactor system were used to fabricate the present reactor.
Switzerland (University of Basel), Basel		AGN, 211-100				58 00	This reactor was operated in the International Science Section of the Brussels Information Exhibition, 4/15/58 to 10/1/58, prior to transfer to the University of Basel. Negligible power.

1. CIVILIAN

PART V CRITICAL ASSEMBLIES

Facility (Regulatory agency)	Designation	Location	Equipment		Initial crite- rity (yr mo)	Comment
			No. of cells	No. of control panels/ room		
Advanced Test Reactor Critical Facility (DOE)	ATRC	INEL Site, ID	1	1	64 00	ATR physics, core-loading and core-design measurements.
Los Alamos National Laboratory (DOE)	Big Ten	Pajarito Site, Los Alamos, NM			72 00	U(10)-metal cylinder in thick metal reflector.
Los Alamos National Laboratory (DOE)	Comet	Pajarito Site, Los Alamos, NM			52 00	Critical-configuration safety and neutronic tests.
Los Alamos National Laboratory (DOE)	Flattop	Pajarito Site, Los Alamos, NM	1	1	57 00	Spherical metal cores in thick metal reflector.
Los Alamos National Laboratory (DOE)	Godiva-IV	Pajarito Site, Los Alamos, NM			67 00	Fast neutron irradiation, pulse capability.
Los Alamos National Laboratory (DOE)	Honeycomb	Pajarito Site, Los Alamos, NM			56 00	Flexible split table assembly.
Los Alamos National Laboratory (DOE)	Mars	Pajarito Site, Los Alamos, NM			74 00	Vertical table assembly machine.
Los Alamos National Laboratory (DOE)	Planet	Pajarito Site, Los Alamos, NM			84 00	Vertical table assembly.
Los Alamos National Laboratory (DOE)	SHEBA	Pajarito Site, Los Alamos, NM	2	1	80 00	New upgraded version of SHEBA became operational on 12/92.
Los Alamos National Laboratory (DOE)	SKUA	Pajarito Site, Los Alamos, NM	1	1	78 00	Fast neutron irradiation, pulse capability.
Rensselaer Polytechnic Institute (NRC)	CX	Troy, NY	1	1	66 00	Critical experiment assembly.
SNL Critical Assembly (DOE)		Kirtland AFB East, NM			89 09	Space power neutronics; in shutdown.

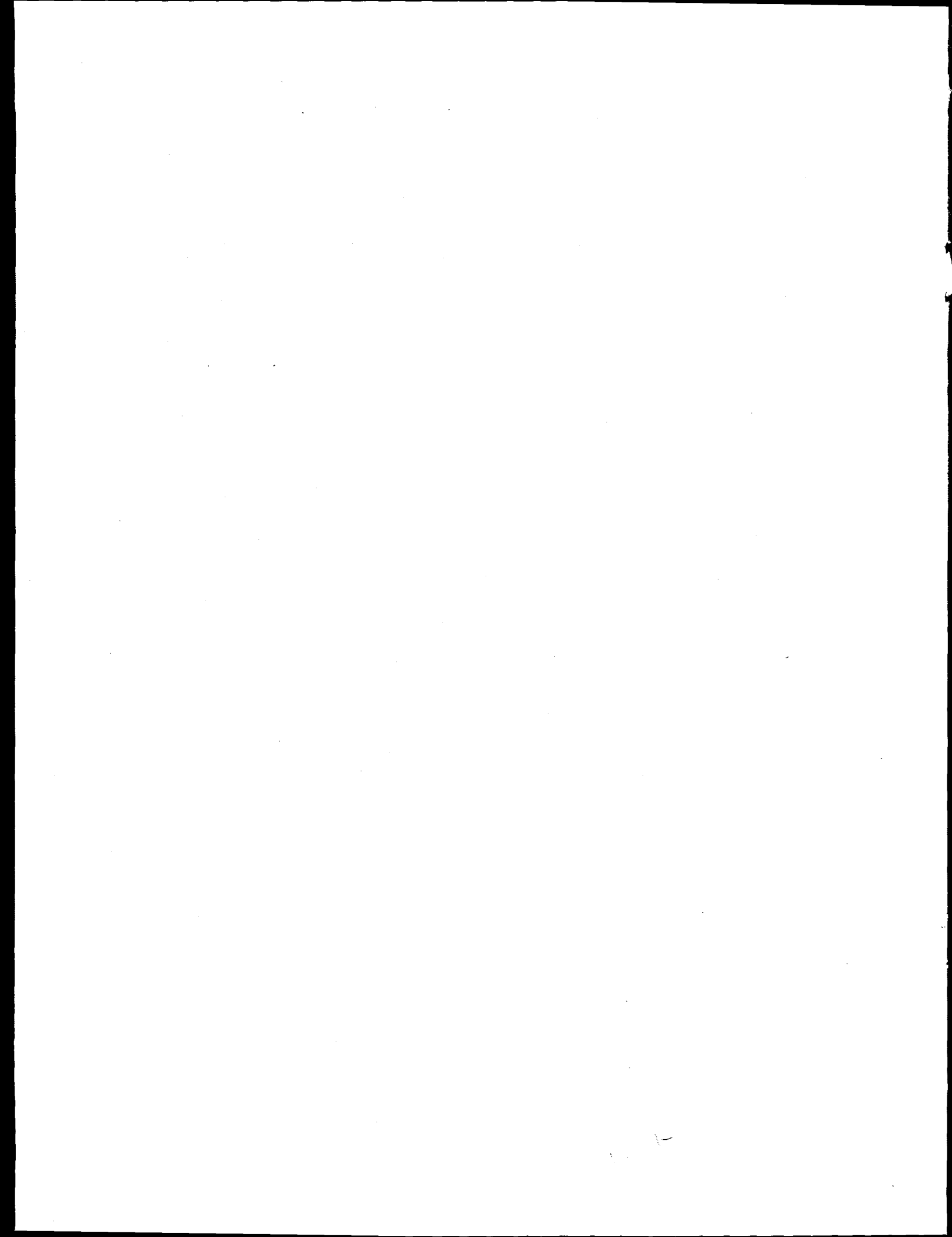
PART IV EXPORT REACTORS

2. MILITARY

PART V CRITICAL ASSEMBLIES

Facility (Regulatory agency)	Designation	Location	Equipment			Initial criticality (yr mo)	Abbreviation	Comment
			No. of cells	No. of control panels/ room				
Nuclear Safety Facility, Rocky Flats Plant (DOE)	Horizontal/ Split Table Solution Base	Golden, CO	1	1		65 00	RFP-NSF	Critical-configuration safety tests.
Nuclear Safety Facility, Rocky Flats Plant (DOE)		Golden, CO				65 00	RFP-NSF	Critical-configuration safety tests.

**REACTORS AND FACILITIES
SHUTDOWN OR DISMANTLED**



REACTORS AND FACILITIES SHUTDOWN OR DISMANTLED

1. POWER REACTORS

A. Central-Station Electric Power Plants

Name (licensee) [docket number]	Location	Principal nuclear contractor	Type	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down permanently (yr mo)	Comment
Boiling Nuclear Superheater Power Station (AEC and Puerto Rico Water Resources Authority) Carolinias-Virginia Tube Reactor (Carolinias-Virginia Nuclear Power Associates, Inc.) [50-144]	Punta Higuera, PR Parr, SC	Comb. West.	Boiling water, integral nuclear superheat Pressure tube, heavy water	16.5 17.0	50.0 65.0	64 00 63 00	68 00 67 01	The last CVTR shutdown occurred 1/24/67. A license amendment issued 6/14/67 authorizes CVNPA to possess but not operate the CVTR. Byproduct license. (South Carolina) Licensee decided to decommission plant 1/86. License amended to possession only 7/86. SAFSTOR decommissioning plan approved 9/93.
Dresden Nuclear Power Station, Unit 1 (Commonwealth Edison Co.) [50-010]	Morris, IL	GE	Boiling water	200.0	700.0	59 00	78 10	The Elk River Reactor was shut down due to technical problems in February 1968; in 1974, dismantling and removal of this facility was completed. Project management assigned to NRC Nuclear Materials, Safety, Safeguards and Operations Support. SAFSTOR approved. Possession only license 5/91.
Elk River Reactor (AEC and Rural Cooperative Power Association)	Elk River, MN	AC	Boiling water	22.0	58.2	62 00	68 02	All fuel placed in onsite independent spent fuel storage 6/92. DECON plan approved 11/92. Dismantlement and decontamination complete 12/96. Connecticut Yankee Atomic Power Company announced permanent cessation of operations and permanent removal of fuel 12/96. The Hallam Nuclear Power Facility was shut down in September 1964 due to moderator-can failures. Entombment of the reactor was completed in 1968. Decommissioning plan submitted 7/84. SAFSTOR decommissioning plan approved 7/88.
Enrico Fermi Atomic Power Plant, Unit 1 (Power Reactor Development Co.) [50-16]	Lagoona Beach, MI	PRDC	Sodium cooled, fast	60.9	200.0	63 00	72 09	Detueled 1/76. Possession only license. Ordered not to operate 6/80. Submitted proposed decommissioning plan 10/80. SAFSTOR decommissioning plan approved 1/96.
Fort St. Vrain Nuclear Generating Station (Public Service Company of Colorado) [50-267]	Platteville, CO	GA	High temperature, gas cooled	330.0	842.0	74 01	89 08	SAFSTOR approved 8/91. SAFSTOR approved 1/96.
Haddam Neck Plant (Connecticut Yankee Atomic Power Co.) [50-213]	Haddam Neck, CT	West. water	Pressurized	560.0	1825.0	67 07	96 07	
Hallam Nuclear Power Facility, Sheldon Station (AEC and Consumers Public Power District)	Hallam, NE	AI	Sodium graphite	75.0	240.0	62 00	64 09	
Humboldt Bay Power Plant, Unit 3 (Pacific Gas & Electric Co.) [50-133]	Eureka, CA	GE	Boiling water	65.0	200.0	63 00	76 07	
Indian Point Station, Unit 1 (Consolidated Edison Co. of New York, Inc.) [50-03]	Buchanan, NY	B&W	Pressurized water	265.0	615.0	62 00	74 10	
La Crosse (Genoa) Nuclear Generating Station (Dairyland Power Cooperative) [50-409]	La Crosse, WI	AC	Boiling water	48.0	165.0	67 07	87 04	

PART I CIVILIAN REACTORS (DOMESTIC)

1. POWER REACTORS

A. Central-Station Electric Power Plants (Continued)

Name (licensee) [docket number]	Location	Principal nuclear contractor	Type	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down permanently (yr mo)	Comment
Pathfinder Atomic Plant (Northern States Power Co.) [50-130]	Sioux Falls, SD	AC	Boiling water, nuclear superheat	58.5	190.0	64 00	67 09	DECON completed. Minor radioactivity in turbines under 10 CFR Part 30 license. SAFSTOR approved.
Peach Bottom Atomic Power Station, Unit 1 (Philadelphia Electric Co.) [50-171]	Peach Bottom, PA	GA	High temperature, gas cooled	40.0	115.0	66 00	74 10	The dismantlement program for the Piqua Nuclear Power Facility was completed in February 1969.
Piqua Nuclear Power Facility (AEC and City of Piqua)	Piqua, OH	AI	Organic cooled and moderated	11.4	45.5	63 00	66 00	Defueled 12/89. Possession only license 3/92. SAFSTOR decommissioning plan approved 3/95.
Rancho Seco Nuclear Generating Station, Unit 1 (Sacramento Municipal Utility District) [50-312]	Clay Station, CA	B&W	Pressurized water	873.0	2,772.0	74 09	89 06	Possession only license amendment issued 10/92. Amendment effective when reactor vessel certified as completely defueled 3/93.
San Onofre Nuclear Generating Station, Unit 1 (Southern California Edison) [50-206]	San Clemente, CA	West.	Pressurized water	436.0	1,347.0	67 06	92 11	Permanently defueled technical specifications issued 12/93. SAFSTOR decommissioning plan proposed 11/94.
Shippingport Atomic Power Station (DOE and Duquesne Light Co.)	Shippingport, PA	West.	Pressurized water	60.0	236.0	57 00	82 10	The first core for the Shippingport station began power operation in 1957 with a capacity rating of 60 MW(e). The second core began power operation in 1965 with a capacity rating of 90 MW(e). The third core, a light water breeder reactor (LWBR), began power opera- tion in 1977, with a capacity rating of 60 MW(e). Owned by the Department of Energy, the reactor plant was shut down on Oct. 1, 1982. Defueling was completed in September 1984. Decommissioning was completed in December 1989, and the site was released for use without any restrictions.
Shoreham Nuclear Power Station (Long Island Lighting Co.) [50-322]	Brookhaven, NY	GE	Boiling water	820.0	2,436.0	85 02	89 06	Defueled 8/89. Possession only license 6/91. DECON approved 6/92. Transfer of fuel to Limerick began 9/93. Fuel transfer completed 6/94. Dismantlement completed 10/94. DECON completed. Possession only license terminated 4/95.
Three Mile Island Nuclear Station, Unit 2 (GPU Nuclear Corp.) [50-320]	Middletown, PA	B&W	Pressurized water	906.0	2,772.0	78 00	79 03	Defueled 1/90. Processing of accident- generated water was completed 8/93. Possession only license amendment issued 9/93. Post-defueling monitored storage technical specifications were issued 12/93.
Trojan Nuclear Plant, Unit 1 (Portland General Electric Co.) [50-344]	Rainier, OR	West.	Pressurized water	1075.0	3411.0	75 12	92 11	Defueled 1/93. Possession only license 5/93. Removal of steam generators and pressurizer began 11/94. DECON plan submitted 1/95. Completed large component removal 11/95. Permanently defueled technical specifications issued 3/96. DECON approved 4/96.
Yankee Nuclear Power Station (Yankee Atomic Electric Co.) [50-029]	Rowe, MA	West.	Pressurized water	167.0	600.0	60 08	92 02	Announced permanent cessation of operation 2/92. Possession only license 8/92. Final NRC approval of decommissioning 10/96. Reactor vessel removed 11/96. Reactor vessel shipped to Barnwell, SC for burial 4/97.

PART I CIVILIAN REACTORS (DOMESTIC)

B. Dual-Purpose Plants

Name (Owner)	Location	Principal nuclear contractor	Type	Power capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Comment
N Reactor (DOE)	Hanford Site, WA	WHC	Graphitic	860.0	4000.0	63 12	91 00	N Reactor, a DOE-owned reactor for production of special nuclear materials, also produced steam that was supplied to an adjacent electric generating plant, owned and operated by Washington Public Power Supply System. The reactor has been directed to transition from standby to the termination mode in preparation for decommissioning.

C. Propulsion (Maritime)

Name and/or owner [docket number]	Nuclear designer	Shipbuilder	Type	Maximum shaft horsepower	Licensed power MW(e)	Start-up (yr mo)	Shut down (yr mo)	Comment
Nuclear Ship SAVANNAH (Maritime Administration) [50-238]	B&W	NYSC	Pressurized water	22,000	80.0	61 00	71 00	In SAFSTOR, possession only license.

2. EXPERIMENTAL POWER-REACTOR SYSTEMS

A. Electric-Power Systems

Name (Regulatory agency), Location [docket number]	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Desig. Type, Principal nucl. contr.	Comment
Boiling Reactor Experiment No. 1 (DOE), INEEL Site, ID		1,400.0				53 00	54 00	BORAX-1 Boiling water, ANL	
Boiling Reactor Experiment No. 5 (DOE), INEEL Site, ID	2,600.0	20,000.0				62 00	64 00	BORAX-5 Boiling water, integral nuclear super-heat, ANL	
Boiling Reactor Experiments (DOE), INEEL Site, ID	2,400.0	15,500.0				54 00	58 06	BORAX-2,-3,-4, Boiling water, ANL	This facility was originally built and operated in 1954 as the Boiling Reactor Experiment No. 2 (BORAX-2). With the addition of a turbogenerator, it operated during 1955 as BORAX-3 and on 7/17/55 produced sufficient electricity to light and power Archo, ID—a U.S. first. BORAX-4, a further modification, operated from 12/56 to 6/58, when the experiment was shut down.

2. EXPERIMENTAL POWER-REACTOR SYSTEMS

PART I CIVILIAN REACTORS (DOMESTIC)

A. Electric-Power Systems (Continued)

Name (Regulatory agency). Location [docket number]	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Design, Type, Principal nucl. contr.	Comment
ESADA Vallecitos Experimental Superheat Reactor (NRC), Pleasanton, CA [50-183]		17,000.0				63 00	67 02	EVESR. Light- water mod- erated, super- heater, GE	Owner: Empire States Atomic Development Associates and General Electric Company. In SAFSTOR, possession only license.
Experimental Beryllium Oxide Reactor (DOE), INEEL Site, ID		10,000.0						EBOR. Gas cooled, BeO moderated, GA	The EBOR reactor experiment was terminated in December 1966 prior to completion of construction.
Experimental Boiling Water Reactor (DOE), Argonne, IL	4,000.0	100,000.0				56 00	67 06	EBWR. Boiling water, ANL	The EBWR achieved 100,000 kW(t) 11/11/62. Operation of EBWR in the Boiling Water Program was closed out 12/62. The reactor was used in support of the Plutonium Recycle Program and attained criticality using plutonium as its principal fuel 9/22/65. In support of that program, it operated at power levels as high as 70,000 kW(t). Operation in that program was completed 6/67.
Experimental Breeder Reactor No. 1 (DOE), INEEL Site, ID	150.0	1,400.0				51 00	64 00	EBR-I. NaK-cooled, fast, ANL	In a trial run 12/21/51 and 12/22/51, EBR-I generated the world's first electric power from nuclear energy and was first to demonstrate, in 7/53, the feasibility of breeding and the compatibility with breeding economy of sodium-potassium alloy as a liquid-metal coolant. It operated with a plutonium-bearing core (Mark IV) from 11/62 to 12/63. The reactor was decommissioned and dismantled early in 1964. The facility was dedicated as a historic landmark 8/26/66. It is open to the public from Memorial Day weekend to Labor Day weekend, annually.
Experimental Breeder Reactor II (DOE), INEEL Site, ID	20,000.0	62,500.0				61 09	94 09	EBR-II. Sodium cooled, fast, ANL	EBR-II achievements include irradiation of tens of thousands of specimens of fuel, structural and absorber materials; generation of several billion kilowatt-hours of electricity; co-generation of steam for ANL-West site heating; in situ demonstration of advanced instrumentation concepts; and full-scale demonstration of a diversion-proof system for fuel reprocessing. Historic LOF and LOHS accident simulations performed in 1986, fully demonstrated the passive safety features inherent in the pool-type design using metal fuel. The EGCR project was terminated 1/66 prior to the completion of construction.
Experimental Gas Cooled Reactor (DOE), Oak Ridge, TN	21,900.0	84,300.0						EGCR. Gas cooled, graphite mod- erated, KE-AC	
Experimental Organic Cooled Reactor (DOE), INEEL Site, ID		40,000.0						EOCR. Organic cooled and mod- erated, Fluor-AI	EOCR construction was terminated 12/62. The facility was mothballed prior to operation.

Heavy Water Components Test Reactor (DOE), SRL, Aiken, SC	61,100.0	62 00	64 00	HWCTR. Pressurized heavy water. Du Pont	D&D activities for this reactor have been initiated.
Homogeneous Reactor Experiment No. 1 (DOE), Oak Ridge, TN	140.0	52 00	54 00	HRE-1. Aqueous homogeneous solution (UO ₂ SO ₄). ORNL	
Homogeneous Reactor Experiment No. 2 (DOE), Oak Ridge, TN	300.0	57 00	61 00	HRE-2. Aqueous homogeneous solution (UO ₂ SO ₄). ORNL	
Los Alamos Molten Plutonium Reactor Experiment (DOE), Los Alamos, NM	1,000.0	61 00	63 00	LAMPRE-1. Fast molten plutonium fueled, sodium cooled. LANL	
Los Alamos Power Reactor Experiment No. 1 (DOE), Los Alamos, NM	2,000.0	56 00	57 00	LAPRE-1. Aqueous homogeneous (phosphoric acid). LANL	
Los Alamos Power Reactor Experiment No. 2 (DOE), Los Alamos, NM	1,000.0	59 00	59 00	LAPRE-2. Aqueous homogeneous (phosphoric acid). LANL	
Molten Salt Reactor Experiment (DOE), Oak Ridge, TN	8,000.0	65 00	69 00	MSRE. Single region, graphite moderated. ORNL	
Organic Moderated Reactor Experiment (DOE), INEL Site, ID	12,000.0	57 00	63 00	OMRE. Organic cooled and moderated. AI	OMRE demonstrated the technical and economic feasibility of using liquid hydrocarbon terphenyls as coolant and/or moderator.
Plutonium Recycle Test Reactor (DOE), Richland, WA	70,000.0	60 00	69 00	PRTR. Pressure tube, heavy water moderated and cooled. WHC	
Saxton Nuclear Experimental Reactor Project (NRC), Saxton, PA [50-146]	3,000.0	62 00	72 00	No Desg. Pressurized water. West.	Owner: Saxton Nuclear Experimental Corp. In SAFSTOR, possession only license.
Sodium Reactor Experiment (DOE), Santa Susana, CA	5,700.0	57 00	64 02	SRE. Sodium graphite. AI	SRE operated at 20 MW(t) until shut down 2/64 for modification to permit an increase in power level to 30 MW(t). On 12/2/66, deactivation was announced. Owners: DOE and Southern California Edison Co.
Southwest Experimental Fast Oxide Reactor (NRC), Sinker, AR [50-231]	20,000.0	69 00	72 00	SEFOR. Sodium cooled, fast. GE	Owner: Southwest Atomic Energy Associates. In SAFSTOR, byproduct license (state).
Ultra High Temperature Reactor Experiment (DOE), Los Alamos, NM	3,000.0	68 00	70 00	UHTREX. Helium cooled. LANL	
Vallecitos Boiling Water Reactor (NRC), Picasanton, CA [50-18]	5,000.0	57 00	63 12	VBWR. Boiling water. GE	Owner: General Electric Company and Pacific Gas & Electric Co. SAFSTOR approved.

2. EXPERIMENTAL POWER-REACTOR SYSTEMS

PART I CIVILIAN REACTORS (DOMESTIC)

B. Space Nuclear Auxiliary Power (SNAP)

Name (Regulatory agency), Location [docket number]	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Designation, Type, Principal nuclear contractor	Comment
SNAP-02 Developmental System (DOE), Santa Susana, CA					50.0	61 00	63 00	S2DS, NaK-cooled, AI	
SNAP-02 Experimental Reactor (DOE), Santa Susana, CA					50.0	59 00	60 00	SER, NaK-cooled, AI	
SNAP-02/10A TSF Shielding Experiment (DOE), Oak Ridge, TN					10.0	67 00	73 00	SNAP-TSF, NaK-cooled, AI-ORNL	
SNAP-08 Developmental Reactor (DOE), Santa Susana, CA					600.0	68 00	69 00	S8DR, NaK-cooled, AI	
SNAP-08 Experimental Reactor (DOE), Santa Susana, CA					600.0	62 00	65 00	S8ER, NaK-cooled, AI	
SNAP-10A Flight System (DOE), In orbit, US				0.5	39.0	65 00	65 00	S10FS-4, NaK-cooled, AI	S10FS-4 operated in orbit April-May 1965. Operation terminated unexpectedly after 43 days at power, probably owing to a sequence of failures of electrical components of the spacecraft with result- ing spurious commands shutting down the reactor. An identical ground test unit, S10FS-3, operated successfully for more than a year before being shut down in 1966.
SNAP-10A Flight System (DOE), Oak Ridge, TN				0.5	39.0	(Spare)		S10FS-5, NaK-cooled, AI	
SNAP-10A Flight System Ground Test No. 1 (DOE),				0.5	39.0	64 00	64 00	S10FS-1, NaK-cooled, AI	
SNAP-10A Flight System Ground Test No. 3 (DOE), Santa Susana, CA				0.5	39.0	64 00	66 00	S10FS-3, NaK-cooled, AI	See comment for SNAP-10 Flight System, S10FS-4.

C. Space Propulsion

Name (Regulatory agency), Location [docket number]	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Designation, Type, Principal nuclear contractor	Comment
Fuel Element Test Bed (DOE), NRDS, NV			44,000.0			72 00	72 00	NE-1, Open cycle, gaseous hydrogen, LANL	
Fuel Element Test Reactor (DOE), NRDS, NV			514,000.0			Indef.	68 00	Pewee-1, Open cycle, liquid hydrogen, LANL	
Fuel Element Test Reactor (DOE), NRDS, NV			514,000.0			Indef.	73 00	Pewee-2, Open cycle, liquid hydrogen, LANL	
Ground Experimental Engine Experiment (DOE), NRDS, NV			1,100,000.0			Indef.	73 00	XE-Backup, Open cycle, liquid hydrogen, AG-West	

Ground Experimental Engine Experiment (DOE), NRDS, NV	1,100,000.0	68 00	69 00	XE-Prime, Open cycle, liquid hydrogen, AG-West.
Nuclear Rocket Engine Reactor Experiment (NERVA) (DOE), NRDS, NV	109,600.0	64 00	64 00	NRX-A2, Open cycle, liquid hydrogen, AG-West.
Nuclear Rocket Engine Reactor Experiment (NERVA) (DOE), NRDS, NV	1,100,000.0	65 00	65 00	NRX-A3, Open cycle, liquid hydrogen, AG-West.
Nuclear Rocket Engine Reactor Experiment (NERVA) (DOE), NRDS, NV	1,120,000.0	66 00	66 00	NRX-A5, Open cycle, liquid hydrogen, AG-West.
Nuclear Rocket Engine Reactor Experiment (NERVA) (DOE), NRDS, NV	1,199,000.0	67 00	67 00	NRX-A6, Open cycle, liquid hydrogen, AG-West.
Nuclear Rocket Reactor Engine System Test (NERVA) (DOE), NRDS, NV	1,155,000.0	66 00	66 00	NRX-A4/EST, Open cycle, liquid hydrogen, AG-West.
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	70,000.0	59 00	59 00	Kiwi-A, Open cycle, gaseous hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	85,000.0	60 00	60 00	Kiwi-A Prime, Open cycle, gaseous hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	100,000.0	60 00	60 00	Kiwi-A3, Open cycle, gaseous hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	300,000.0	61 00	61 00	Kiwi-B1A, Open cycle, gaseous hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	900,000.0	62 00	62 00	Kiwi-B1B, Open cycle, liquid hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	500,000.0	62 00	62 00	Kiwi-B4A, Open cycle, liquid hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	1,000,000.0	64 00	64 00	Kiwi-B4D, Open cycle, liquid hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	950,000.0	64 00	64 00	Kiwi-B4E, Open cycle, liquid hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	1,070,000.0	65 00	65 00	Phoebus 1A, Open cycle, liquid hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	1,400,000.0	67 00	67 00	Phoebus 1B, Open cycle, liquid hydrogen, LANL
Nuclear Rocket Reactor Experiment (DOE), NRDS, NV	4,200,000.0	68 00	68 00	Phoebus 2A, Open cycle, liquid hydrogen, LANL

3. TEST, RESEARCH, AND UNIVERSITY REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

A. General Irradiation Test

Name (Regulatory agency). Location [docket number]	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Designation. Type. Principal nuclear contractor	Comment
Engineering Test Reactor (DOE). INEEL, ID			175,000.0			57 00	81 00	ETR, Tank KE-GE.	Reactor was shut down in 1973 for modifications and insertion of Sodium Loop Safety Facility (SLSF) loop. Operation resumed in 1975. Deactivated in 1981 and no longer operable. The Fast Flux Test Facility initiated shutdown activities 12/93.
Fast Flux Test Facility (DOE). Hanford Site, WA			291,000.0			80 02	93 12	FFTF, Sodium cooled, loop, WHC	In SAFSTOR, possession only license.
General Electric Testing Reactor (NRC). Pleasanton, CA [50-70]			50,000.0			58 00	77 00	GETR, Tank. Owner.	
Materials Testing Reactor (DOE). INEEL, ID			40,000.0			52 00	70 00	MTR, Tank. ORNL-ANL- Blaw-Knox	In August 1958 the MTR was operated with an experimental plutonium core at power levels up to 30,000 kW(t). It demonstrated the ability of plutonium fuel elements to perform satisfactorily in a high-flux research or test reactor. Operation as a test reactor was terminated 6/30/69, and a Plutonium-240 (Phoenix) core was run in FY 1970. Reactor was decommissioned in 1974.
Plum Brook Reactor Facility (NRC). Sandusky, OH [50-30]			60,000.0			61 00	74 00	NASA-TR, Tank. NASA	In SAFSTOR, possession only license.
Westinghouse Testing Reactor (NRC). Walk Mill, PA [50-22]			60,000.0			59 00	62 00	WTR, Tank. Owner	In SAFSTOR, possession only license.

B. High-Power Research and Test

Ames Laboratory Research Reactor (DOE). Ames, IA	5,000.0					65 00	77 00	ALRR, Heavy water, AMF	
Babcock & Wilcox Nuclear Development Center Test Reactor (NRC). Lynchburg, VA [50-200]	6,000.0					64 00	71 00	BAWTR, Pool. Owner	In SAFSTOR, byproduct license (NRC).
Chicago Pile No. 5 (DOE). Argonne, IL	5,000.0					54 02	79 09	CP-5, Heavy. water ANL	DECON approved.
Cintichem, Inc. Reactor (NRC). Sterling Forest, NY [50-54]	5,000.0					61 00	90 00	CINR, Pool. AMF	License terminated, 11/4/77.
Industrial Reactor Laboratories, Inc. (NRC). Plainsboro, NJ [50-17]	5,000.0					58 00	75 00	IRL, Pool. AMF	Shutdown—Defueled.
Oak Ridge Research Reactor (DOE). Oak Ridge, TN	30,000.0					58 00	87 00	ORR, Tank. ORNL	Shutdown—Defueled.
Omega West Reactor (DOE). Los Alamos, NM	8,000.0					56 00	94 00	OWR, Tank. LANL	Shutdown—Defueled.
Sandia Engineering Reactor (DOE). Kirtland AFB, NM	5,000.0					61 00	70 00	SER, Tank. Sandia	Shutdown—Defueled.

C. Safety Research and Test

King Intense Neutron Generator (DOE). Los Alamos, NM						72 00	77 00	Kinglet. Homogeneous. LANL	Transient.
Kiwi-Transient Test Reactor (DOE). NRDS, NV						65 00	65 00	Kiwi-TTR. Kiwi/NERVA. LANL	

Loss of Fluid Test (DOE), INEEL, ID	55,000.0	78 00	85 07	LOFT, Pressurized water, EG&G-ID	LOFT covered most of the concerns related to light- water safety. The first tests were done for NRC, and the last eight were done for a consortium of OECD countries and the U.S. The last two fission-product- release tests measured release and transport of fission products. There was an intentional core dam- age causing a partial meltdown. Facility has been inactivated and placed in cold standby.
Power-Burst Facility (DOE), INEEL, ID	28,000.0	73 00	92 00	PBF, Open tank, EG&G-ID	The SNAPTRAN series of experiments was designed to develop, in a land-based environment, safety information on space auxiliary power reactors through excursion testing at various temperatures and rates of reactivity insertion. The destructive experiments approach the maximum credible accidents postulated for SNAP reactor systems. SNAPTRAN-1 was converted to SNAPTRAN-2 for destructive testing 1/66.
SNAP-10A Transient Test No. 2 (DOE), INEEL, ID		65 00	66 01	SNAPTRAN-2, Be-reflected SNAP-10A, AI-PPC	
SNAP-10A Transient Test No. 3 (DOE), INEEL, ID		64 00	64 00	SNAPTRAN-3, H ₂ O-reflected SNAP-10A, PPC-AI	
Special Power Excursion Reactor Test No. 1 (DOE), INEEL, ID		55 00	64 00	SPERT-1, Open tank, PPC	
Special Power Excursion Reactor Test No. 2 (DOE), INEEL, ID		60 00	65 00	SPERT-2, Pressurized water, PPC	
Special Power Excursion Reactor Test No. 3 (DOE), INEEL, ID		58 00	68 00	SPERT-3, Pressurized water, PPC	
Special Power Excursion Reactor Test No. 4 (DOE), INEEL, ID		62 00	70 00	SPERT-4, Pool, INC	

D. General Research

Accelerator Pulsed Fast Critical Assembly (NRC), La Jolla, CA [50-253]	1.0	67 00	73 00	APFA-III, Fast, GA	The APFA-III was previously operated as the KUKLA Prompt Critical Assembly at Lawrence Livermore National Laboratory at Livermore, CA. License terminated 8/10/73.
American Standard Inc. (NRC), Mountain View, CA		58 00	60 00	UTR-1, Graphite/water, AS, Inc.	This reactor was shipped abroad for exhibition purposes in the USAEC Atoms for Peace Exhibit in the Tokyo International Trade Fair in 1959, and in Cairo, Egypt, and Lahore, Pakistan, in 1960.
Annular Core Pulsed Reactor (DOE), Kirtland AFB, East, NM		67 00	77 00	ACPR, U-Zr hydride, GA	In 1977 the Annular Core Pulsed Reactor (ACPR) was shut down. After replacement of fuel and other modifications, the unit was renamed the Annular Core Research Reactor.
Argonne CP-3, rebuilt as CP-3' (DOE), Palos Park, IL	300.0	44 00	63 00	CP-3', Heavy water, Met. Lab., AFSR, Fast	After the assembly and operation of this reactor in the government exhibit at Geneva in 9/58, it was dismantled and returned to ANL, where it was rebuilt as a 250-kW(t) Juggernaut.
Argonne Fast Source Reactor (DOE), INEEL Site, ID	1.0	59 00	93 00	ANL	
Argonne Low Power Research Reactor (DOE), Argonne, IL	250.0	62 00	70 00	Juggernaut, Graphite/water, ANL	

3. TEST, RESEARCH, AND UNIVERSITY REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

D. General Research (Continued)

Name (Regulatory agency), Location [docklet number]	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Designation, Type, Principal nuclear contractor	Comment
Argonne National Laboratory (DOE), Argonne, IL						57 00	72 00	AGN-201-108.	
Argonne Nuclear Assembly for University Training (DOE), Argonne, IL			10.0			57 00	72 00	Homog. solid. AGN Argonaut (CP-11). Graphite/water.	
Argonne Thermal Source Reactor (DOE), Argonne, IL			10.0			57 00	88 00	ANL ATSR. Thermal. ANL	
Atomics International (NRC), Canoga Park, CA [50-50]						57 00	58 00	L-47. Homogeneous. AI	License terminated 6/30/58.
Babcock & Wilcox Lynchburg Pool Reactor (NRC).			1,000.0			58 00	81 00	LRP. Pool. Owner	License terminated 7/20/82.
Lynchburg, VA [50-99]									
Battelle Memorial Institute (NRC), West Jefferson, OH [50-6]			2,000.0			56 00	74 00	BRR. Pool. AMF	License terminated 12/22/87.
Brookhaven Graphite Research Reactor (DOE), Upton, NY			20,000.0			50 00	69 00	BGRR. Air cooled, graphite mod- erated. AU, Inc. SCHIZO. Tank. AU, Inc.	
Brookhaven Neutron Source Reactor No. 1 (DOE), Upton, NY			100.0			58 00	70 00	PHRENIC. Tank. AU, Inc.	
Brookhaven Neutron Source Reactor No. 2 (DOE), Upton, NY			100.0			65 00	70 00		
Bulk Shielding Reactor (DOE), Oak Ridge, TN			2,000.0			50 00	91 00	BSR. Pool. ORNL	Shut down—to be defueled.
Chicago Pile 1, rebuilt as CP-2 (DOE), Chicago, IL			0.2			42 00	54 00	CP-2. Graphite. Met. Lab.	In 1943 Manhattan Engineer District disassembled Chicago Pile 1 and rebuilt at Palos Park, IL, as Chicago Pile 2. CP-2 had a thermal-power level of 10 kW. License terminated 12/2/66.
Curtiss-Wright Nuclear Research Laboratory of the Commonwealth of Pennsylvania (NRC), Quehanna, PA [50-310]						58 00	66 00	CWRR. Pool. Owner	
DOE Demonstration Reactor (DOE), Oak Ridge, TN			1,000.0						
European-Asian Exhibit Program (DOE), Oak Ridge, TN			10.0			69 00	69 00	Demo React. Pool. Lockheed	This reactor was formerly called the Latin American Demonstration Reactor and was operated initially in São Paulo, Brazil, 10/69. It is currently in storage at Oak Ridge. This reactor was operated in the USAEC Atoms for Peace Exhibit in Vienna, Austria, 6/63; Belgrade, Yugoslavia, 9/63; Madrid, Spain, 4/64; Lisbon, Portugal, 4/65; Utrecht, Netherlands, 3/66; Dublin, Ireland, 9/66 to 10/66; Ankara, Turkey, 4/67 to 5/67; Tehran, Iran, 11/67 to 12/67; Taipei, Taiwan, 4/68 to 5/68; Seoul, Korea, 9/68 to 10/68; Manila, Philippines, 2/69 to 3/69; and Bucharest, Romania, 10/69.

Fast Neutron Source Reactor (DOE), Upton, NY General Atomics Technologies (DOE), San Diego, CA	67 00	70 00	BNL/FS-I, Fast. BNL	This TRIGA-Mk II was operated at the New Delhi World Agricultural Fair in 1960. It was dismantled for storage in California by Chevron USA Corporation. Owner: World Agricultural Fair-U.S. Exhibit Reactor. Shut down—De-fueled.
	60 00	60 00	TRIGA-Mk II, U-Zr hydride. Owner	
	50.0			
Health Physics Research Reactor (DOE), Oak Ridge, TN	62 00	91 00	HPRR, Fast burst. ORNL	Owner: Armour Research Foundation. License terminated 4/28/72.
High Temperature Lattice Test Reactor (DOE), Richland, WA	67 00	71 00	HTLTR, Graphitic moderated. PNNL	
Illinois Institute of Technology Research Institute (NRC), Chicago, IL [50-1]	56 00	67 00	ARR (L-54), Homogeneous. AI	
JANUS Reactor (DOE), Argonne, IL	64 00	92 00	JANUS, Tank. ANL	
Kinetic Experiment on Water Boilers (NRC), Santa Susana, CA	56 00	67 00	KEWB, Homogeneous. AI	The KEWB reactor was operated by AI from 1956 to 1967 as the Kinetic Experiment on Water Boilers. Owner: Rockwell International. No power listed: transient.
Livermore Pool Type Reactor (DOE), Livermore, CA	57 00	80 00	LPTR, Tank. FW	
Livermore Water Boiler (DOE), Livermore, CA	53 00	61 00	LJWB, Homogeneous. AI	License terminated 9/1/60.
Lockheed Aircraft Corp. (NRC), Dawsonville, GA [50-167]	60 00	60 00	No Desg. Pool, Lockheed	
Los Alamos Fast Reactor (DOE), Los Alamos, NM	46 00	53 00	Clementine, Fast, plutonium fuel, mercury cooled. LANL	
Los Alamos LOPO Reactor (DOE), Los Alamos, NM	44 00	44 00	LOPO, Homogeneous. LANL	
Los Alamos Water Boiler (DOE), Los Alamos, NM	44 00	50 00	HYPO, Homogeneous. LANL	
Los Alamos Water Boiler (DOE), Los Alamos, NM	50 00	74 00	SUPO, Homogeneous. LANL	
Louisiana State University Nuclear Science Center (DOE), Baton Rouge, LA	65 00	66 00	SNARE, Pool. Sandia	In 1965 and 1966 this reactor operated at Sandia, NM, as SNARE. Prior to that time it was operated at INEL as the Shield Test Pool Reactor (SUSIE) in the Aircraft Nuclear Propulsion Program from 1959 to 1962. It was shut down in 1966 and transferred to Louisiana State University 6/66, where it was never assembled. Owner: Phillips Petroleum Co.
Low Intensity Test Reactor (DOE), Oak Ridge, TN	50 00	68 00	LJTR, Tank. ORNL	Possession only license. 8/1/73.
Low Temperature Neutron Irradiation Facility (DOE), Oak Ridge, TN	86 00	91 00	LTNIF, Pool. ORNL	The Neutron Radiography Facility was used to perform neutron radiography of reactor fuel pins. The reactor was shut down in 1989 and has been converted to a fuel storage basin. Owner: Space Radiation Laboratory. This TRIGA reactor was capable of being pulsed and of steady-state operation. License terminated 6/29/86.
NASA Mock-Up Reactor (NRC), Sandusky, OH [50-185]	63 00	73 00	MUR, LWR, Lockheed	
Neutron Radiography Facility (DOE), Hanford Site, WA	77 00	90 00	NRF, U-Zr hydride. WHC	
Northrop Corporate Laboratories (NRC), Hawthorne, CA [50-187]	63 00	86 00	TRIGA-Mk F, U-Zr hydride. GA	
	1,000.0			

3. TEST, RESEARCH, AND UNIVERSITY REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

D. General Research (Continued)

Name (Regulatory agency). Location [docket number]	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Designation. Type, Principal nuclear contractor	Comment
Nuclear Effects Reactor (DOE). NTS, NV						62 00	70 00	FRAN. Prompt burst. LLNL/PPC	Until mid-1967 FRAN was operated by LLNL at the Nevada Test Site, and until 1970 it was operated in the former ML-1 reactor area at INEL. In mid-1970 it was transferred back to LLNL. Fuel was removed for processing.
Nuclear Effects Reactor (DOE). San Diego, CA						59 00	64 00	KUKLA. Prompt burst. LLNL	
Nuclear Examination Reactor (NRC). Santa Susana, CA [50-375]			3.0			52 00	80 00	L-85 (AE-6). Homogeneous, AI	Ownership of this reactor was transferred to North American Rockwell 12/71 and was redesignated the Nuclear Examination Reactor or L-85 rather than AE-6. The AE-6, also designated WBNS, was built and first operated at Downey, CA. It was moved to Santa Susana in 1956. License terminated 4/8/87.
Oak Ridge Graphite Reactor (DOE). Oak Ridge, TN			3,500.0			43 00	63 00	ORG. Graphite, CL	
Pawling Research Reactor (NRC). Pawling, NY [50-101]						58 00	71 00	PRR. LWR, UNC	Owner: United Nuclear Corp. License terminated 6/25/74.
Physical Constants Test Reactor (DOE). Richland, VA			0.1			55 00	72 00	PCTR. Graphite, PNNL	The RER was previously used in the terminated Aircraft Nuclear Propulsion Program. A license authorizing Lockheed to operate the reactor as a commercial facility was issued 7/62, and 8/62 the USAF transferred the facility to the General Services Administration. Lockheed acquired the title to the facility 3/65. License terminated 8/31/71.
Radiation Effects Reactor (NRC). Dawsonville, GA [50-172]			3,000.0			58 00	70 00	RER. Pool. Lockheed	
Rockwell International (NRC). Canoga Park, CA [50-94]						58 00	74 00	L-77. Homogeneous, AI	License terminated 2/11/82.
Sandia Pulsed Reactor (DOE). Kirtland AFB, East, NM						61 00	67 00	SPR. Prompt burst. Sandia	
Shield Test and Irradiation Reactor (DOE). Santa Susana, CA			1,000.0			61 00	72 00	STIR. Pool, AI	This reactor was previously designated STF for SNAP Shield Test Facility.
Thermal Test Reactor No. 2 (DOE). Richland, WA			0.1			55 00	72 00	TTR-2. Graphite, PNNL	
Torrey Pines, TRIGA-Mk III Reactor (NRC). La Jolla, CA [50-227]			1,500.0			66 00	73 00	TRIGA-Mk III. U-Zr hydride. Owner	Owner: General Atomic. License terminated 12/10/75.
Tower Shielding Reactor (DOE). Oak Ridge, TN			500.0			54 00	58 00	TSR. BSR-type in tank. ORNL	
Tower Shielding Reactor No. II (DOE). Oak Ridge, TN			1,000.0			60 00	92 00	TSR-2. Light water. ORNL	Shut down—To be defueled.

Transient Reactor Test Facility (DOE),
INEL Site, ID
UTR Test Reactor (NRC),
Mountain View, CA
Westinghouse Nuclear Training
Center (NRC), Zion, IL [50-87]

TREAT.
Graphite, ANL
No Desg. Graphite/
water, Owner
WNTR, Tank, West.
License terminated 10/27/88.

59 00 94 09
61 00 63 00
72 00 87 00

Authorized power, n.a. Transient RX.

Owner: American Radiator & Standard
Sanitary Corp.
License terminated 10/27/88.

E. University Research and Teaching

Name (Regulatory agency),
Location
[docket number]

Brigham Young University
(NRC), Provo, UT [50-262]
California Polytechnic
State University (NRC),
San Luis Obispo, CA [50-394]

Designation.
Type, Principal
nuclear
contractor

L-77.
Homogeneous, Al
AGN-201-100.
Homog. solid.
AGN

Power
capacity
net kW(e)

Power
licensed
kW(t)

Authorized
power
kW(t)

Power
MD capacity
net MW(e)

Power
licensed
MW(t)

Initial
criticality
(yr mo)

Shut
down
(yr mo)

Comment

License terminated 10/29/96.
California Polytechnic State University received
a permit in 12/71 to relocate AGN-201-100
and operate it on the university's campus.
The unit was previously operated starting
in 1956 at the Naval Postgraduate School,
Monterey, CA. NRC docket No. 50-43.
In 1980, AGN-201-100 was shut down and
decommissioned. License terminated 7/19/85.
License terminated 3/8/91.

California, Berkeley,
University of (NRC),
Berkeley, CA [50-224]
California, Los Angeles,
University of, School of
Engineering and Applied
Science (NRC), Los Angeles,
CA [50-142]

TRIGA-Mk III.
U-Zr hydride.
GA
Educator.
Graphite/water.
AMF

66 00 87 12
60 00 84 00
1,000.0
100.0

License terminated 12/28/93.

California, Santa Barbara,
University of (NRC), Santa
Barbara, CA [50-433]
Catholic University of
America (NRC),
Washington, DC [50-77]
Colorado State University
(NRC), Fort Collins, CO

L-77.
Homogeneous, Al
AGN-201-101.
Homog. solid.
AGN
AGN-201-109.
Homog. solid.
AGN

74 00 86 00
57 00 86 00
57 00 74 00

License terminated 11/17/89.

License terminated 3/14/96.

Columbia University (NRC),
New York, NY

The Columbia University TRIGA-Mk II was
licensed to operate by NRC. However, the
City of New York has not authorized
operation. Therefore Columbia University
has not procured fuel. The license was
terminated in 1985.
License terminated 2/26/79.

TRIGA-Mk II.
U-Zr hydride.
GA

Licensed

Delaware, University of
(NRC), Newark, DE [50-98]

AGN-201-113.
Homog. solid.
AGN

58 00 78 00

Georgia Institute of
Technology (NRC),
Atlanta, GA [50-267]

AGN-201-104.
Homog. solid.
AGN

68 00 85 00

AGN-201-104 operated at the University
of Akron (Ohio) from 1957 until transferred
to the Georgia Institute of Technology in
1967. Operations at that facility began in
1968. Decommissioning of AGN-201-104
was achieved in 1986. License terminated 1/7/86.

3. TEST, RESEARCH, AND UNIVERSITY REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

E. University Research and Teaching (Continued)

Name (Regulatory agency). Location [docket number]	Power capacity net kW(e)	Power licensed kW(t)	Authorized power kW(t)	Power MD capacity net MW(e)	Power licensed MW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Designation. Type. Principal nuclear contractor	Comment
Kansas, University of (NRC), Lawrence, KS [50-148] Leland Stanford University (NRC), Palo Alto, CA [50-141] Memphis State University (NRC), Memphis, TN [50-538]			250.0 10.0			61 00 59 00 77 00	87 00 74 00 85 00	Model 4180, Pool, BAC No Desg. Pool, GE AGN-201-108, Homog. solid, AGN TRIGA-Mk I, U-Zr hydride, GA	License terminated 10/5/93. License terminated 12/19/88. License terminated 10/19/88.
Michigan State University (NRC), East Lansing, MI [50-294]			250.0			69 00	89 00	RRR, Homogeneous, Owner: NSA	The core of the Michigan State University reactor operated in the University of Illinois TRIGA facility from 1960 until transferred in 1968. The reactor has been decommissioned. The license was terminated 4/5/90. This reactor was originally operated by North Carolina State University as the Raleigh Research Reactor (RRR). It was transferred 3/66 to Mississippi State University for reactivation. The RRR was dismantled by NC State in 1963. Owing to funding problems this reactor was never activated. License terminated 9/7/66. Late in 1981 it was shipped to Barnwell, SC, for disposal. License terminated 2/24/75.
Mississippi State University (NRC), State College, MS [50-8]									
Nevada, University of (NRC). Reno, NV [50-202] North Carolina State University (NRC). Raleigh, NC [50-111] Oklahoma, University of (NRC), Norman, OK [50-112]			10.0			63 00 60 00 58 00 58 00	74 00 73 00 88 00 74 00	L-77. Homogeneous, AI No Desg. Graphite/water, Cook AGN-211-102, Homog. solid, pool, AGN AGN-201-114, Homog. solid, AGN AGN-201M-105, Homog. solid, AGN	License terminated 1/13/83. License terminated 2/14/90. License terminated 11/10/81.
Oregon State University (NRC), Corvallis, OR [50-106] Polytechnic Institute of New York (NRC), New York, NY [50-216]						67 00	74 00		In 1957-1962, AGN-201M-105 was owned and operated by the National Naval Medical Center, Bethesda, MD. Title to the reactor was transferred to New York University early in 1964. A license to operate was issued 4/67. License terminated 12/21/77.
Puerto Rico Nuclear Center (DOE), Mayaguez, PR Puerto Rico Nuclear Center (DOE), Mayaguez, PR			2,000.0			59 00 72 00	79 00 76 00	L-77. Homogeneous, AI TRIGA-FLIP, Pool-TRIGA core, GA	Owner: The Center for Environmental and Energy Research (formerly Puerto Rico Nuclear Center). This reactor was operated at the Puerto Rico Nuclear Center from 1960 to 10/76; it was converted to TRIGA-FLIP in 1972. It has been moved to the Neutron Radiography Facility at the National Engineering Laboratory in Idaho. License terminated 10/13/93.
Texas at Austin, University of (NRC), Austin, TX [50-192]			250.0			63 00	91 00	TRIGA-Mk I, U-Zr hydride, GA	

Tuskegee Institute (NRC),
Tuskegee, AL [50-406]

Utah, University of (NRC),
Salt Lake City, UT [50-72]

Virginia, University of (NRC),
Charlottesville, VA [50-396]

Virginia Polytechnic Institute
(NRC), Blacksburg, VA [50-124]

Washington, University of (NRC),
Seattle, WA [50-139]

West Virginia University (NRC),
Morgantown, WV [50-129]

William Marsh Rice University
(NRC), Houston, TX [50-114]

Wyoming, University of (NRC),
Laramie, WY [50-122]

74 00 84 12

AGN-201-102,
Homog. solid,
AGN

AGN-201-102 was operated at Oklahoma State
University, Stillwater, OK, from 1957 until
transferred to Tuskegee Institute in 1972;
there it was licensed to operate but was
never started up. Tuskegee Institute returned
the fuel to the Department of Energy, and the
operating license was terminated 11/2/84.
DECON approved.

57 00 91 00

AGN-201-107,
Homog. solid,
AGN

DECON approved.

74 00 91 00

CAVALIER,
Reactor type
not specified.

Owner

59 00 84 00

UTR-10,
Graphite/water,
AS Inc.

License terminated 8/1/88.

61 00 90 00

Educator,
Graphite/water,
AMF

DECON approved.
Possession only license, 7/28/94.

59 00 72 00

AGN-211-103,
Homog. solid,
pool, AGN

License terminated 9/7/84.

59 00 65 00

AGN-211-101,
Homog. solid,
pool, AGN

License terminated 9/26/67.

59 00 74 00

L-77,
Homogeneous, AI

License terminated 12/5/75.

1. MATERIALS PRODUCTION

PART II PRODUCTION REACTORS

Name (all owned by DOE)	Designation	Location	Nuclear designer	Type	Authorized power kW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Comment
B Reactor	B Reactor	Richland, WA	Du Pont	Graphitic		44 00	68 00	
C Reactor	C Reactor	Richland, WA	GE	Graphitic		52 00	69 00	
C Reactor	C Reactor	Savannah River Site, Aiken, SC	Du Pont	Heavy water		55 00	93 00	
D Reactor	D Reactor	Richland, WA	Du Pont	Graphitic		44 00	67 00	
DR Reactor	DR Reactor	Richland, WA	GE	Graphitic		50 00	64 00	
F Reactor	F Reactor	Richland, WA	Du Pont	Graphitic		45 00	65 00	
H Reactor	H Reactor	Richland, WA	GE	Graphitic		49 00	65 00	
K Reactor (DOE)	K Reactor	Savannah River Site, Aiken, SC	Du Pont	Heavy water			96 01	
KE Reactor	KE Reactor	Richland, WA	GE	Graphitic		55 00	71 00	
KW Reactor	KW Reactor	Richland, WA	GE	Graphitic		55 00	70 00	
L Reactor	L Reactor	Savannah River Site, Aiken, SC	Du Pont	Heavy water		54 00	93 00	
P Reactor	P Reactor	Savannah River Site, Aiken, SC	Du Pont	Heavy water		54 00	93 00	
R Reactor	R Reactor	Savannah River Site, Aiken, SC	Du Pont	Heavy water		53 00	64 00	

2. PROCESS DEVELOPMENT

Name (all owned by DOE)	Designation	Location	Nuclear designer	Type	Authorized power kW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Comment
Hanford 305 Test Reactor	HTR	Richland, WA	Du Pont	Graphite		44 00	76 00	Negligible power.
Lattice Test Reactor	LTR	Savannah River Site, Aiken, SC	Du Pont	Heavy water	1.0	67 00	79 00	
Process Development Pile	PDP	Savannah River Site, Aiken, SC	Du Pont	Heavy water	1.0	53 00	79 00	
SR 305-M Test Pile	Test Pile	Savannah River Site, Aiken, SC	Du Pont	Graphite	1.0	53 00	83 00	SR 305-M Test Pile was used to measure the reactivity effects of components (fuel tubes, target tubes, control rods, etc.) prior to use in Savannah River (SR) reactors. In addition, the Test Pile was used to measure the neutron absorption of miscellaneous materials used at SR. The Test Pile has been dismantled.
Standard Pile/ Subcritical Experimental Complex	SP/SE	Savannah River Site, Aiken, SC	Du Pont	Graphite	2.0	53 00	79 00	The SP—an enriched uranium-fueled, graphite-moderated, water-cooled reactor—supplied neutrons for reactor-component-reactivity testing in the SE, which was a graphite chamber on top of the SP. Authorized power ranged from 2 to 10 kW(t).

PART II PRODUCTION REACTORS

1. DEFENSE POWER-REACTOR APPLICATIONS

A. Remote Installations

Reactors in the Army Power Program are designated to reflect mobility characteristics, power range, development sequence, and field sequence. The first capital letter indicates mobility characteristics: S (stationary operation), not designed for subsequent relocation; P (portable), semimobile, stationary operation, capable of being dismantled and reassembled for use in successive locations; and M (mobile), capable of being moved intact, or virtually intact, for use in successive locations. The second capital letter

indicates the power range as measured by design capacity for continuous operation: L (low) 100 to 1000 kW(e); M (medium), 1000 to 10,000 kW(e); and H (high), 10,000 kW(e) or more. Arabic numerals indicate order in which plants having the same mobility and power characteristics are initiated. If not followed by an additional letter, the designation indicates a prototype or pilot plant. The last capital letter (when present) indicates the alphabetical order in which field plants of a specific type are initiated.

Name (all owned by DOE) Location	Designation	Power capacity net kW(e)	Authorized power kW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Principal nuclear reactor type	Comment
Portable Medium Power Plant, No. 1, Sundance, WY	PM-1	1,000.0	9,370.0	62 00	68 00	Martin. Pressurized water.	The PM-2A was shut down 7/9/63 and dismantled during 4/64 to 6/64. The reactor vessel was then used by INEL for NDT (oil ductility transition temperature) investigations of materials that had been subjected to long-term irradiation. Defects were sequentially introduced into the vessel wall during a series of tests involving pressure and temperature conditions which exceeded the range permitted in operating nuclear power plants. The final test on 11/18/66 resulted in a brittle fracture under conditions even more severe than those which had been previously predicted to cause failure. The test program confirmed laboratory data on the adequacy of reactor-operating limitations to prevent brittle fracture of a pressure vessel.
Portable Medium Power Plant, No. 2A, Camp Century, Greenland	PM-2A	1,560.0	10,000.0	60 00	63 00	Alco. Pressurized water.	
Portable Medium Power Plant, No. 3A, McMurdo Sound, Antarctica	PM-3A	1,500.0	9,510.0	62 00	73 00	Martin. Pressurized water.	

PART III MILITARY REACTORS

Stationary Medium Power Plant
No. 1, Fort Belvoir, VA
Stationary Medium Power Plant
No. 1A, Fort Greely, AK

Alco.
Pressurized water.
Alco.
Pressurized water.

The Army made the determination to shut down the SM-1A because the plant's demonstration and R&D missions had been successfully completed and because of the ready availability of cheaper conventional power at the site.
The MH-1A was installed in the STURGIS (formerly the Liberty Ship CHARLES H. CUGLE) at Mobile, AL. Acceptance testing was performed at Fort Belvoir, VA, 4/67 to 6/27/67, when the Army accepted the plant from the contractor. In late 7/68 the plant was deployed to Gatun Lake, Panama Canal Zone, and began producing power to the Panama Canal power grid on 10/5/68. The MH-1A is no longer available for service.

STURGIS Floating Nuclear Power Plant

Martin.
Pressurized water.

B. Propulsion (Naval)

SSN, Submarine (Nuclear Propulsion).

SSBN, Fleet Ballistic Missile Submarine (Nuclear Propulsion).

CGN, Guided Missile Cruiser (Nuclear Propulsion).

Name (all owned by U.S. Navy)	Designation	Shipbuilder	Start-up (yr mo)	Shut-down (yr mo)	Comment
NAUTILUS	SSN571	Electric Boat (Groton)	54 00	80 00	The SEAWOLF, originally commissioned with a sodium-cooled reactor in 3/57, was recommissioned with a pressurized-water reactor on 9/30/60.
SEAWOLF PWR	SSN575	Electric Boat (Groton)	60 00	86 00	
SEAWOLF Sodium Reactor	SSN575	Electric Boat (Groton)	57 00	59 00	
SKATE*	SSN578	Electric Boat (Groton)	57 00	85 00	The SCORPION was lost in the Atlantic 5/21/68.
SWORDFISH*	SSN579	Portsmouth	58 00	87 00	
SARGO*	SSN583	Mare Island	58 00	86 00	
SEADRAGON*	SSN584	Portsmouth	59 00	83 00	The THRESHER was lost in the Atlantic 4/10/63.
SKIPJACK*	SSN585	Electric Boat (Groton)	58 00	89 00	
TRITON (2 Reactors)	SSN586	Electric Boat (Groton)	59 00	68 00	
HALIBUT*	SSN587	Mare Island	59 00	76 00	The THRESHER was lost in the Atlantic 4/10/63.
SCAMP*	SSN588	Mare Island	61 00	87 00	
SCORPION	SSN589	Electric Boat (Groton)	60 00	68 00	
SCULPIN	SSN590	Ingalls	61 00	89 00	The THRESHER was lost in the Atlantic 4/10/63.
SHARK*	SSN591	Newport News	60 00	89 00	
SNOOK*	SSN592	Ingalls	61 00	86 00	
THRESHER	SSN593	Portsmouth	61 00	63 00	The THRESHER was lost in the Atlantic 4/10/63.
PERMIT*	SSN594	Mare Island	62 00	90 00	
PLUNGER*	SSN595	Mare Island	62 00	89 00	
BARB*	SSN596	Ingalls	63 00	89 00	The THRESHER was lost in the Atlantic 4/10/63.
TULLIBEE*	SSN597	Electric Boat (Groton)	60 00	87 00	
GEORGE WASHINGTON*	SSN598	Electric Boat (Groton)	59 00	84 00	
PATRICK HENRY*	SSN599	Electric Boat (Groton)	60 00	83 00	The THRESHER was lost in the Atlantic 4/10/63.
THEODORE ROOSEVELT*	SSBN600	Mare Island	60 00	81 00	
ROBERT E. LEE*	SSN601	Newport News	60 00	83 00	
ABRAHAM LINCOLN*	SSBN602	Electric Boat (Groton)	60 00	81 00	The THRESHER was lost in the Atlantic 4/10/63.
POLLACK*	SSN603	NYSC	63 00	88 00	
HADDON*	SSN604	NYSC	64 00	90 00	
JACK*	SSN605	Portsmouth	65 00	89 00	The THRESHER was lost in the Atlantic 4/10/63.
TINOSA*	SSN606	Portsmouth	63 00	91 00	
DACE*	SSN607	Ingalls	63 00	88 00	
ETHAN ALLEN*	SSN608	Electric Boat (Groton)	61 00	82 00	The THRESHER was lost in the Atlantic 4/10/63.
SAM HOUSTON*	SSN609	Newport News	61 00	91 00	
THOMAS A. EDISON*	SSN610	Electric Boat (Groton)	61 00	83 00	
JOHN MARSHALL*	SSN611	Newport News	62 00	92 00	The THRESHER was lost in the Atlantic 4/10/63.
GUARDFISH*	SSN612	NYSC	66 00	91 00	
FLASHER*	SSN613	Electric Boat (Groton)	66 00	91 00	

1. DEFENSE POWER-REACTOR APPLICATIONS

B. Propulsion (Naval) (Continued)

Name (all owned by U.S. Navy)	Designation	Shipbuilder	Start-up (yr mo)	Shut-down (yr mo)	Comment
GREENLING*	SSN614	GD (Quincy)	67 00	93 00	
GATO*	SSN615	GD (Quincy)	67 00	95 00	
LAFAYETTE*	SSBN616	Electric Boat (Groton)	63 00	91 00	
ALEXANDER HAMILTON*	SSBN617	Electric Boat (Groton)	63 00	92 00	
THOMAS JEFFERSON*	SSN618	Newport News	62 00	84 00	
ANDREW JACKSON	SSBN619	Mare Island	63 00	88 00	
JOHN ADAMS*	SSBN620	Portsmouth	64 00	88 00	
HADDOCK	SSN621	Ingalls	67 00	92 00	
JAMES MONROE*	SSBN622	Newport News	63 00	90 00	
NATHAN HALE*	SSBN623	Electric Boat (Groton)	63 00	86 00	
WOODROW WILSON	SSBN624	Mare Island	63 00	93 00	
HENRY CLAY	SSBN625	Newport News	63 00	90 00	
JAMES MADISON	SSBN627	Newport News	64 00	92 00	
TECUMSEH*	SSBN628	Electric Boat (Groton)	64 00	93 00	
DANIEL BOONE*	SSBN629	Mare Island	63 00	93 00	
JOHN C. CALHOUN*	SSBN630	Newport News	64 00	93 00	
ULYSSES S. GRANT*	SSBN631	Electric Boat (Groton)	64 00	92 00	
VON STEUBEN	SSBN632	Newport News	64 00	93 00	
CASIMIR PULASKI*	SSBN633	Electric Boat (Groton)	64 00	93 00	
STONEWALL JACKSON*	SSBN634	Mare Island	64 00	94 00	
NATHANAEEL GREENE	SSBN636	Portsmouth	64 00	86 00	
STURGEON*	SSN637	Electric Boat (Groton)	66 00	94 00	
WHALE	SSN638	GD (Quincy)	68 00	95 00	
TAUTOG	SSN639	Ingalls	68 00	96 00	
BENJAMIN FRANKLIN*	SSBN640	Electric Boat (Groton)	65 00	93 00	
SIMON BOLIVAR*	SSBN641	Newport News	65 00	94 00	
GEORGE BANCROFT	SSBN643	Electric Boat (Groton)	65 00	93 00	
LEWIS AND CLARK*	SSBN644	Newport News	65 00	91 00	
GRAYLING	SSN646	Portsmouth	69 00	97 00	
ASPRO	SSN648	Ingalls	68 00	94 00	
SUNFISH	SSN649	GD (Quincy)	68 00	96 00	
PARGO*	SSN650	Electric Boat (Groton)	67 00	94 00	
QUEENFISH*	SSN651	Newport News	66 00	90 00	
PUFFER	SSN652	Ingalls	69 00	95 00	
RAY	SSN653	Newport News	67 00	92 00	
GEORGE C. MARSHALL*	SSBN654	Newport News	66 00	92 00	
HENRY L. STIMSON*	SSBN655	Electric Boat (Groton)	66 00	92 00	
GEORGE WASHINGTON CARVER*	SSBN656	Newport News	66 00	92 00	
FRANCIS SCOTT KEY*	SSBN657	Electric Boat (Groton)	66 00	93 00	
MARIANO G. VALLEJO*	SSBN658	Mare Island	66 00	94 00	
WILL ROGERS*	SSBN659	Electric Boat (Groton)	67 00	92 00	
LAPON	SSN661	Newport News	67 00	91 00	
GURNARD*	SSN662	Mare Island	68 00	94 00	
HAMMERHEAD*	SSN663	Newport News	67 00	94 00	
SEA DEVIL	SSN664	Newport News	68 00	91 00	
GUJARRO*	SSN665	Mare Island	72 00	91 00	
BERGALL	SSN667	Electric Boat (Groton)	69 00	95 00	
SPADEFISH	SSN668	Newport News	69 00	96 00	
SEA HORSE*	SSN669	Electric Boat (Groton)	69 00	95 00	
FINBACK	SSN670	Newport News	69 00	96 00	
FLYING FISH*	SSN673	Electric Boat (Groton)	69 00	95 00	

BLUEFISH	SSN675	Electric Boat (Groton)	70 00	95 00
DRUM	SSN677	Marc Island	71 00	95 00
SILVERSIDES	SSN679	Electric Boat (Groton)	71 00	94 00
GLENARD P. LIPSCOMB*	SSN685	Electric Boat (Groton)	74 00	90 00
RICHARD B. RUSSELL	SSN687	Newport News	74 00	93 00
BATON ROUGE	SSN689	Newport News	77 00	93 00
OMAHA	SSN692	Electric Boat (Groton)	77 00	95 00
CINCINNATI	SSN693	Newport News	77 00	94 00
GROTON	SSN694	Electric Boat (Groton)	77 00	96 00
NEW YORK CITY	SSN696	Electric Boat (Groton)	78 00	96 00
LONG BEACH (2 reactors)	CGN9	Bethlehem	61 00	94 00
BRAINBRIDGE (2 reactors)	CGN25	Bethlehem	62 00	95 00
TRUXTUN (2 reactors)	CGN35	NYSC	67 00	94 00
VIRGINIA (2 reactors)	CGN38	Newport News	76 00	94 00
TEXAS (2 reactors)	CGN39	Newport News	77 00	93 00
MISSISSIPPI (2 reactors)	CGN40	Newport News	78 00	96 00

*The defueled reactor compartment has been removed and placed in a government burial ground.

2. DEVELOPMENTAL POWER

A. Electric-Power Experiments and Prototypes

Name (Owner), Location	Designation	Power capacity net kW(e)	Authorized power kW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Reactor type, Principal nuclear contractor	Comment
Gas Cooled Reactor Experiment (DOE), INEEL Site, ID	GCRE		2,200.0	60 00	62 00	Gas cooled, light water moderated. AGN	No electricity was produced.
Mobile Low Power Plant No. 1 (DOE), INEEL Site, ID	ML-1	300.0	3,300.0	61 00	65 00	Gas cooled, light water moderated. AGN	
Stationary Low Power Plant No. 1 (DOE), INEEL Site, ID	SL-1	300.0	2,200.0	58 00	61 00	Boiling water. ANL	

B. Propulsion Experiments and Prototypes

Aircraft Reactor Experiment (DOE), Oak Ridge, TN	ARE		1,500.0	54 00	54 00	Molten salt. ORNL	
Destroyer Reactor Prototype (DOE), West Milton, NY	DIG			62 00	96 00	Pressurized water. Lockheed Martin (Formerly GE)	
Experimental Propulsion Test Reactor (DOE), NTS, NV	TORY IIA		150,000.0	60 00	61 00	Air cooled. LLNL	
Experimental Propulsion Test Reactor (DOE), NTS, NV	TORY IIC		600,000.0	64 00	64 00	Air cooled. LLNL	
Heat Transfer Reactor Experiment No. 1 (DOE), INEEL Site, ID	HTRE-1		20,000.0	56 00	57 00	Air cooled. ANPD	
Heat Transfer Reactor Experiment No. 2 (DOE), INEEL Site, ID	HTRE-2		14,000.0	57 00	61 00	Air cooled. ANPD	
Heat Transfer Reactor Experiment No. 3 (DOE), INEEL Site, ID	HTRE-3		32,000.0	58 00	61 00	Air cooled. ANPD	
Large Ship Reactor Prototype (2 reactors) (DOE), INEEL Site, ID	A1W			58 00	94 00	Pressurized water. West.	
Natural Circulation Test Plant (DOE), INEEL Site, ID	S5G			65 00	95 00	Pressurized water. West.	

The TORY IIC was successfully tested at full design power during 5/64. Subsequent to cancellation of the Pluto program 7/1/64, the reactor was placed in the Pluto disassembly building at NST for storage. In 1974 the reactor was transferred to the NERVA disassembly area for disassembly.

Small Submarine Reactor
Prototype (DOE), Windsor, CT
Submarine Advanced Reactor
Prototype (DOE), West Milton, NY
Submarine Intermediate Reactor
Mark A (DOE), West Milton, NY
Submarine Thermal Reactor Facility
(DOE), INEEL Site, ID

SIC 59 00 Pressurized water,
GE
S3G 58 00 Pressurized water,
GE
S1G 55 00 Sodium, GE
S1W 53 00 Pressurized water,
West.

3. TEST AND RESEARCH

A. Test

Name (Owner), Location	Designation	Power capacity net kW(e)	Authorized power kW(t)	Initial criticality (yr mo)	Shut down (yr mo)	Reactor type, Principal nuclear contractor	Comment
Aerospace Systems Test Reactor (USAF), Fort Worth, TX	ASTR		10,000.0	54 00	71 00	LWR, Convair	Detueled in 1971; decommissioning began in 1973 and was completed in 1974.
Ground Test Reactor (USAF), Fort Worth, TX	GTR		10,000.0	53 00	73 00	Pool, Convair	Decommissioning began in 1973 and was completed in 1974.
Nuclear Engineering Test Reactor (USAF), Dayton, OH	NETR		10,000.0	65 00	70 00	Tank, Maxon-AC	

B. Research

Army Materials Research Reactor (USA), Regulated by NRC, Watertown, MA	AMRR		5,000.0	60 00	70 00	Pool, BAC	Army Materials and Mechanics Research Center. License terminated 10/5/93.
Diamond Ordnance Radiation Facility (USA), Forest Glen, MD	DORF		250.0	61 00	77 00	TRIGA-Mk F, GA	Harry Diamond Laboratories.
Naval Research Reactor (USN), Regulated by NRC, Washington, DC [50-4]	NRR		1,000.0	56 00	70 00	Pool, NRL	License terminated 3/18/71.
Nuclear Effects Reactor (DOE), NTS, NV	Super KUKLA			64 00	79 00	Prompt burst, LLNL	Standby fuel in storage at ORNL.
Thermal Test Reactor No. 1 (DOE), Schenectady, NY	TTR-1		10.0	51 00	83 00	Graphite, KAPL	
Walter Reed Research Reactor (USA), Regulated by NRC, Washington, DC [50-135]	WRRR		50.0	62 00	70 00	Homogeneous, AI	Walter Reed Army Institute of Research. License terminated 7/26/72.

PART III MILITARY REACTORS

1. POWER REACTORS

A. Central-Station Electric Power Plants

Reactor Name (Owner), Location	NRC export license No. and date	Principal nuclear contractor, Reactor type	Power design net MW(e)	Power MW(t)	Author- ized power kW(t)	Initial criti- cality (yr mo)	Shut- down (yr mo)	Comment
France (Franco-Belgian Society for Nuclear Energy of Ardennes, SENA), Chooz		West/Fram., ACEC, Pressurized water	305.0	1,040.0		67 00	91 10	Decommissioning in process.
Germany, Kahl Nuclear Power Station (Rhine-Westphalia Power Co., RWE), Kahl-am-Main	XR-031 09/30/59	GE, Boiling water	15.6	60.0		61 00	85 00	

PART IV EXPORT REACTORS

Germany (Kernkraftwerk RWE-Bayernwerk, KRB1), Gundremmingen (near Gunzburg)	XR-052 05/28/64	GE.	237.0	801.0	67.00	80.00	Shut down and monitored since 1/87.
Italy, Caorso Nuclear Station (ENEL), Piacenza/Cremona	XR-077 04/02/71	GE.	840.0	2,651.0	79.00	87.01	
Italy, Garigliano Nuclear Power Station (Project ENEL of SENN), Punta Fiume (on Garigliano River)	XR-043 08/16/61	GE.	150.0	506.0	64.00	78.00	
Italy, Trino Vercellese (ENEL), Trino, Piedmont	XR-044 06/14/62	West.	247.0	870.0	65.00	87.01	
Japan Power Demonstration Reactor (JAERD), Tokai-Mura, Ibaraki Pref.	XR-045 03/16/62	GE.	12.0	90.0	63.08	83.01	Shut down and monitored since 1/87.
Netherlands, Dodewaard (GKN), Dodewaard, Betsuwe	XR-058 09/15/65	GE.	55.0	183.0	68.06	97.03	
Westinghouse was the designer of the reactor. Designation: S5W. No power levels available. As of 2/90 the reactor has been defueled and is not in operational condition.							Permanently shut down.

B. Propulsion

Great Britain, S5W for HMS DREADNOUGHT.

2. TEST, RESEARCH, AND TEACHING

A. General Irradiation Test

(No reactors currently in this category)

B. General Research

Belgium, BR-3, Mol (AMITAS), Mol	XR-024 11/06/58	Pressurized water	10.5				The reactor contains some fuel and is still under IAEA jurisdiction.
Berlin, City of (Institute for Nuclear Research), Berlin	XR-012 09/07/57	Al. L-54		50.0	58.00	70.00	
Denmark, DR-2 (Risø National Laboratory), Risø	XR-006 04/04/57	FW, Tank		5,000.0	58.00	75.00	
Germany, FRG-1 (GKSS-Forschungszentrum Geesthacht G.m.b.H.), Geesthacht	XR-008 06/10/57	B&W, Research Reactor		5,000.0	58.10	n.d.	
Italy (Center for Military Application of Nuclear Energy), Near Pisa	XR-036 12/17/59	B&W, Pool			63.00	80.00	Power: Pulsing.
Italy (European Community Commission), Ispra	XR-007 05/17/57	AC, Heavy water, tank		5,000.0	59.00	89.00	
Italy (Fiat TTG), Saluggia	XR-016 12/06/57	AMF, Pool		7,000.0	59.00	73.00	
Italy (Italian Agency for New Technology, Energy and the Environment), Casaccia	XR-051 04/20/64	AMF, Pool			71.00	79.00	
Japan (Japan Atomic Energy Research Institute), Tokai-Mura, Ibaraki Pref.	XR-001 11/02/56	Al. L-54		50.0	57.08	69.11	Negligible power.
Vietnam (Vietnam Institute of Nuclear Research), Dalat	XR-032 10/10/59	GA, TRIGA-Mk II		250.0	63.00	73.00	

C. University Research and Teaching

Germany (Association for Radiation Research), Munich	XR-075 01/14/71	GA, TRIGA-Mk III		1,000.0	72 00	82 00	This reactor was sold through Gulf Oil licensee, Gutehoffnungshutte Sterkrade A.E.
Germany (Brown Boveri/Krupp), Jülich	XR-062 07/28/66	Al. L-77A			64 00	77 00	This L-77 reactor was operated in the commercial exhibit of the 1958 International Conference in Geneva and in the USAEC Atoms for Peace Exhibits in Beirut, Lebanon, 10/61; in Athens, Greece, 5/62, and in Bangkok, Thailand, 11/62.

Germany (Universities of Frankfurt and Darmstadt), Frankfurt	XR-009 05/01/57	AI. L-54	50.0	58 00	68 00
Italy (University of Milan), Milan	XR-022 08/13/58	AI. L-54	50.0	59 00	86 00
Switzerland (University of Geneva), Geneva		AGN. AGN-201-111		58 00	87 00
Negligible power. The AGN-201-111 was operated first in the USAEC Atoms for Peace Exhibit in Rome, Italy, 7/58, and later in the commercial exhibit of the 1958 International Conference in Geneva prior to transfer to the University of Geneva.					
United Kingdom (Queen Mary College, London University), London	XR-049 02/13/64	AS Inc. UTR-B	100.0	65 00	82 00

1. CIVILIAN

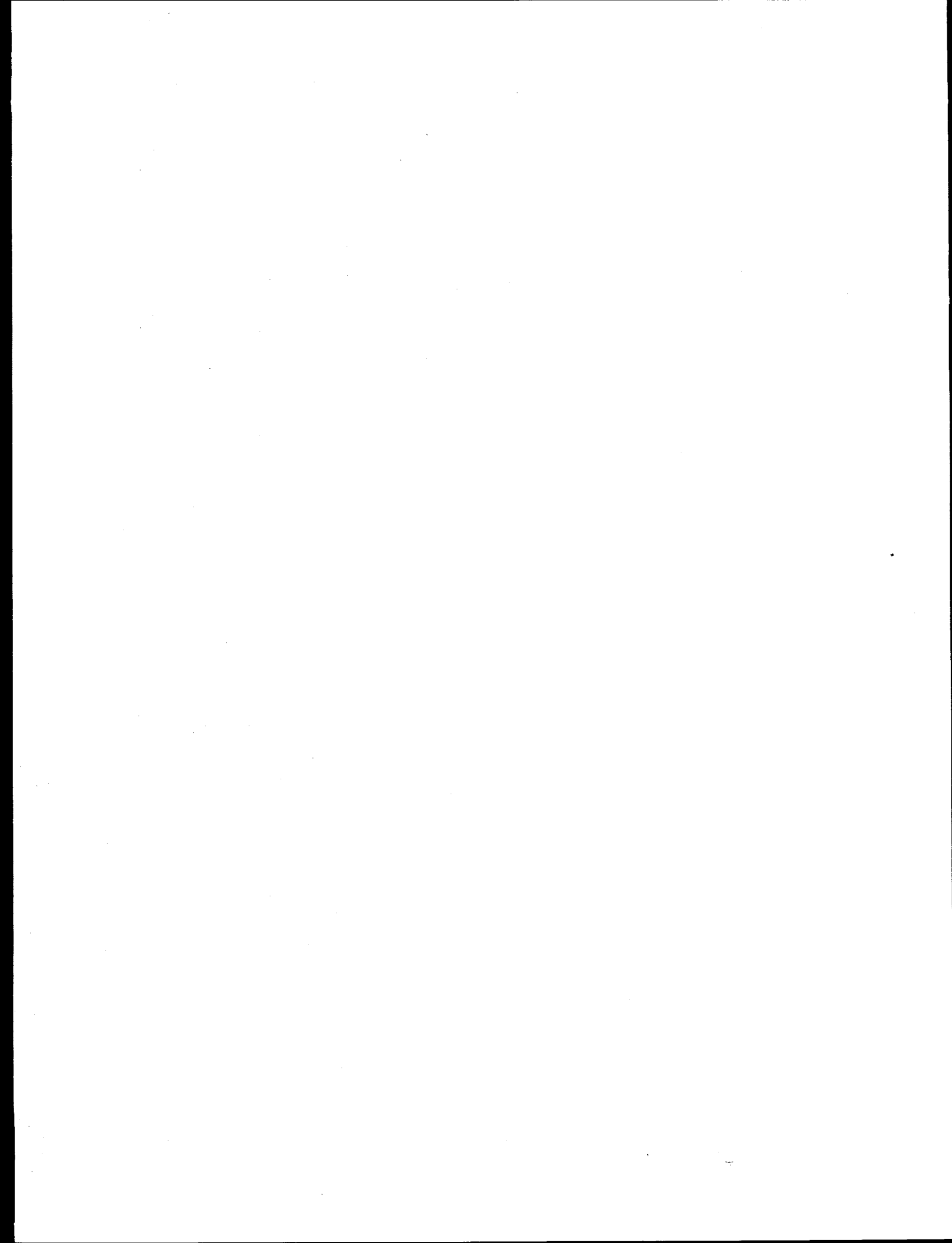
PART V CRITICAL ASSEMBLIES

Facility (Regulatory Agency) [docket number]	Designation	Location	Equipment		Abbreviation	Initial criticality (yr mo)	Shut- down (yr mo)	Comment
			No. of cells	No. control panels/ room				
Bettis Atomic Power Laboratory (DOE) Critical Facility-10, Lynchburg Research Center (NRC) [50-13]	LWBCC SSRF	Pittsburgh, PA Lynchburg, VA	3 2	3 1	Bettis CX-10	63 00 77 00	80 00 88 02	LWB physics. Close storage of spent reactor fuel. License terminated 2/88.
Los Alamos National Laboratory (DOE)	Parka	Pajarito Site, Los Alamos, NM	3	3	LANL, Kiva III	63 00	85 00	Cold critical for instrumentation testing. Defueled.
Los Alamos National Laboratory (DOE)	Venus	Pajarito Site, Los Alamos, NM	1	1	LANL, Kiva I	76 00	88 00	Vertical table assembly machine.
Oak Ridge Critical Experiments Facility (DOE)	CEF	Oak Ridge, TN	1	1	OR-CEF	50 00	92 00	Shut down—Defueled.
ORNL Pool Critical Assembly, BSF Pool (DOE)	PCA	Oak Ridge, TN	1	1	ORNL-PCA	58 00	92 00	Shut down—To be defueled.
PNNL Critical Mass Laboratory (DOE)	FEAS	Hanford Site, WA	1	1	PNNL-CML	76 00	90 00	The Critical Mass Laboratory was used to experiment with liquid plutonium solutions. It was shut down in 1990 and transferred to the surplus facilities program for decontamination and decommissioning. See FEAS reactor.
PNNL Critical Mass Laboratory (DOE)	Horizontal	Hanford Site, WA	1	1	PNNL-CML	61 00	90 00	
PNNL Critical Mass Laboratory (DOE)	RSTM	Hanford Site, WA	1	1	PNNL-CML	63 00	90 00	See FEAS reactor.
United Nuclear Corporation, Development Division (NRC) [50-290]	PTF	Pawling, NY	4	3	UNC	67 00	72 00	Proft test facility. License 50-290 terminated 6/25/74. Material license (SNM-871) terminated 7/14/75.
Zero Power Physics Reactor Idaho Division (DOE)	ZPPR	INEL Site, ID	1	1	ANL-IDAHO	69 00	94 09	

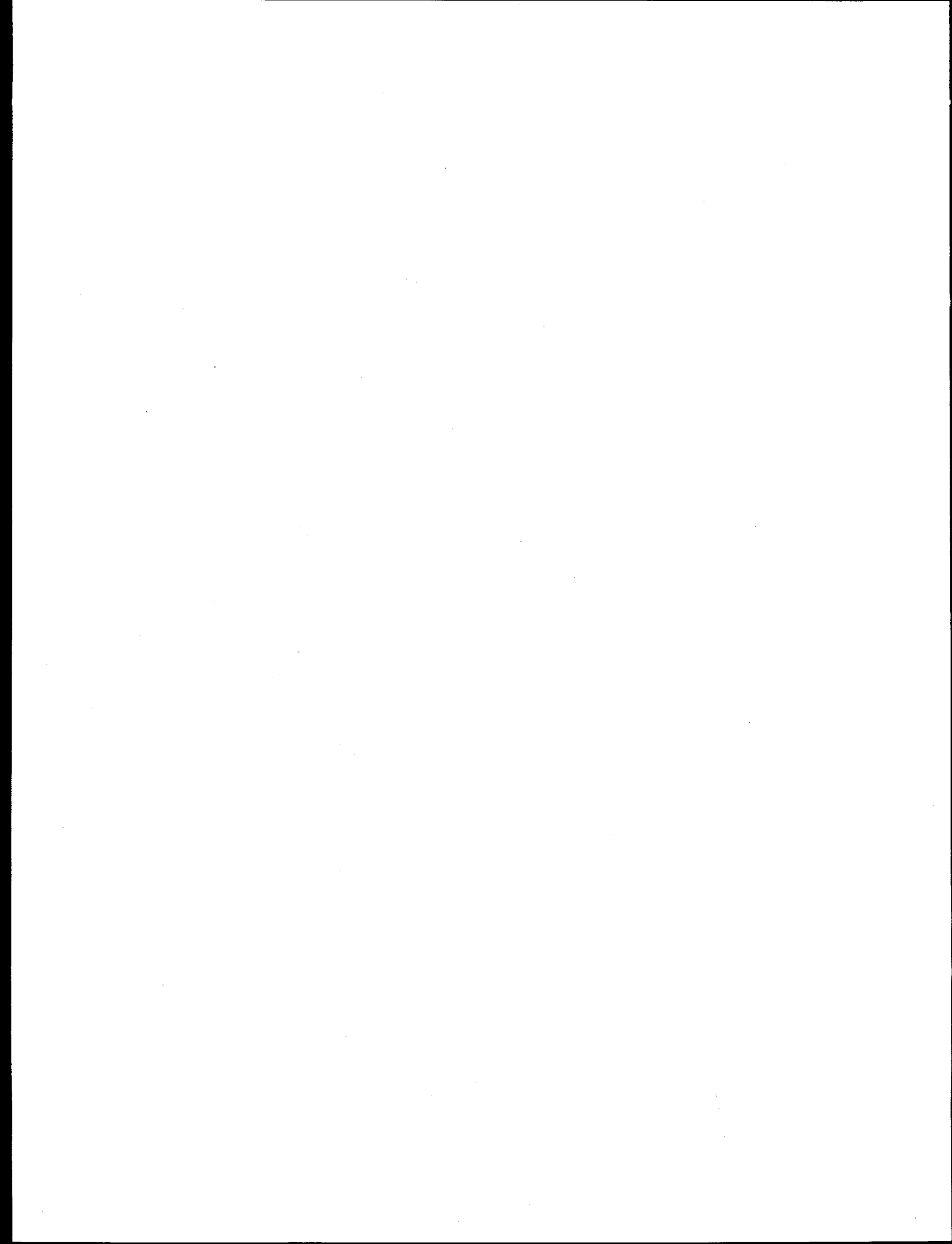
Zero Power Reactor No. 6 (DOE)	ZPR-6	Argonne, IL	2	2	ANL	63 00	82 07	Basic fast reactor studies and mock-up for LMFBR. Basic fast reactor studies and mock-up for LMFBR. Zero-power experiments of historical interest previously conducted in ANL facility cells include the NAUTILUS core design (ZPR-1), the Savannah River reactor design (ZPR-2), and a series of fast-neutron studies (ZPR-4) and interactions between two basic systems (ZPR-5). The following experiments were performed in the ZPR-7 the Argonne High Flux Research Reactor.
Zero Power Reactor No. 9 (DOE)	ZPR-9	Argonne, IL	2	2	ANL	67 00	82 00	

2. MILITARY

Bettis Atomic Power Laboratory (DOE)	HTTF	Pittsburgh, PA			Bettis	59 00	84 00	Surface-ship physics. Surface-ship physics. Full core physics experiment. Flexible critical experiments. High-temperature high-pressure physics and mock-up. License terminated 9/1/60. Critical-configuration safety tests. Critical-configuration safety tests.
Bettis Atomic Power Laboratory (DOE)	SS-CF	Pittsburgh, PA			Bettis	57 00	76 00	
Knolls Atomic Power Laboratory (DOE)	FCPE	Schenectady, NY	2	1	KAPL	70 00	95 00	
Knolls Atomic Power Laboratory (DOE)	FPR	Schenectady, NY			KAPL	56 00	75 00	
Knolls Atomic Power Laboratory (DOE)	PTR	Schenectady, NY			KAPL	58 00	76 00	
Lockheed Aircraft Co., Critical Facility for RER (NRC)	CERF	Dawsonville, GA	1	1	Lockheed	58 00	60 09	
Nuclear Safety Facility, Rocky Flats Plant (DOE)	Vertical/ Split Table	Golden, CO			RFP-NSF	65 00	92 00	
Nuclear Safety Facility, Rocky Flats Plant (DOE)	Water Reflector Tank	Golden, CO			RFP-NSF	65 00	92 00	



REACTOR INDEX



REACTOR INDEX

A1W, 45
 ABRAHAMLINCOLN
 CVN72 (2 reactors), 13
 SSBN602, 43
 Accelerator Pulsed Fast Critical Assembly
 APFA-III, 35
 ACF Industries, Inc., Massachusetts Institute of Technology, 9
 ACRR (Annular Core Pulsed Reactor), 35
 ACRR (Annular Core Research Reactor), 8
 Advanced Energy Research Institute, Korea
 XR-027, 20
 XR-073, 20
 Advanced Reactivity Measurement Facility
 ARMF, 7
 Advanced Test Reactor, ATR, 6
 Advanced Test Reactor Critical Facility
 ATRC, 22
 Aerojet-General Corporation
 Ground Experimental Engine Experiment, 33
 Nuclear Rocket Engine Reactor Experiment
 (NERVA), 33
 Nuclear Rocket Reactor Engine System Test
 (NERVA), 33
 Aerojet-General Nuclear
 Argonne National Laboratory, 36
 California Polytechnic State University, 39
 Catholic University of America, 39
 Colorado State University, 39
 Delaware, University of, 39
 Gas Cooled Reactor Experiment, 45
 Georgia Institute of Technology, 39
 Idaho State University, 8
 Italy, University of Palermo, 22
 Korea, University of Kyung Hee, 22
 Memphis State University, 40
 Mobile Low Power Plant No. 1, 45
 New Mexico, University of, 9
 Oklahoma, University of, 40
 Oregon State University, 40
 Polytechnic Institute of New York, 40
 Switzerland
 Basel, University of, 22
 Geneva, University of, 48
 Texas A&M University, 9
 Tuskegee Institute, 41
 Utah, University of, 41
 West Virginia University, 41
 William Marsh Rice University, 41
 Aerospace Systems Test Reactor, ASTR, 46

Aerolest Operations, Inc., AGNIR, 7
 AFRR1 (Armed Forces Radiobiology Research Institute), 15
 AFSR (Argonne Fast Source Reactor), 35
 AGN-201-100, California Polytechnic State University, 39
 AGN-201-101, Catholic University of America, 39
 AGN-201-102, Tuskegee Institute, 41
 AGN-201-104, Georgia Institute of Technology, 39
 AGN-201-107, Utah, University of, 41
 AGN-201-108
 Argonne National Laboratory, 36
 Memphis State University, 40
 AGN-201-109, Colorado State University, 39
 AGN-201-113, Delaware, University of, 39
 AGN-201-114, Oregon State University, 40
 AGN-201M-105, Polytechnic Institute of New York, 40
 AGN-201M-106, Texas A&M University, 9
 AGN-201M-112, New Mexico, University of, 9
 AGN-201P-103, Idaho State University, 8
 AGN-211-101, William Marsh Rice University, 41
 AGN-211-102, Oklahoma, University of, 40
 AGN-211-103, West Virginia University, 41
 AGNIR, 7
 Aircraft Reactor Experiment, ARE, 45
 ALABAMA, SSBN731, 12
 ALASKA, SSBN732, 12
 Albania, Tirana, XR-154, 21
 ALBANY, SSBN753, 13
 ALBUQUERQUE, SSBN706, 12
 Alco Products Inc.
 Portable Medium Power Plant, No. 2A, 42
 Stationary Medium Power Plant
 No. 1, 43
 No. 1A, 43
 ALEXANDER HAMILTON, SSBN617, 44
 ALEXANDRIA, SSBN757, 13
 Allis-Chalmers Mfg. Co.
 Elk River Reactor, 27
 Experimental Gas Cooled Reactor, 30
 Italy, European Community Commission, 47
 La Crosse (Genoa) Nuclear Generating Station, 27
 Nuclear Engineering Test Reactor, 46
 Pathfinder Atomic Plant, 28
 South Africa, Safart-1, 19
 Sweden, 19

Almaraz
 Unit 1, XR-088, 17
 Unit 2, XR-088, 17
 ALRR (Ames Laboratory Research Reactor), 34
 Alvin W. Vogtle Nuclear Plant
 Unit 1, 1
 Unit 2, 1
 American Radiator
 Australia, Moata, 19
 Japan, 22
 American Radiator & Standard Sanitary Corp.,
 UTR Test Reactor, 39
 American Standard Inc., UTR-1, 35
 Ames Laboratory Research Reactor, ALRR, 34
 AMF Atomics, Inc.
 Ames Laboratory Research Reactor, 34
 Austria, Astra, 19
 Battelle Memorial Institute, 36
 California, Los Angeles, 39
 Canada, 21
 Cintichem, Inc. Reactor, 34
 Germany, FRG Gersching, 21
 Greece, Democritos, 20
 Industrial Reactor Laboratories, Inc., 34
 Iran, University of Tehran, 21
 Israel, Atomic Energy Commission, 20
 Italy
 Casaccia, 47
 Saluggia, 47
 Japan, JRR-2, 19
 Manhattan College, 9
 Netherlands, 22
 North Carolina State University, 9
 Pakistan, PARR, 20
 Portugal, RP-1, 20
 State University of New York, 9
 Turkey, 21
 Washington, University of, 41
 AMITAS, Belgium, BR-3, Mol, XR-024, 47
 AMRR (Army Materials Research Reactor), 46
 ANDREW JACKSON, SSBN619, 44
 ANNAPOLIS, SSBN760, 13
 Annular Core Pulsed Reactor, ACPR, 35
 Annular Core Research Reactor, 8
 APFA-III (Accelerator Pulsed Fast Critical Assembly), 35
 APRF (Army Pulse Radiation Facility), 15
 ARCHERFISH, SSBN678, 11

ARE, 45
 Argonaut (CP-11), 36
 Argonne CP-3, rebuilt as CP-3, 36
 Argonne Fast Source Reactor, AFSR, 35
 Argonne Low Power Research Reactor, Juggernaut, 35
 Argonne National Laboratory, AGN-201-108, 36
 Argonne Nuclear Assembly for University Training, Argonaut (CP-11), 36
 Argonne Thermal Source Reactor, ATSR, 36
 Arizona Public Service Co.,
 Palo Verde Nuclear Generating Station
 Unit 1, 3
 Unit 2, 3
 Unit 3, 3
 Arizona, University of, 8
 ARKANSAS (2 reactors), CGN41, 13
 Arkansas Nuclear One
 Unit 1, 1
 Unit 2, 1
 Armed Forces Radiobiology Research Institute, DNA, AFRR1, 15
 ARMF (Advanced Reactivity Measurement Facility), 7
 Armour Research Foundation, Illinois Institute of Technology Research Institute, 37
 Army Materials and Mechanics Research Center, 46
 Army Materials Research Reactor, AMRR, 46
 Army Pulse Radiation Facility, APRF, 15
 ARR (I-54) (Armour Research Reactor), 37
 AS Inc.
 American Standard Inc., 35
 Iowa State University, 9
 United Kingdom, 48
 Virginia Polytechnic Institute, 41
 ASHEVILLE, SSBN758, 13
 ASPRO, SSBN648, 44
 Associated Universities, Inc.
 Brookhaven Graphite Research Reactor, 36
 Brookhaven Neutron Source Reactor
 No. 1, 36
 No. 2, 36
 Association for Radiation Research, Germany, XR-075, 47
 ASTR (Aerospace Systems Test Reactor), 46
 Ateliers de Construction Electrique de Charleroi S.A. (ACEC)
 Belgium, Tihange, Unit 1, 15
 France, 46
 ATLANTA, SSBN712, 12

REACTOR INDEX (Continued)

Atomic Energy Board, South Africa, Safari-1, XR-042, 19	Babcock & Wilcox Co. (Continued)	Belgium (Continued)	Brookhaven Neutron Source Reactor
Atomies International	Bellefonte Nuclear Plant	Tihange	No. 1, SCHIZO, 36
Atomies International, 36	Unit 1, 5	Unit 1, 15	No. 2, PHRENIC, 36
Berlin, City of, 47	Unit 2, 5	Unit 3, 15	Brown Boveri/Krupp, Germany, XR-062, 47
Brigham Young University, 39	Brazil, University of Sao Paulo, 21	Bellefonte Nuclear Plant	Browns Ferry Nuclear Power Station
California, Santa Barbara, University of, 39	Crystal River Nuclear Plant, Unit 3, 2	Unit 1, 5	Unit 1, 1
Denmark, DR-1, 19	Davis-Besse Nuclear Power Station, Unit 1, 2	Unit 2, 5	Unit 2, 1
Experimental Organic Cooled Reactor, 30	Germany, FRG-1, 47	Bendix Aviation Corp.,	Unit 3, 1
Hallam Nuclear Power Facility, Sheldon Station, 27	Indian Point Station, Unit 1, 27	Army Materials Research Reactor, 46	BRR (Battelle Research Reactor), 36
Illinois Institute of Technology Research Institute, 37	Italy, Center for Military Application of Nuclear Energy, 47	Kansas, University of, 40	Brunswick Steam Electric Plant
Italy, 47	Lynchburg Pool Reactor, LRP, 36	BENJAMIN FRANKLIN, SSB640, 44	Unit 1, 1
Kinetic Experiment on Water Boilers, 37	Michigan, University of (Ford Nuclear Reactor), 9	BERGALL, SSN667, 44	Unit 2, 1
Livermore Water Boiler, 37	Nuclear Development Center Test Reactor, 34	Berlin, City of, XR-012, 47	BSR (Bulk Shielding Reactor), 36
Nevada, University of, 40	Oconee Nuclear Station	Bernische Kraftwerke AG, Switzerland, Muhleberg, XR-068, 17	BUFFALO, SSN715, 12
Nuclear Examination Reactor, 38	Unit 1, 3	Bethlehem Steel Co., Shipbuilding Division	University of New York, 9
Organic Moderated Reactor Experiment, 31	Unit 2, 3	BAINBRIDGE (2 reactors), 45	Bulk Shielding Reactor, BSR, 36
Piqua Nuclear Power Facility, 28	Unit 3, 3	LONG BEACH (2 reactors), 45	Burns & Roe, Inc., National Institute of Standards & Technology, 7
Puerto Rico Nuclear Center, 40	Unit 1, 28	Bettis Atomic Power Laboratory	Byron Station
Rockwell International, 38	Rancho Seco Nuclear Generating Station, Unit 1, 28	HTTF, 49	Unit 1, 1
Shield Test and Irradiation Reactor, 38	Three Mile Island Nuclear Station	LWBCC, 48	Unit 2, 1
SNAP-02 Developmental System, 32	Unit 1, 5	SS-CF, 49	C Reactor
SNAP-02 Experimental Reactor, 32	Unit 2, 28	Big Rock Point Nuclear Plant, 1	Aiken, 41
SNAP-08 Developmental Reactor, 32	Virginia, University of, 10	Big Ten, 22	Richland, 41
SNAP-08 Experimental Reactor, 32	Washington Nuclear Project, Unit 1, 5	BILLFISH, SSN676, 11	C.E.N., Maamora, Morocco, XR-158, 21
SNAP-10A Flight System	BAINBRIDGE (2 reactors), CGN25, 45	BLUEFISH, SSN675, 45	California
SI0FS-4, 32	Baltimore Gas & Electric Co., Calvert Cliffs Nuclear Power Plant	Boiling Nuclear Superheater Power Station, 27	Berkeley, University of, TRIGA-Mk III, 39
SI0FS-5, 32	Unit 1, 1	Boiling Reactor Experiments	Engineering and Applied Science, Educator, 39
SNAP-10A Flight System Ground Test	Unit 2, 1	BORAX-2, -3, -4, 29	Irvine, University of, TRIGA-Mk I, 8
No. 1, 32	BALTIMORE, SSN704, 12	No. 1, BORAX-1, 29	Los Angeles, University of, School of
No. 3, 32	Bangladesh, Institute of Nuclear Technology, XR-126, 19	No. 5, BORAX-5, 29	Santa Barbara, University of, L-77, 39
SNAP-10A Transient Test No. 3, 35	BARB, SSN596, 43	BOISE, SSN764, 13	CALIFORNIA (2 reactors), CGN36, 13
Sodium Reactor Experiment, 31	Basel, University of, Switzerland, 22	BORAX Reactors, 29	California Polytechnic State University, AGN-201-100, 39
Walter Reed Research Reactor, 46	BATFISH, SSN681, 11	Boston Edison Co., Pilgrim Nuclear Power Station, Unit 1, 4	Callaway Plant, Unit 1, 1
Wyoming, University of, 41	BATON ROUGE, SSN689, 45	BOSTON, SSN703, 12	Calvert Cliffs Nuclear Power Plant
ATR (Advanced Test Reactor), 6	Battelle Memorial Institute, BRR, 36	Braidwood Station	Unit 1, 1
ATRC (Advanced Test Reactor Critical Facility), 22	BAWTR (Babcock & Wilcox Test Reactor), 34	Unit 1, 1	Unit 2, 1
ATSR (Argonne Thermal Source Reactor), 36	Beaver Valley Power Station	Unit 2, 1	Canada, McMaster University, XR-011, 21
AUGUSTA, SSN710, 12	Unit 1, 1	Agra 1, Central Electrica de Furnas, XR-081, 15	CARL VINSON (2 reactors), CVN70, 13
Australia, Moata, XR-039, 19	Unit 2, 1	Minas Gerais, University of, 21	Carolina Power & Light Co.
Austria	Belgium	Sao Paulo, University of, 21	Brunswick Steam Electric Plant
Asstra, XR-023, 19	BR-3, Mol, 47	BREMERTON, SSN698, 11	Unit 1, 1
Vienna Polytechnic Institute, XR-035, 21	Doel	Brigham Young University, L-77, 39	Unit 2, 1
B Reactor, Richland, 41	Doel	Brookhaven Graphite Research Reactor, 36	H.B. Robinson Plant, Unit 2, 2
Babcock & Wilcox Co.	Unit 1, 15	Brookhaven Medical Research Reactor, 7	Shearon Harris Nuclear Power Plant, Unit 1, 4
Arkansas Nuclear One, Unit 1, 1	Unit 2, 15	Brookhaven National Laboratory	
	Unit 4, 15	Fast Neutron Source Reactor, 37	
		High Flux Beam Reactor, 7	

REACTOR INDEX (Continued)

- Carlinas-Virginia Nuclear Power Associates, Inc., Carolinas-Virginia Tube Reactor, 27
CASIMIR PULASKI, SSBN633, 44
Catawba Nuclear Station
Unit 1, 1
Unit 2, 2
Catholic University of America, AGN-201-101, 39
CAVALIER, 41
CAVALLA, SSN684, 11
CEF (Critical Experiments Facility), 48
Center for Military Application of Nuclear Energy, Italy, XR-036, 47
Centrales Nucleares del Norte, S.A., Nuclenor, Spain, Santa Maria de Garona, XR-064, 17
CERF (Critical Experiments Research Facility, Lockheed Aircraft), 49
CFRME (Coupled Fast Reactivity Measurement Facility), 7
CHARLOTTE, SSN766, 13
CHEYENNE, SSN773, 13
CHICAGO, SSN721, 12
Chicago Pile No. 5, CP-2, 36
Chicago Pile No. 5, CP-5, 34
China, Republic of, XR-020, 21
CINCINNATI, SSN693, 45
Cintichem, Inc. Reactor, CINR, 34
CITY OF CORPUS CHRISTI, SSN705, 12
Clementine, 37
Cleveland Electric Illuminating Co.
Perry Nuclear Power Plant
Unit 1, 4
Unit 2, 5
Clinton Laboratory, Oak Ridge Graphite Reactor, 38
Clinton Power Station, Unit 1, 2
Colombia, INEA-R1, XR-164, and XSNM-02858, 19
Colorado State University, AGN-201-109, 39
COLUMBIA, SSN771, 13
Columbia University, TRIGA-Mk II, 39
COLUMBUS, SSN762, 13
Comanche Peak Steam Electric Station
Unit 1, 2
Unit 2, 2
Combustion Engineering Inc.
Arkansas Nuclear One, Unit 2, 1
Carlinas-Virginia Nuclear Power Associates, Inc., Carolinas-Virginia Tube Reactor, 27
CASIMIR PULASKI, SSBN633, 44
Catawba Nuclear Station
Unit 1, 1
Unit 2, 2
Catholic University of America, AGN-201-101, 39
CAVALIER, 41
CAVALLA, SSN684, 11
CEF (Critical Experiments Facility), 48
Center for Military Application of Nuclear Energy, Italy, XR-036, 47
Centrales Nucleares del Norte, S.A., Nuclenor, Spain, Santa Maria de Garona, XR-064, 17
CERF (Critical Experiments Research Facility, Lockheed Aircraft), 49
CFRME (Coupled Fast Reactivity Measurement Facility), 7
CHARLOTTE, SSN766, 13
CHEYENNE, SSN773, 13
CHICAGO, SSN721, 12
Chicago Pile No. 5, CP-2, 36
Chicago Pile No. 5, CP-5, 34
China, Republic of, XR-020, 21
CINCINNATI, SSN693, 45
Cintichem, Inc. Reactor, CINR, 34
CITY OF CORPUS CHRISTI, SSN705, 12
Clementine, 37
Cleveland Electric Illuminating Co.
Perry Nuclear Power Plant
Unit 1, 4
Unit 2, 5
Clinton Laboratory, Oak Ridge Graphite Reactor, 38
Clinton Power Station, Unit 1, 2
Colombia, INEA-R1, XR-164, and XSNM-02858, 19
Colorado State University, AGN-201-109, 39
COLUMBIA, SSN771, 13
Columbia University, TRIGA-Mk II, 39
COLUMBUS, SSN762, 13
Comanche Peak Steam Electric Station
Unit 1, 2
Unit 2, 2
Combustion Engineering Inc.
Arkansas Nuclear One, Unit 2, 1
Combustion Engineering Inc. (Continued)
Boiling Nuclear Superheater Power Station, 27
Calvert Cliffs Nuclear Power Plant
Unit 1, 1
Unit 2, 1
Fort Calhoun Station, Unit 1, 2
Korea
Ulchin 3, 18
Ulchin 4, 18
Yonggwang-3, 18
Yonggwang-4, 18
Yonggwang-5, 18
Yonggwang-6, 18
Maine Yankee Atomic Power Plant, 3
Millstone Nuclear Power Station, Unit 2, 3
Palisades Nuclear Plant, Unit 1, 3
Palo Verde Nuclear Generating Station
Unit 1, 3
Unit 2, 3
Unit 3, 3
St. Lucie Plant
Unit 1, 4
Unit 2, 4
San Onofre Nuclear Generating Station
Unit 2, 4
Unit 3, 4
Waterford Generating Station, Unit 3, 5
Connect, 22
Commonwealth Edison Co.
Braidwood Station
Unit 1, 1
Unit 2, 1
Byron Station
Unit 1, 1
Unit 2, 1
Dresden Nuclear Power Station
Unit 1, 27
Unit 2, 2
Unit 3, 2
La Salle County Station
Unit 1, 3
Unit 2, 3
Quad-Cities Station
Unit 1, 4
Unit 2, 4
Zion Nuclear Plant
Unit 1, 5
Unit 2, 5
CONNECTICUT, SSN22, 14
Connecticut Yankee Atomic Power Co., Haddam Neck Plant, 27
Consolidated Edison Co. of New York, Inc.
Indian Point Station
Unit 1, 27
Unit 2, 2
Consumers Power Co.
Big Rock Point Nuclear Plant, 1
Palisades Nuclear Plant, Unit 1, 3
Consumers Public Power District, Hallam
Nuclear Power Facility, Sheldon Station, 27
Convair Division, General Dynamics Corp.
Aerospace Systems Test Reactor, 46
Ground Test Reactor, 46
Cook Electric Company, North Carolina State University, 40
Cook Nuclear Power Plant
Unit 1, 2
Unit 2, 2
Cooper Nuclear Station, 2
Cornell University, TRIGA-Mk II, 8
Cornell University Zero Power Reactor, ZPR, 8
Coupled Fast Reactivity Measurement Facility, CFRMF, 7
CP-2 (Chicago Pile), 36
CP-3, 35
CP-5, 34
Critical Experiments Research Facility, Oak Ridge, 49
Critical Facility-10, Lynchburg Research Center, SSRF, 48
Crystal River Nuclear Plant, Unit 3, 2
Curtiss-Wright Corporation, Missouri at Rolla, University of, 9
Curtiss-Wright Nuclear Research Laboratory of the Commonwealth of Pennsylvania, CWRRL, 36
D Reactor, Richland, 41
DACE, SSN607, 43
Dairyland Power Cooperative, La Crosse (Genoa) Nuclear Generating Station, 27
DALLAS, SSN700, 11
DANIEL BOONE, SSBN629, 44
DANIEL WEBSTER, ex-SSBN626, 11
Darmstadt, University of, Germany, 48
Davis-Besse Nuclear Power Station, Unit 1, 2
Daystrom, Inc., Brookhaven Medical Research Reactor, 7
Deep Submergence Research Vehicle, NR-1, 13
Delaware, University of, AGN-201-113, 39
Delft Technical University, Netherlands, XR-003, 22
Demonstration Reactor, 36
Denmark
DR-1, XR-005, 19
DR-2, XR-006, 47
Department of Defense (DOD), Armed Forces Radiobiology Research Institute, 15
Department of the Interior, U.S. Geological Survey Laboratory, 8
Destroyer Reactor Prototype, DIG, 45
Detroit Edison Co., Enrico Fermi Atomic Power Plant, Unit 2, 2
Diablo Canyon Nuclear Power Plant
Unit 1, 2
Unit 2, 2
Diamond Ordnance Radiation Facility, DORF, 46
DOE Demonstration Reactor, Oak Ridge, 36
Donald C. Cook Nuclear Power Plant
Unit 1, 2
Unit 2, 2
DORF (Diamond Ordnance Radiation Facility), 46
Dow Chemical Co., TRIGA-Mk I, 7
DR Reactor, Richland, 41
Dresden Nuclear Power Station
Unit 1, 27
Unit 2, 2
Unit 3, 2
DRUM, SSN677, 45
Du Pont de Nemours & Company, Inc., E.I.
B Reactor, 41
C Reactor, 41
D Reactor, 41
F Reactor, 41
Hanford 305 Test Reactor, 42
Heavy Water Components Test Reactor, 31
K Reactor, 41
L Reactor, 41
Lattice Test Reactor, 42
P Reactor, 41
Process Development Pile, 42
R Reactor, 41
SR 305-M Test Pile, 42
Standard Pile/Subcritical Experimental Complex, 42
Duane Arnold Energy Center, Unit 1, 2
Duke Power Co.
Catawba Nuclear Station
Unit 1, 1
Unit 2, 2

REACTOR INDEX (Continued)

- Duke Power Co. (Continued)
Oconee Nuclear Station
Unit 1, 3
Unit 2, 3
Unit 3, 3
William B. McGuire Nuclear Station
Unit 1, 5
Unit 2, 5
Duquesne Light Co., Ohio Edison Co.
Beaver Valley Power Station
Unit 1, 1
Unit 2, 1
Shippingport Atomic Power Station, 28
Dwight D. Eisenhower (2 reactors),
CVN69, 13
EAEP, 36
EBOR (Experimental Beryllium Oxide Reactor),
30
EBR-I (Experimental Breeder Reactor), 30
EBR-II (Experimental Breeder Reactor), 30
EBWR (Experimental Boiling Water Reactor), 30
Educator
California, Los Angeles, University of
Engineering and Applied Science, 39
Washington, University of, 41
Edwin I. Hatch Nuclear Plant
Unit 1, 2
Unit 2, 2
EG&G Idaho, Inc.
Loss of Fluid Test, 35
Power-Burst Facility, 35
EGCR (Experimental Gas Cooled Reactor), 30
Elk River Reactor, 27
Empire States Atomic Development Associates
and GE, ESADA Vallecitos Experimental
Superheat Reactor, 29
ENEL, Italy
Caorso Nuclear Station, XR-077, 47
Trino Vercellese, XR-044, 47
Energy Center, Netherlands, XR-017, 19
Engineering Test Reactor, ETR, 34
England
Imperial Chemical Industries, XR-074, 19
Sizewell B, XR-148, 15
Enrico Fermi Atomic Power Plant
Unit 1, 27
Unit 2, 2
Arkansas Nuclear One
Unit 1, 1
Unit 2, 1
Grand Gulf Nuclear Station, Unit 1, 2
Energy Operations Inc. (Continued)
River Bend Station, Unit 1, 4
Waterford Generating Station, Unit 3, 5
ENTERPRISE (8 reactors), CVN65, 13
EOCR, 30
ESADA Vallecitos Experimental Superheat
Reactor, EVESR, 30
ETHAN ALLEN, SSN608, 43
ETR (Engineering Test Reactor), 34
European Community Commission, Italy,
XR-007, 47
European-Asian Exhibit Program, EAEP, 36
EVESR ESADA (Vallecitos Experimental
Superheat Reactor), 30
Experimental Beryllium Oxide Reactor,
EBOR, 30
Experimental Boiling Water Reactor, EBWR, 30
Experimental Breeder Reactor No. 1, EBR-I, 30
Experimental Breeder Reactor II, EBR-II, 30
Experimental Gas Cooled Reactor, EGCR, 30
Experimental Organic Cooled Reactor, EOCR, 30
Experimental Propulsion Test Reactor
TORY IIA, 45
TORY IIC, 45
F Reactor, Richland, 41
Farley Nuclear Plant
Unit 1, 3
Unit 2, 3
Fast Burst Reactor Facility, FBRF, 15
Fast Flux Test Facility, FFTF, 34
Fast Neutron Source Reactor, BNLF-1, 37
FBRF (Fast Burst Reactor Facility), 15
FCPE (Full Core Physics Experiment), 49
Fermi Atomic Power Plant
Unit 1, 27
Unit 2, 2
FFTF (Fast Flux Test Facility), 34
Fiat TTG, Italy, XR-016, 47
FINBACK, SSN670, 44
Finland, Institute of Technology, XR-040, 21
FitzPatrick Nuclear Power Plant, 3
FLASHER, SSN613, 43
Flatop, 22
FLORIDA, SSN728, 12
Florida, University of, UFTF, 8
Florida Power & Light Co.
St. Lucie Plant
Unit 1, 4
Unit 2, 4
Turkey Point Plant
Unit 3, 5
Unit 4, 5
Duke Power Co. (Continued)
Oconee Nuclear Station
Unit 1, 3
Unit 2, 3
Unit 3, 3
William B. McGuire Nuclear Station
Unit 1, 5
Unit 2, 5
Duquesne Light Co., Ohio Edison Co.
Beaver Valley Power Station
Unit 1, 1
Unit 2, 1
Shippingport Atomic Power Station, 28
Dwight D. Eisenhower (2 reactors),
CVN69, 13
EAEP, 36
EBOR (Experimental Beryllium Oxide Reactor),
30
EBR-I (Experimental Breeder Reactor), 30
EBR-II (Experimental Breeder Reactor), 30
EBWR (Experimental Boiling Water Reactor), 30
Educator
California, Los Angeles, University of
Engineering and Applied Science, 39
Washington, University of, 41
Edwin I. Hatch Nuclear Plant
Unit 1, 2
Unit 2, 2
EG&G Idaho, Inc.
Loss of Fluid Test, 35
Power-Burst Facility, 35
EGCR (Experimental Gas Cooled Reactor), 30
Elk River Reactor, 27
Empire States Atomic Development Associates
and GE, ESADA Vallecitos Experimental
Superheat Reactor, 29
ENEL, Italy
Caorso Nuclear Station, XR-077, 47
Trino Vercellese, XR-044, 47
Energy Center, Netherlands, XR-017, 19
Engineering Test Reactor, ETR, 34
England
Imperial Chemical Industries, XR-074, 19
Sizewell B, XR-148, 15
Enrico Fermi Atomic Power Plant
Unit 1, 27
Unit 2, 2
Arkansas Nuclear One
Unit 1, 1
Unit 2, 1
Grand Gulf Nuclear Station, Unit 1, 2
Energy Operations Inc. (Continued)
River Bend Station, Unit 1, 4
Waterford Generating Station, Unit 3, 5
ENTERPRISE (8 reactors), CVN65, 13
EOCR, 30
ESADA Vallecitos Experimental Superheat
Reactor, EVESR, 30
ETHAN ALLEN, SSN608, 43
ETR (Engineering Test Reactor), 34
European Community Commission, Italy,
XR-007, 47
European-Asian Exhibit Program, EAEP, 36
EVESR ESADA (Vallecitos Experimental
Superheat Reactor), 30
Experimental Beryllium Oxide Reactor,
EBOR, 30
Experimental Boiling Water Reactor, EBWR, 30
Experimental Breeder Reactor No. 1, EBR-I, 30
Experimental Breeder Reactor II, EBR-II, 30
Experimental Gas Cooled Reactor, EGCR, 30
Experimental Organic Cooled Reactor, EOCR, 30
Experimental Propulsion Test Reactor
TORY IIA, 45
TORY IIC, 45
F Reactor, Richland, 41
Farley Nuclear Plant
Unit 1, 3
Unit 2, 3
Fast Burst Reactor Facility, FBRF, 15
Fast Flux Test Facility, FFTF, 34
Fast Neutron Source Reactor, BNLF-1, 37
FBRF (Fast Burst Reactor Facility), 15
FCPE (Full Core Physics Experiment), 49
Fermi Atomic Power Plant
Unit 1, 27
Unit 2, 2
FFTF (Fast Flux Test Facility), 34
Fiat TTG, Italy, XR-016, 47
FINBACK, SSN670, 44
Finland, Institute of Technology, XR-040, 21
FitzPatrick Nuclear Power Plant, 3
FLASHER, SSN613, 43
Flatop, 22
FLORIDA, SSN728, 12
Florida, University of, UFTF, 8
Florida Power & Light Co.
St. Lucie Plant
Unit 1, 4
Unit 2, 4
Turkey Point Plant
Unit 3, 5
Unit 4, 5
Florida Power Corp., Crystal River Nuclear Plant,
Unit 3, 2
FLYING FISH, SSN673, 44
Ford Nuclear Reactor, Michigan, University of
(Ford Nuclear Reactor), FNR, 9
Fort Calhoun Station, Unit 1, 2
Fort St. Vrain Nuclear Generating Station, 27
Foster Wheeler Corp.
Denmark, DR-2, 47
Livemore Pool Type Reactor, 37
FPR, 49
Framatome
Tihange, Unit 1, 15
France, 46
FRAN, 38
France, Franco-Belgian Society for Nuclear
Energy of Ardennes, SENA, 46
FRANCIS SCOTT KEY, SSN657, 44
Franco-Belgian Society for Nuclear Energy of
Ardennes, SENA, France, 46
Frankfurt, University of, Germany, 48
Fukushima Dai-ichi Power Station
Unit 1, 17
Unit 2, 17
Unit 6, 17
Fuel Element Test Bed, NF-1, 32
Fuel Element Test Reactor
Pewee-1, 32
Pewee-2, 32
Gas Cooled Reactor Experiment, GCRC, 45
GATO, SSN615, 44
General Atomics Technologies, 36
Accelerator Pulsed Fast Critical Assembly, 35
Advanced TRIGA-Mk F Prototype Reactor, 7
Aerotech Operations, Inc., 7
Albania, 21
Annular Core Pulsed Reactor, 35
Arizona, University of, 8
Armed Forces Radiobiology Research
Institute, DNA, 15
Austria, 21
Bangladesh, 19
Brazil, 21
California
Berkeley, University of, 39
Irvine, University of, 8
Columbia University, 39
Cornell University, 8
Diamond Ordnance Radiation Facility, 46
Dow Chemical Co., 7
Energy Operations Inc. (Continued)
River Bend Station, Unit 1, 4
Waterford Generating Station, Unit 3, 5
ENTERPRISE (8 reactors), CVN65, 13
EOCR, 30
ESADA Vallecitos Experimental Superheat
Reactor, EVESR, 30
ETHAN ALLEN, SSN608, 43
ETR (Engineering Test Reactor), 34
European Community Commission, Italy,
XR-007, 47
European-Asian Exhibit Program, EAEP, 36
EVESR ESADA (Vallecitos Experimental
Superheat Reactor), 30
Experimental Beryllium Oxide Reactor,
EBOR, 30
Experimental Boiling Water Reactor, EBWR, 30
Experimental Breeder Reactor No. 1, EBR-I, 30
Experimental Breeder Reactor II, EBR-II, 30
Experimental Gas Cooled Reactor, EGCR, 30
Experimental Organic Cooled Reactor, EOCR, 30
Experimental Propulsion Test Reactor
TORY IIA, 45
TORY IIC, 45
F Reactor, Richland, 41
Farley Nuclear Plant
Unit 1, 3
Unit 2, 3
Fast Burst Reactor Facility, FBRF, 15
Fast Flux Test Facility, FFTF, 34
Fast Neutron Source Reactor, BNLF-1, 37
FBRF (Fast Burst Reactor Facility), 15
FCPE (Full Core Physics Experiment), 49
Fermi Atomic Power Plant
Unit 1, 27
Unit 2, 2
FFTF (Fast Flux Test Facility), 34
Fiat TTG, Italy, XR-016, 47
FINBACK, SSN670, 44
Finland, Institute of Technology, XR-040, 21
FitzPatrick Nuclear Power Plant, 3
FLASHER, SSN613, 43
Flatop, 22
FLORIDA, SSN728, 12
Florida, University of, UFTF, 8
Florida Power & Light Co.
St. Lucie Plant
Unit 1, 4
Unit 2, 4
Turkey Point Plant
Unit 3, 5
Unit 4, 5
Florida Power Corp., Crystal River Nuclear Plant,
Unit 3, 2
FLYING FISH, SSN673, 44
Ford Nuclear Reactor, Michigan, University of
(Ford Nuclear Reactor), FNR, 9
Fort Calhoun Station, Unit 1, 2
Fort St. Vrain Nuclear Generating Station, 27
Foster Wheeler Corp.
Denmark, DR-2, 47
Livemore Pool Type Reactor, 37
FPR, 49
Framatome
Tihange, Unit 1, 15
France, 46
FRAN, 38
France, Franco-Belgian Society for Nuclear
Energy of Ardennes, SENA, 46
FRANCIS SCOTT KEY, SSN657, 44
Franco-Belgian Society for Nuclear Energy of
Ardennes, SENA, France, 46
Frankfurt, University of, Germany, 48
Fukushima Dai-ichi Power Station
Unit 1, 17
Unit 2, 17
Unit 6, 17
Fuel Element Test Bed, NF-1, 32
Fuel Element Test Reactor
Pewee-1, 32
Pewee-2, 32
Gas Cooled Reactor Experiment, GCRC, 45
GATO, SSN615, 44
General Atomics Technologies, 36
Accelerator Pulsed Fast Critical Assembly, 35
Advanced TRIGA-Mk F Prototype Reactor, 7
Aerotech Operations, Inc., 7
Albania, 21
Annular Core Pulsed Reactor, 35
Arizona, University of, 8
Armed Forces Radiobiology Research
Institute, DNA, 15
Austria, 21
Bangladesh, 19
Brazil, 21
California
Berkeley, University of, 39
Irvine, University of, 8
Columbia University, 39
Cornell University, 8
Diamond Ordnance Radiation Facility, 46
Dow Chemical Co., 7
General Atomics Technologies (Continued)
England, 19
Experimental Beryllium Oxide Reactor, 30
Finland, 21
Fort St. Vrain Nuclear Generating Station, 27
Germany
Association for Radiation Research, 47
Hanover Medical College of, 21
Heidelberg, Institute for Nuclear
Medicine, 21
Mainz, Johannes Gutenberg University
of, 21
Illinois, University of, 8
Indonesia
Bandung, 20
Yogyakarta, 20
Italy
Italian Agency for New Technology,
Energy and the Environment, Rome,
20
Pavia, University of, 22
Japan
Musashi College of Technology, 22
NSRR, 19
Rikkyo University, 22
Kansas State University, 9
Korea
TRIGA-Mk II, 20
TRIGA-Mk III, 20
Malaysia, 20
Maryland, University of, 9
McClellan Nuclear Radiation Center, 15
Mexico, Salazar, 20
Michigan State University, 40
Morocco, 21
Northrop Corporate Laboratories, 37
Omaha Veterans Administration Hospital, 7
Oregon State University, 9
Peach Bottom Atomic Power Station,
Unit 1, 28
Penn State TRIGA Reactor, 9
Philippines, Republic of the, PRR-1, 20
Puerto Rico Nuclear Center, 40
Reed College, 9
Romania, 19
San Diego, TRIGA-Mk II, 37
Slovenia, 20
Texas A&M University, 9
Texas at Austin, University of
TRIGA-Mk I, 40
TRIGA-Mk II, 9

REACTOR INDEX (Continued)

General Atomic Technologies (Continued)

Thailand, TRR-1, 21
 TRIGA-Mk II, 37
 Turkey, 21
 U.S. Geological Survey Laboratory, 8
 Utah, University of, 10
 Vietnam, 47
 Washington State University, 10
 Wisconsin, University of, 10
 Zaire, 21

General Dynamics Corp.

Electric Boat Division
 ABRAHAM LINCOLN, 43
 ALABAMA, 12
 ALASKA, 12
 ALBUQUERQUE, 12
 ALEXANDER HAMILTON, 44
 ALEXANDRIA, 13
 ANNAPOLIS, 13
 ARCHERFISH, 11
 AUGUSTA, 12
 BALTIMORE, 12
 BATFISH, 11
 BENJAMIN FRANKLIN, 44
 BERGALL, 44
 BLUEFISH, 45
 BOSTON, 12
 BREMERTON, 11
 CASIMIR PULASKI, 44
 CAVALLA, 11
 CITY OF CORPUS CHRISTI, 12
 COLUMBIA, 13
 COLUMBUS, 13
 CONNECTICUT, 14
 DALLAS, 11
 DANIEL WEBSTER, 11
 Deep Submergence Research Vehicle,
 13
 ETHAN ALLEN, 43
 FLASHER, 43
 FLORIDA, 12
 FLYING FISH, 44
 FRANCIS SCOTT KEY, 44
 GEORGE BANCROFT, 44
 GEORGE WASHINGTON, 43
 GEORGIA, 12
 GLENARD P. LIPSCOMB, 45
 GROTON, 45

General Dynamics Corp.

Electric Boat Division (Continued)

HARTFORD, 13
 HELENA, 12
 HENRY L. STIMSON, 44
 HENRY M. JACKSON, 12
 HYMAN G. RICKOVER, 12
 INDIANAPOLIS, 11
 JACKSONVILLE, 11
 JAMES K. POLK, 11
 KENTUCKY, 12
 LAFAYETTE, 44
 LA JOLLA, 11
 LOUISIANA, 12
 LOUISVILLE, 12
 MAINE, 12
 MARYLAND, 12
 MIAMI, 13
 MICHIGAN, 12
 MINNEAPOLIS-SAINT PAUL, 12
 NARWHAL, 11
 NATHAN HALE, 44
 NAUTILUS, 43
 NEBRASKA, 12
 NEVADA, 12
 NEW YORK CITY, 45
 OHIO, 12
 OMAHA, 45
 PARGO, 44
 PASADENA, 13
 PATRICK HENRY, 43
 PENNSYLVANIA, 12
 PHILADELPHIA, 11
 PHOENIX, 12
 PITTSBURGH, 12
 PORTSMOUTH, 12
 PROVIDENCE, 12
 RHODE ISLAND, 12
 SAN JUAN, 13
 SANTA FE, 13
 SCORPION, 43
 SEA HORSE, 44
 SEAWOLF, 13
 SEAWOLF PWR, 43
 SEAWOLF Sodium Reactor, 43
 SILVERSIDES, 45
 SKATE, 43
 SKIPJACK, 43
 SPRINGFIELD, 13
 STURGEON, 44
 TECUMSEH, 44
 TENNESSEE, 12

General Dynamics Corp.

Electric Boat Division (Continued)

THOMAS A. EDISON, 43
 TOPEKA, 13
 TREPANG, 11
 TRITON (2 Reactors), 43
 TULLIBEE, 43
 ULYSSES S. GRANT, 44
 UNNAMED, 14
 WEST VIRGINIA, 12
 WILL ROGERS, 44
 WYOMING, 12
 General Dynamics Corp.
 Quincy Division
 GATO, 44
 GREENLING, 44
 SUNFISH, 44
 WHALE, 44
 General Electric Company
 ANPD, Heat Transfer Reactor Experiment
 No. 1, 45
 No. 2, 45
 No. 3, 45
 Big Rock Point Nuclear Plant, 1
 Browns Ferry Nuclear Power Station
 Unit 1, 1
 Unit 2, 1
 Unit 3, 1
 Brunswick Steam Electric Plant
 Unit 1, 1
 Unit 2, 1
 C Reactor, 41
 China, Republic of, 21
 Clinton Power Station, Unit 1, 2
 Cooper Nuclear Station, 2
 DR Reactor, 41
 Destroyer Reactor Prototype, 45
 Dresden Nuclear Power Station
 Unit 1, 27
 Unit 2, 2
 Unit 3, 2
 Duane Arnold Energy Center, Unit 1, 2
 Edwin I. Hatch Nuclear Plant
 Unit 1, 2
 Unit 2, 2
 Engineering Test Reactor, 34
 Enrico Fermi Atomic Power Plant, Unit 2, 2
 ESADA Vallecitos Experimental Superheat
 Reactor, 30
 General Electric Nuclear Test Reactor, 7
 Germany
 Kahl Nuclear Power Station, 46

General Electric Company (Continued)

Germany (Continued)
 Kernkraftwerk-RWE-Bayernwerk,
 KRB1, 47
 Grand Gulf Nuclear Station, Unit 1, 2
 H Reactor, 41
 Hatch Nuclear Plant
 Unit 1, 2
 Unit 2, 2
 Hope Creek Nuclear Generating Station,
 Unit 1, 2
 Humboldt Bay Power Plant, Unit 3, 27
 India, Tarapur Nuclear Power Station
 Unit 1, 15
 Unit 2, 16
 Italy
 Caorso Nuclear Station (ENEL),
 XR-077, 47
 Garigliano Nuclear Power Station, 47
 Trino Vercellense (ENEL), XR-044, 47
 James A. FitzPatrick Nuclear Power Plant, 3
 Japan
 Fukushima Dai-ichi Power Station
 Unit 1, 16
 Unit 2, 16
 Unit 6, 16
 Japan Power Demonstration Reactor, 47
 Kashiwazaki-Kariwa
 Unit 6, 16
 Unit 7, 18
 Tokai No. 2 Power Station, 16
 Tsuruga Power Station, Unit 1, 16
 KE Reactor, 41
 KW Reactor, 41
 La Salle County Station
 Unit 1, 3
 Unit 2, 3
 Leland Stanford University, 40
 Limerick Generating Station
 Unit 1, 3
 Unit 2, 3
 Massachusetts, University of, 9
 Mexico, Laguna Verde Station
 Unit 1, 17
 Unit 2, 17
 Millstone Nuclear Power Station, Unit 1, 3
 Modifications and Additions to Reactor
 Facility, 14
 Monticello Nuclear Generating Plant, 3
 Netherlands, Dordrecht, 47
 Nine Mile Point Nuclear Station
 Unit 1, 3
 Unit 2, 3

REACTOR INDEX (Continued)

- General Electric Company (Continued)
Oyster Creek Nuclear Power Plant, Unit 1, 3
Peach Bottom Atomic Power Station
Unit 2, 3
Unit 3, 3
Perry Nuclear Power Plant
Unit 1, 4
Unit 2, 5
Pilgrim Nuclear Power Station, Unit 1, 4
Quad-Cities Station
Unit 1, 4
Unit 2, 4
River Bend Station, Unit 1, 4
Shoreham Nuclear Power Station, 28
Small Submarine Reactor Prototype, 46
Southwest Experimental Fast Oxide Reactor, 31
Spain
Cofrentes, Unit 1, 17
Nuclear Energy Board-JEN, 20
Santa Maria de Girona, 17
Valdecaballeros
Unit 1, 18
Unit 2, 18
Submarine Advanced Reactor Prototype, 46
Submarine Intermediate Reactor Mark A, 46
Susquehanna Steam Electric Station
Unit 1, 5
Unit 2, 5
Switzerland
Leibstadt, 17
Mühleberg, 17
Taiwan
Chinshan
Unit 1, 17
Unit 2, 17
Kuo Sheng
Unit 1, 17
Unit 2, 17
Trident Prototype, 14
Vallecitos Boiling Water Reactor, 31
Venezuela, 21
Vermont Yankee Nuclear Power Station, 5
Washington Nuclear Project, Unit 2, 5
Worcester Polytechnic Institute, 10
General Electric Nuclear Test Reactor, NTR, 7
General Electric Testing Reactor, GETR, 34
General Nuclear Engineering Corp.
Florida, University of, 8
Georgia Institute of Technology, 8
Geneva, University of, Switzerland, 48
- GEORGE BANCROFT, SSB643, 44
GEORGE C. MARSHALL, SSB654, 44
GEORGE WASHINGTON (2 reactors), 13
GEORGE WASHINGTON, SSN598, 43
GEORGE WASHINGTON CARVER, SSB656, 44
GEORGIA, SSBN729, 12
Georgia Institute of Technology
AGN-201-104, 39
GTRR, 8
Georgia Power Co.
Alvin W. Vogtle Nuclear Plant,
Unit 1, 1
Unit 2, 1
Edwin I. Hatch Nuclear Plant
Unit 1, 2
Unit 2, 2
Germany
Association for Radiation Research,
XR-075, 47
Brown Boveri/Krupp, XR-062, 47
Darmstadt, University of, XR-009, 48
Frankfurt, University of, XR-009, 48
FRG-1, XR-008, 47
FRM Garching, XR-004, 21
Institute for Nuclear Medicine, XR-060, 21
Johannes Gutenberg University of Mainz,
XR-050, 21
Kahl Nuclear Power Station, XR-031, 46
Kernkraftwerk-RWE-Bayernwerk, KRB1,
XR-052, 47
Medical College of Hanover, XR-076, 21
Mülheim-Kärlich, XR-118, 15
Münich, Technical University of, 21
GETR (General Electric Testing Reactor), 34
Gina Nuclear Power Plant, Unit 1, 4
GKN, Netherlands, Dodewaard, XR-058, 47
GKSS-Forschungszentrum Geesthacht G.m.b.H.,
Germany, FRG-1, XR-008, 47
GLENARD P. LIPSCOMB, SSN685, 45
Godiva-IV, 22
GPU Nuclear Corp.
Oyster Creek Nuclear Power Plant, Unit 1, 3
Three Mile Island Nuclear Station
Unit 1, 5
Unit 2, 28
Grand Gulf Nuclear Station, Unit 1, 2
GRAYLING, SSN646, 44
Great Britain, SSW for HMS DREADNOUGHT,
SSW, 47
Greece, Democritos, XR-014, 20
GREENLING, SSN614, 44
- GREENVILLE, SSN772, 13
GROTON, SSN694, 45
Ground Experimental Engine Experiment
XE-Backup, 32
XE-Prime, 33
Ground Test Reactor, GTR, 46
GTRR (Georgia Tech. Research Reactor), 8
GUARDFISH, SSN612, 43
GUITARRO, SSN665, 44
GURNARD, SSN662, 44
H Reactor, Richland, 41
Haddam Neck Plant, 27
HADDON, SSN604, 43
HADDOCK, SSN621, 44
HALIBUT, SSN587, 43
Hallam Nuclear Power Facility, Sheldon Station, 27
HAMMERHEAD, SSN663, 44
HAMPTON, SSN767, 13
Hanford 305 Test Reactor, HTR, 42
Harris Nuclear Power Plant, Unit 1, 4
Harry Diamond Laboratories, USA, Diamond Ordnance Radiation Facility, 46
HARRY S. TRUMAN, CVN75, 14
HARTFORD, SSN768, 13
HAWKBILL, SSN666, 11
H.B. Robinson Plant, Unit 2, 2
Health Physics Research Reactor, HPRR, 37
Heat Transfer Reactor Experiment, HTRE, 45
No. 1, 45
No. 2, 45
No. 3, 45
Heavy Water Components Test Reactor, HWCTR, 31
HELENA, SSN725, 12
HENRY L. STIMSON, SSB625, 44
HENRY L. STIMSON, SSB655, 44
HENRY M. JACKSON, SSB730, 12
HFBR (High Flux Beam Reactor), 7
HFIR (High Flux Isotope Reactor), 7
Hidroeléctrica Española S.A., Spain, Colombres,
Unit 1, XR-097, 17
High Flux Beam Reactor, HFBR, 7
High Flux Isotope Reactor, HFIR, 7
High Temperature Lattice Test Reactor, HTLTR, 37
Homogeneous Reactor Experiment
No. 1, HRE-1, 31
No. 2, HRE-2, 31
- Honeycomb, 22
HONOLULU, SSN718, 12
Hope Creek Nuclear Generating Station, Unit 1, 2
Horizontal, 48
Horizontal/Split Table, 23
HOUSTON, SSN713, 12
Houston Lighting & Power Co., South Texas Project
Unit 1, 4
Unit 2, 4
HPRR (Health Physics Research Reactor), 37
HRE-1 (Homogeneous Reactor Experiment), 31
HRE-2 (Homogeneous Reactor Experiment), 31
HTLTR (High Temperature Lattice Test Reactor), 37
HTR (Hanford Test Reactor), 42
HTRE-1 (Heat Transfer Reactor Experiment), 45
HTRE-2 (Heat Transfer Reactor Experiment), 45
HTRE-3 (Heat Transfer Reactor Experiment), 45
HTTF (Bellis), 49
Humboldt Bay Power Plant, Unit 3, 27
HWCTR (Heavy Water Components Test Reactor), 31
HYMAN G. RICKOVER, SSN709, 12
HYPO (Los Alamos Water Boiler), 37
Idaho Nuclear Corporation, Special Power Excursion Reactor Test No. 4, 35
Idaho State University, AGN-201P-103, 8
Illinois, University of
LOPRA, 8
TRIGA-Mk II, 8
Illinois Institute of Technology Research Institute, ARR (L-54), 37
Illinois Power Co., Clinton Power Station, Unit 1, 2
Imperial Chemical Industries, England, XR-074, 19
India, Tarapur Nuclear Power Station
Unit 1, XR-054, 15
Unit 2, XR-054, 16
Indiana and Michigan Electric Co., Donald C. Cook Nuclear Power Plant
Unit 1, 2
Unit 2, 2
INDIANAPOLIS, SSN697, 11
Indian Point Station
Unit 1, 27
Unit 2, 2

REACTOR INDEX (Continued)

Indian Point Station (Continued)			
Unit 3, 2			
Indonesia, National Atomic Energy Agency			
Bandung, 20			
Yogyakarta, 20			
Industrial Reactor Laboratories, Inc., IRL, 34			
Ingalls Shipbuilding Corp.			
ASPRO, 44			
BARB, 43			
DACE, 43			
HADDOCK, 44			
PARCHE, 11			
PUFFER, 44			
SCULPIN, 43			
SNOOK, 43			
TAUTOG, 44			
TUNNY, 11			
WILLIAM H. BATES, 11			
Institute for Scientific Research, Venezuela,			
XR-018, 21			
Institute of Nuclear Affairs, Colombia, IAN-R1,			
XR-053, 19			
Institute of Nuclear Technology, Bangladesh,			
XR-126, 19			
Institute of Technology, Finland, XR-040, 21			
Internuclear Co., Missouri, University of, 9			
Iowa Electric Light & Power Co., Duane Arnold			
Energy Center, Unit 1, 2			
Iowa State University, UTR-10, 8			
Iran, University of Tehran, XR-029, 21			
IRL (Industrial Reactor Laboratories, Inc.), 34			
Israel, Atomic Energy Commission, XR-021, 20			
Istanbul, Turkey, Technical University of,			
XR-108, 21			
Italy			
Casorso Nuclear Station, XR-077, 47			
Center for Military Application of Nuclear			
Energy, XR-036, 47			
European Community Commission, XR-007,			
47			
Fiat TTG, XR-016, 47			
Garigliano Nuclear Power Station, XR-043,			
47			
Italian Agency for New Technology, Energy			
and the Environment,			
Casaccia, XR-051, 47			
Rome, XR-026, 20			
Milan, University of, XR-022, 48			
Palermo, University of, XR-025, 22			
Italy (Continued)			
Pavia, University of, XR-056, 22			
Trino Vercellese, XR-044, 47			
JACK, SSN605, 43			
JACKSONVILLE, SSN699, 11			
JAERI, Japan Power Demonstration			
Reactor, XR-045, 47			
Jamaica, Kingston, XR-094, 20			
James A. FitzPatrick Nuclear Power Plant, 3			
JAMES K. POLK, SSN645, 11			
JAMES MADISON, SSN627, 44			
JAMES MONROE, SSN622, 44			
JANUS Reactor, 37			
Japan			
Japan Atomic Energy Research Institute			
Tokai-Mura, Ibaraki Pref.			
JRR-2, XR-015, 19			
NSSR, XR-101, 19			
XR-001, 47			
Japan Power Demonstration Reactor (JAERI)			
Tokai-Mura, Ibaraki Pref.			
XR-045, 47			
Japan Atomic Power Co.			
Tokai No. 2 Power Station, XR-085, 16			
Tsuruga Power Station, Unit 1, XR-065,			
16			
Kansai Electric Power Co.			
Mihama Power Station, Unit 1, XR-067,			
16			
Ohi Power Station			
Unit 1, XR-082, 16			
Unit 2, XR-082, 16			
Takahama Power Station, Unit 1,			
XR-079, 16			
Kinki University, XR-041, 22			
Musashi College of Technology, XR-037, 22			
Rikkyo University, XR-038, 22			
Tokyo Electric Power Co.,			
Fukushima Dai-ichi Power Station			
Unit 1, XR-066, 16			
Unit 2, XR-072, 16			
Unit 6, XR-084, 16			
Kashiwazaki-Kartwa			
Unit 6, 16			
Unit 7, 18			
JEFFERSON CITY, SSN759, 13			
Johannes Gutenberg University of Mainz,			
Germany, XR-050, 21			
JOHN ADAMS, SSN620, 44			
JOHN C. CALHOUN, SSN630, 44			
Korea			
Advanced Energy Research Institute			
XR-027, 20			
XR-073, 20			
Korea (Continued)			
Korea Electric Power Co.			
Kori-1, XR-083, 16			
Kori-2, XR-119, 16			
Kori-3, XR-131, 16			
Kori-4, XR-131, 16			
Ulsin 3, XR-153, 18			
Ulsin 4, XR-153, 18			
Yonggwang-1, XR-133, 16			
Yonggwang-2, XR-133, 16			
Yonggwang-3, XR-150, 18			
Yonggwang-4, XR-150, 18			
Yonggwang-5, XR-162, 18			
Yonggwang-6, XR-162, 18			
KUKLA, 38			
KW Reactor, Richland, 41			
Kyung Hee, University of, Korea, XR-105, 22			
L Reactor, Alken, 41			
L-47			
Atomics International, 36			
Brigham Young University, 39			
California, Santa Barbara, University of, 39			
Nevada, University of, 40			
Puerto Rico Nuclear Center, 40			
Rockwell International, 38			
Wyoming, University of, 41			
L-85 (AE-6), Nuclear Examination Reactor, 38			
L. MENDELL RIVERS, SSN686, 12			
La Crosse (Genoa) Nuclear Generating Station,			
27			
LAFAYETTE, SSN616, 44			
LA JOLLA, SSN701, 11			
LAMPRE-1 (Los Alamos Molten Plutonium			
Reactor Experiment), 31			
LAPON, SSN661, 44			
LAPRE-1 (Los Alamos Power Reactor			
Experiment), 31			
LAPRE-2 (Los Alamos Power Reactor			
Experiment), 31			
Large Ship Reactor Prototype (2 reactors), A1W,			
45			
La Salle County Station			
Unit 1, 3			
Unit 2, 3			
Lattice Test Reactor, LTR, 42			
Lawrence Livermore National Laboratory			
Experimental Propulsion Test Reactor			
TORY IIA, 45			
TORY IIC, 45			

REACTOR INDEX (Continued)

- Lawrence Livermore National Laboratory (Continued)
Nuclear Effects Reactor
FRAN, 38
KUKLA, 38
Super KUKLA, 46
Leland Stanford University, 40
LEWIS AND CLARK, SSBN644, 44
Limerick Generating Station
Unit 1, 3
Unit 2, 3
LITR (Low Intensity Test Reactor), 37
Livermore Pool Type Reactor, LPTR, 37
Livermore Water Boiler, LIWB, 37
LIWB (Livermore Water Boiler), 37
LMITCO (Lockheed Martin Idaho Technologies Company), 6, 7
Lockheed Aircraft Corp.,
Colombia, IAN-R1, 19
Critical Facility for RER, 49
DOE Demonstration Reactor, 36
European-Asian Exhibit Program, 36
Lockheed Aircraft Corp., 37
NASA Mock-Up Reactor, 37
Ohio State University, 9
Purdue University, 9
Radiation Effects Reactor, 38
Lockheed Martin Idaho Technologies Company (LMITCO)
Advanced Reactivity Measurement Facility, 7
Advanced Test Reactor, 6
Coupled Fast Reactivity Measurement Facility, 7
LOFT (Loss of Fluid Test), 35
LONG BEACH (2 reactors), CGN9, 45
Long Island Lighting Co., Shorcham Nuclear Power Station, 28
LOPO, 37
LOPRA (Low Power Reactor Assembly), 8
Los Alamos Fast Reactor, Clementine, 37
Los Alamos LOPO Reactor, LOPO, 37
Los Alamos Molten Plutonium Reactor Experiment, LAMPRE-1, 31
Los Alamos National Laboratory
Big Ten, 22
Comet, 22
Flattop, 22
Godiva-IV, 22
Honeycomb, 22
Mars, 22
Parka, 48
Planet, 22
Los Alamos National Laboratory (Continued)
SHEBA, 22
SKUA, 22
Venus, 48
Los Alamos Power Reactor Experiment (LAPRE)
No. 1, 31
No. 2, 31
Los Alamos Water Boiler
HYPO, 37
SUPO, 37
LOS ANGELES, SSN688, 11
Loss of Fluid Test, LOFT, 35
LOUISIANA, SSBN743, 12
Louisiana State University Nuclear Science Center, SNARE, 37
LOUISVILLE, SSN724, 12
Low Intensity Test Reactor, LITR, 37
Low Temperature Neutron Irradiation Facility, LTNI, 37
LPTR (Livermore Pool Type Reactor), 37
LRP (Lynchburg Pool Reactor), 36
LTR (Lattice Test Reactor), 42
LWBCC, 48
Lynchburg Research Center, 48
MAINE, SSBN741, 12
Maine Yankee Atomic Power Plant, 3
Malaysia, Tun Ismail Atomic Research Centre, XR-125, 20
Manhattan College, MCZPR, 9
Mare Island Naval Shipyard
ANDREW JACKSON, 44
DANIEL BOONE, 44
DRUM, 45
GUJARRO, 44
GURNARD, 44
HALIBUT, 43
HAWKBILL, 11
KAMEHAMEHA, 11
MARIANO G. VALLEJO, 44
PERMIT, 43
PINTADO, 11
PLUNGER, 43
SARGO, 43
SCAMP, 43
STONEWALL JACKSON, 44
THEODORE ROOSEVELT, 43
WOODROW WILSON, 44
MARF (Modifications and Additions to Reactor Facility), 14
Mariano G. Vallejo, SSBN658, 44
Mars, 22
Martin Marietta Corp.
Portable Medium Power Plant
No. 1, 42
No. 3A, 42
STURGIS Floating Nuclear Power Plant, 43
MARYLAND, SSBN738, 12
Maryland, University of, TRIGA, 9
Massachusetts, University of, ULR, 9
Massachusetts Institute of Technology, MITR-II, 9
Materials Testing Reactor, MTR, 34
McClellan Nuclear Radiation Center, MNRC, 15
McGuire Nuclear Station
Unit 1, 5
Unit 2, 5
McMaster University, Canada, XR-011, 21
MCZPR (Manhattan College Zero Power Reactor), 9
Medical College of Hanover, Germany, XR-076, 21
MEMPHIS, SSN691, 11
Memphis State University, AGN-201-108, 40
Metallurgical Laboratory, Chicago Pile 1, rebuilt as CP-2, 36
Metallurgical Laboratory of the Manhattan Engineer, Argonne CP-3, 35
Mexico
Laguna Verde Station
Unit 1, XR-098, 17
Unit 2, XR-102, 17
National Commission for Nuclear Energy, XR-057, 20
Salazar, 20
MH-1A, 43
MIAMI, SSN755, 13
MICHIGAN, SSBN727, 12
Michigan, University of (Ford Nuclear Reactor), FNR, 9
Michigan State University, TRIGA-Mk I, 40
Milan, University of, Italy, XR-022, 48
Millstone Nuclear Power Station
Unit 1, 3
Unit 2, 3
Unit 3, 3
Minas Gerais, University of, Brazil, XR-028, 21
MINNEAPOLIS-SAINT PAUL, SSBN708, 12
MISSISSIPPI (2 reactors), CGN40, 45
Mississippi State University, RRR, 40
Missouri, University of, MURR, 9
Missouri at Rolla, University of, UMR-R, 9
MITR-II (Massachusetts Institute of Technology Reactor), 9
MNRC (McClellan Nuclear Radiation Center), 15
Mobile Low Power Plant No. 1, ML-1, 45
Model 4180, 40
Modifications and Additions to Reactor Facility, MARF, 14
Molten Salt Reactor Experiment, MSRE, 31
Monticello Nuclear Generating Plant, 3
MONTPELLIER, SSN765, 13
Morocco, C.E.N., Maamora, XR-158, 21
MSRE (Molten Salt Reactor Experiment), 31
MTR (Materials Testing Reactor), 34
Munich, Germany, Technical University of, XR-004, 21
MUR (NASA Mock-Up Reactor), 37
MURR (Missouri, University Research Reactor), 9
Musashi College of Technology, Japan, XR-037, 22
N Reactor, 29
NARWHAL, SSN671, 11
NASA Mock-Up Reactor, MUR, 37
NASA-TR, 34
NATHANAEEL GREENE, SSBN636, 44
NATHAN HALE, SSBN623, 44
National Aeronautics and Space Administration, Plum Brook Reactor Facility, 34
National Atomic Energy Agency, Indonesia
Bandung, 20
Yogyakarta, 20
National Commission for Nuclear Energy, Mexico, XR-057, 20
National Institute of Standards & Technology, NIST, 7
National Laboratory of Engineering and Industrial Technology, Portugal, RP-1, 20
National Power Corp., Philippines, Republic of the Philippine Nuclear Power Plant, Unit 1, 18
National Tsing-Hua University, China, Republic of, XR-020, 21
Natural Circulation Test Plant, S5G, 45
NAUTILUS, SSN571, 43
Naval Research Reactor, NRR, 46
NEBRASKA, SSBN739, 12
Nebraska Public Power District, Cooper Nuclear Station, 2

REACTOR INDEX (Continued)

Netherlands
 Delft Technical University, XR-003, 22
 Dodewaard, XR-058, 47
 Energy Center, XR-017, 19
 NETR (Nuclear Engineering Test Reactor), 46
 Neutron Radiography Facility
 NRAD, 7
 NRF, 37
 NEVADA, SSBN733, 12
 Nevada, University of, L-77, 40
 New Mexico, University of, AGN-201M-112, 9
 Newport News Shipbuilding & Dry Dock Co.
 ABRAHAM LINCOLN (2 reactors), 13
 ALBANY, 13
 ARKANSAS (2 reactors), 13
 ASHEVILLE, 13
 ATLANTA, 12
 BATON ROUGE, 45
 BIRMINGHAM, 11
 BOISE, 13
 BUFFALO, 12
 CALIFORNIA (2 reactors), 13
 CARL VINSON (2 reactors), 13
 CHARLOTTE, 13
 CHEYENNE, 13
 CHICAGO, 12
 CINCINNATI, 45
 DWIGHT D. EISENHOWER (reactors), 13
 ENTERPRISE (8 reactors), 13
 FINBACK, 44
 GEORGE C. MARSHALL, 44
 GEORGE WASHINGTON (2 reactors), 13
 GEORGE WASHINGTON CARVER, 44
 GREENVILLE, 13
 HAMMERHEAD, 44
 HAMPTON, 13
 HARRY S. TRUMAN, 14
 HENRY CLAY, 44
 HONOLULU, 12
 HOUSTON, 12
 JAMES MADISON, 44
 JAMES MONROE, 44
 JEFFERSON CITY, 13
 JOHN C. CALHOUN, 44
 JOHN C. STENNIS (2 reactors), 13
 JOHN MARSHALL, 43
 KEY WEST, 12
 LAPON, 44
 LEWIS AND CLARK, 44
 L. MENDELL RIVERS, 11
 LOS ANGELES, 11

Newport News Shipbuilding & Dry Dock Co.
 (Continued)
 MEMPHIS, 11
 MISSISSIPPI (2 reactors), 45
 MONTPELIER, 13
 NEWPORT NEWS, SSN750, 12
 NIMITZ (2 reactors), 13
 NORFOLK, 12
 OKLAHOMA CITY, 12
 OLYMPIA, 12
 QUEENFISH, 44
 RAY, 44
 RICHARD B. RUSSELL, 45
 ROBERT E. LEE, 43
 RONALD REAGAN, 14
 SALT LAKE CITY, 12
 SAM HOUSTON, 43
 SAM RAYBURN, 11
 SAN FRANCISCO, 12
 SCRANTON, 13
 SEA DEVIL, 44
 SHARK, 43
 SIMON BOLIVAR, 44
 SOUTH CAROLINA (2 reactors), 13
 SPADFISH, 44
 TEXAS (2 reactors), 45
 THEODORE ROOSEVELT (2 reactors), 13
 THOMAS JEFFERSON, 44
 TOLEDO, 13
 TUCSON, 13
 VIRGINIA (2 reactors), 45
 VON STEUBEN, 44
 NEW YORK CITY, SSN696, 45
 New York Power Authority
 Indian Point Station, Unit 3, 2
 James A. FitzPatrick Nuclear Power Plant, 3
 New York Shipbuilding Corp.
 GUARDFISH, 43
 HADDON, 43
 Nuclear Ship SAVANNAH, 29
 POLLACK, 43
 TRUXTUN (2 reactors), 45
 POGY, 11
 Niagara Mohawk Power Corp.
 Nine Mile Point Nuclear Station
 Unit 1, 3
 Unit 2, 3
 NIMITZ (2 reactors), CVN68, 13
 Nine Mile Point Nuclear Station
 Unit 1, 3

Nine Mile Point Nuclear Station (Continued)
 Unit 2, 3
 NIST (National Institute of Standards and Technology), 7
 Nordostschweizerische Kraftwerke AG,
 Switzerland, Beznau
 Unit 1, XR-063, 17
 Unit 2, XR-070, 17
 NORFOLK, SSN714, 12
 North American Rockwell, Nuclear Examination Reactor, L-85 (AE-6), 38
 North Anna Power Station
 Unit 1, 3
 Unit 2, 3
 North Atlantic Energy Service Corp., Seabrook Nuclear Station, Unit 1, 4
 North Carolina State University
 Graphite/water, 40
 PULSTAR, 9
 Northeast Nuclear Energy Co., Millstone Nuclear Power Station
 Unit 1, 3
 Unit 2, 3
 Unit 3, 3
 Northern States Power Co.
 Monticello Nuclear Generating Plant, 3
 Pathfinder Atomic Plant, 28
 Prairie Island Nuclear Generating Plant
 Unit 1, 4
 Unit 2, 4
 Northrop Corporate Laboratories, TRIGA-Mk F, 37
 NRAD (Neutron Radiography Facility, INEL), 7
 NRF (Neutron Radiography Facility, Hanford), 37
 NRR (Naval Research Reactor), 46
 NRX-A2 (Nuclear Rocket Engine Reactor), 33
 NRX-A3 (Nuclear Rocket Engine Reactor), 33
 NRX-A4/EST (Nuclear Rocket Engine Reactor), 33
 NRX-A5 (Nuclear Rocket Engine Reactor), 33
 NRX-A6 (Nuclear Rocket Engine Reactor), 33
 NTR (Nuclear Test Reactor), 7
 Nuclear Effects Reactor
 FRAN, 38
 KUKLA, 38
 Super KUKLA, 46
 Nuclear Electric, England
 Sizewell B, XR-148, 15
 Nuclear Energy Board-JEN, Spain, XR-010, 20
 Nuclear Engineering Test Reactor, NETR, 46
 Nuclear Examination Reactor, L-85 (AE-6), 38

Nuclear Medicine, Institute for, Germany,
 XR-060, 21
 Nuclear Research, Institute for, Romania
 TRIGA-ACPR, 19
 TRIGA (MPR 16), 19
 Nuclear Research, Institute for, West Berlin, City of, XR-012, 47
 Nuclear Rocket Engine Reactor Experiment (NERVA)
 NRX-A2, 33
 NRX-A3, 33
 NRX-A5, 33
 NRX-A6, 33
 Nuclear Rocket Reactor Engine System Test (NERVA), NRX-A4/EST, 33
 Nuclear Rocket Reactor Experiment
 Kiwi-A, 33
 Kiwi-A Prime, 33
 Kiwi-A3, 33
 Kiwi-B1A, 33
 Kiwi-B1B, 33
 Kiwi-B4A, 33
 Kiwi-B4D, 33
 Kiwi-B4E, 33
 Phoebe 1A, 33
 Phoebe 1B, 33
 Phoebe 2A, 33
 Nuclear Safety Facility, Rocky Flats Plant
 Horizontal/Split Table, 23
 Solution Base, 23
 Vertical/Split Table, 49
 Water Reflector Tank, 49
 Nuclear Ship SAVANNAH, 29
 Nuclear Systems Associates, Mississippi State University, 40
 Nuklearna Elektra Krsko, Slovenia, Krsko, XR-107, 17
 Oak Ridge Critical Experiments Facility, CEF, 48
 Oak Ridge Graphite Reactor, ORG, 38
 Oak Ridge National Laboratory
 Aircraft Reactor Experiment, 45
 Bulk Shielding Reactor, 36
 DOE Demonstration Reactor, 36
 Health Physics Research Reactor, 37
 High Flux Isotope Reactor, 7
 Homogeneous Reactor Experiment No. 1, 31
 Homogeneous Reactor Experiment No. 2, 31
 Low Intensity Test Reactor, 37
 Low Temperature Neutron Irradiation

REACTOR INDEX (Continued)

- Oak Ridge National Laboratory (Continued)
 Facility, 37
 Molten Salt Reactor Experiment, 31
 Oak Ridge Research Reactor, 34
 SNAP-02/10A TSF Shielding Experiment, 32
 Switzerland, 20
 Tower Shielding Reactor
 TSR, 38
 TSR-2, No. 11, 38
 Oak Ridge Research Reactor, ORR, 34
 Oconee Nuclear Station
 Unit 1, 3
 Unit 2, 3
 Unit 3, 3
 Office of Atomic Energy for Peace, Thailand,
 TRR-1, XR-112, 21
 OHIO, SSBN726, 12
 Ohio State University, OSURR, 9
 Oklahoma, University of, AGN-211-102, 40
 OKLAHOMA CITY, SSN723, 12
 OLYMPIA, SSN717, 12
 OMAHA, SSN692, 45
 Omaha Public Power District, Fort Calhoun
 Station, Unit 1, 2
 Omaha Veterans Administration Hospital,
 TRIGA-Mk 1, 7
 Omega West Reactor, OWR, 34
 OMRE (Organic Moderated Reactor
 Experiment), 31
 Oregon State University
 AGN-201-114, 40
 OSTR, 9
 Organic Moderated Reactor Experiment,
 OMRE, 31
 ORG (Oak Ridge Graphite Reactor), 38
 ORNL Pool Critical Assembly, BSF Pool,
 PCA, 48
 ORR (Oak Ridge Research Reactor), 34
 OSTR (Oregon State University Reactor), 9
 OSURR (Ohio State University Research
 Reactor), 9
 OWR (Omega West Reactor), 34
 Oyster Creek Nuclear Power Plant, Unit 1, 3
 P Reactor, Aiken, 41
 Pacific Gas & Electric Co.
 Diablo Canyon Nuclear Power Plant
 Unit 1, 2
 Unit 2, 2
 Humboldt Bay Power Plant, Unit 3, 27
 Vallecitos Boiling Water Reactor, VBWR, 31
- Pacific Northwest National Laboratory
 High Temperature Lattice Test Reactor, 37
 Physical Constants Test Reactor, 38
 Thermal Test Reactor No. 2, 38
 Pakistan, PARR, XR-046, 20
 Palermo, University of, Italy, XR-025, 22
 Palisades Nuclear Plant, Unit 1, 3
 Palo Verde Nuclear Generating Station
 Unit 1, 3
 Unit 2, 3
 Unit 3, 3
 PARCHE, SSN683, 11
 PARGO, SSN650, 44
 Parka, 48
 PASADENA, SSN752, 13
 Pathfinder Atomic Plant, 28
 PATRICK HENRY, SSN599, 43
 Paul Scherrer Institute, Switzerland, 20
 Pavia, University of, Italy, XR-056, 22
 Pawling Research Reactor, PRR, 38
 PBF (Power-Burst Facility), 35
 PCA (Pool Critical Assembly), 48
 PCTR (Physical Constants Test Reactor), 38
 PDP (Process Development Pile), 42
 Peach Bottom Atomic Power Station
 Unit 1, 28
 Unit 2, 3
 Unit 3, 3
 Penn State TRIGA Reactor, PSTR, 9
 PENNSYLVANIA, SSBN735, 12
 Pennsylvania Power & Light Co., Susquehanna
 Steam Electric Station
 Unit 1, 5
 Unit 2, 5
 Pennsylvania State University, Penn State
 TRIGA Reactor, PSTR, 9
 PERMIT, SSN594, 43
 Perry Nuclear Power Plant
 Unit 1, 4
 Unit 2, 5
 Pewee-1, 32
 Pewee-2, 32
 PHILADELPHIA, SSN690, 11
 Philadelphia Electric Co.
 Limerick Generating Station
 Unit 1, 3
 Unit 2, 3
 Peach Bottom Atomic Power Station
 Unit 1, 28
 Unit 2, 3
 Unit 3, 3
- Philippines
 Republic of the, PRR-1, XR-034, 20
 Republic of the Philippines Nuclear Power
 Plant, Unit 1, XR-120, 18
 Phillips Petroleum Co.
 Louisiana State University Nuclear Science
 Center, SNARE, 37
 SNAP-10A Transient Test No. 2, 35
 Special Power Excursion Reactor Test
 No. 1, 35
 No. 2, 35
 No. 3, 35
 Phoebeus
 1A, 33
 1B, 33
 2A, 33
 PHOENIX, SSN702, 12
 PHRENIC, 36
 Physical Constants Test Reactor, PCTR, 38
 Pilgrim Nuclear Power Station, Unit 1, 4
 PINTADO, SSN672, 11
 Piqua Nuclear Power Facility, 28
 PITTSBURGH, SSN720, 12
 Plant, 22
 Plum Brook Reactor Facility, NASA-TR, 34
 PLUNGER, SSN595, 43
 Plutonium Recycle Test Reactor, PRTR, 31
 PM-1, 42
 PM-2A, 42
 PM-3A, 42
 PNPL Critical Mass Laboratory
 FEAS, 48
 Horizontal, 48
 RSTM, 48
 POGY, SSN647, 11
 Point Beach Nuclear Plant
 Unit 1, 4
 Unit 2, 4
 POLLACK, SSN603, 43
 Polytechnic Institute of New York,
 AGN-201M-105, 40
 Pool Critical Assembly (PCA), 48
 Pool Test Reactor (PTR), 49
 Portable Medium Power Plant
 No. 1, PM-1, 42
 No. 2A, PM-2A, 42
 No. 3A, PM-3A, 42
 Portland General Electric Co., Trojan Nuclear
 Plant, Unit 1, 28
 PORTSMOUTH, SSN707, 12
- Portsmouth Naval Shipyard
 GRAYLING, 44
 JACK, 43
 JOHN ADAMS, 44
 NATHANAEI GREENE, 44
 SAND LANCE, 11
 SEADRAGON, 43
 SWORDFISH, 43
 THRESHER, 43
 TINOSA, 43
 Portugal, RP-1, XR-013, 20
 Power-Burst Facility, PBF, 35
 Power Reactor Development Company, Enrico
 Fermi Atomic Power Plant, Unit 1, 27
 Prairie Island Nuclear Generating Plant
 Unit 1, 4
 Unit 2, 4
 Process Development Pile, PDP, 42
 Proff Test Facility (PTF), 48
 Project ENEL of SENN, Italy, Garigliano
 Nuclear Power Station, XR-043, 46
 PROVIDENCE, SSN719, 12
 PRR (Pawling Research Reactor), 38
 PRTR (Plutonium Recycle Test Reactor), 31
 PSTR (Penn State TRIGA Reactor), 9
 PTF (Proff Test Facility), 48
 PTR (Pool Test Reactor), 49
 Public Service Co. of Colorado, Fort St. Vrain
 Nuclear Generating Station, 27
 Public Service Electric & Gas Co.
 Hope Creek Nuclear Generating Station
 Unit 1, 2
 Salem Nuclear Generating Station
 Unit 1, 4
 Unit 2, 4
 Puerto Rico Nuclear Center
 L-77, 40
 TRIGA-FLIP, 40
 Puerto Rico Water Resources Authority, Boiling
 Nuclear Superheater Power Station, 27
 PUFFER, SSN652, 44
 PULSTAR at North Carolina State University, 9
 Purdue University, PUR-1, 9
 Quad-Cities Station
 Unit 1, 4
 Unit 2, 4
 QUEENFISH, SSN651, 44
 Queen Mary College, London University, United
 Kingdom, XR-049, 48

REACTOR INDEX (Continued)

- Quincy Division, General Dynamics Corp.
GATO, 44
- GREENLING, 44
SUNFISH, 44
WHALE, 44
- R Reactor, Aiken, 41
Radiation Effects Reactor, RER, 38
Raleigh Research Reactor, RRR, 40
Rancho Seco Nuclear Generating Station,
Unit 1, 28
RAY, SSN653, 44
Reed College, TRIGA-Mk 1, 9
Regional Center for Nuclear Studies, Zaire, 21
Rensselaer Polytechnic Institute, Troy, NY, 22
RER (Radiation Effects Reactor), 38
Rheinisch-Westfälisches Elektrizitätswerk AG,
Germany, Mülheim-Kärlich, 15
Rhine-Westphalia Power Co., RWE, Germany,
Kahl Nuclear Power Station, 46
RHODE ISLAND, SSBN740, 12
Rhode Island Nuclear Science Center, RINSC, 7
Rice University, AGN-211-101, 41
RICHARD B. RUSSELL, SSN687, 45
Rikkyo University, Japan, XR-038, 22
RINSC (Rhode Island Nuclear Science Center), 7
Riso National Laboratory, Denmark
DR-1, XR-005, 19
DR-2, XR-006, 47
River Bend Station, Unit 1, 4
ROBERT E. LEE, SSN601, 43
Robert Emmett Ginna Nuclear Power Plant,
Unit 1, 4
Robinson Plant, Unit 2, 2
Rochester Gas & Electric Corp., Robert Emmett
Ginna Nuclear Power Plant, Unit 1, 4
Rockwell International
Kinetic Experiment on Water Boilers,
KEWB, 37
L-77, 38
Rhode Island Nuclear Science Center, 7
TRIGA-ACPR, 19
TRIGA (MPR 16), 19
RONALD REAGAN, CVN76, 14
RRR (Raleigh Research Reactor), 40
RSTM, 48
Rural Cooperative Power Association, Elk River
Reactor, 27
S10FS-1, 32
S10FS-3, 32
- S10FS-4, 32
S10FS-5, 32
S1C, 46
S1G, 46
S1W, 46
S2DS, 32
S3G, 46
S5G, 45
S8DR, 32
S8ER, 32
S8G, 14
Sacramento Municipal Utility District, Rancho
Seco Nuclear Generating Station, Unit 1, 28
St. Lucie Plant
Unit 1, 4
Unit 2, 4
Salem Nuclear Generating Station
Unit 1, 4
Unit 2, 4
SALT LAKE CITY, SSN716, 12
SAM HOUSTON, SSN609, 43
SAM RAYBURN, ex-SSBN635, 11
Sandia Engineering Reactor, SER, 34
Sandia National Laboratories
Louisiana State University Nuclear Science
Center, 37
Sandia Engineering Reactor, 34
Sandia Pulsed Reactor, 38
Sandia Pulsed Reactor II, 8
Sandia Pulsed Reactor III, 8
SNL Annular Core Research Reactor, 8
SNL Critical Assembly, CX, 22
SAND LANCE, SSN660, 11
SAN FRANCISCO, SSN711, 12
SAN JUAN, SSN751, 13
San Onofre Nuclear Generating Station
Unit 1, 28
Unit 2, 4
Unit 3, 4
SANTA FE, SSN763, 13
Sao Paulo, University of, Brazil, XR-002, 21
SARGO, SSN583, 43
SAVANNAH Nuclear Ship, 29
Saxton Nuclear Experimental Corp., 31
SCAMP, SSN588, 43
SCHIZO, 36
SCORPION, SSN589, 43
SCRANTON, SSN756, 13
SCULPIN, SSN590, 43
- Seabrook Nuclear Station, Unit 1, 4
SEA DEVIL, SSN664, 44
SEADRAGON, SSN584, 43
SEA HORSE, SSN669, 44
SEAWOLF, SSN21, 13
SEAWOLF PWR, SSN575, 43
SEAWOLF Sodium Reactor, SSN575, 43
SEFOR (Southwest Experimental Fast Oxide
Reactor), 31
Selbersdorf Research Center, Austria, Astra
XR-023, 19
Sequoyah Nuclear Plant
Unit 1, 4
Unit 2, 4
SER (Sandia Engineering Reactor), 34
SER, SNAP-02 Experiment Reactor, 32
SHARK, SSN591, 43
Shearon Harris Nuclear Power Plant, Unit 1, 4
SHEBA (Solution high energy burst assembly),
22
Shield Test and Irradiation Reactor, STIR, 38
Shippingport Atomic Power Station, 28
Shoreham Nuclear Power Station, 28
SILVERSIDES, SSN679, 45
SIMON BOLIVAR, SSBN641, 44
SKATE, SSN578, 43
SKIPJACK, SSN585, 43
SKUA at Los Alamos National Laboratory, 22
SL-1 (Stationary Low Power Plant), 45
Slovenia
Josef Stefan Nuclear Institute, XR-055, 20
Krsko, XR-107, 17
SM-1 (Stationary Medium Power Plant), 43
SM-1A (Stationary Medium Power Plant), 43
Small Submarine Reactor Prototype, S1C, 46
SNAP-02 Developmental System, S2DS, 32
SNAP-02 Experimental Reactor, SER, 32
SNAP-02/10A TSF Shielding Experiment,
SNAP-TSF, 32
SNAP-08 Developmental Reactor, S8DR, 32
SNAP-08 Experimental Reactor, S8ER, 32
SNAP-10A Flight System Ground Test No. 1,
S10FS-1, 32
SNAP-10A Flight System Ground Test No. 3,
S10FS-3, 32
SNAP-10A Flight System, S10FS-4, 32
SNAP-10A Flight System, S10FS-5, 32
SNAP-10A Transient Test No. 2,
SNAPTRAN-2, 35
SNAP-10A Transient Test No. 3,
SNAPTRAN-3, 35
- SNAPTRAN-2, 35
SNAPTRAN-3, 35
SNAP-TSF, 32
SNARE, 37
SNL Annular Core Research Reactor, ACRR, 8
SNL Critical Assembly, CX, 22
SNOOK, SSN592, 43
Sodium Reactor Experiment, SRE, 31
Solution Base, 23
South Africa, Safari-1, XR-042, 19
SOUTH CAROLINA (2 reactors), CGN37, 13
South Carolina Electric & Gas Co., Virgil C.
Summer Nuclear Station, Unit 1, 5
South Texas Project
Unit 1, 4
Unit 2, 4
Southern California Edison & San Diego Gas &
Electric Company
San Onofre Nuclear Generating Station
Unit 2, 4
Unit 3, 4
Southern California Edison Co.,
San Onofre Nuclear Generating Station,
Unit 1, 28
Sodium Reactor Experiment, SRE, 31
Southern Nuclear Operating Co., Joseph M.
Farley Nuclear Plant
Unit 1, 3
Unit 2, 3
Southwest Atomic Energy Associates, Southwest
Experimental Fast Oxide Reactor, SEFOR, 31
Southwest Experimental Fast Oxide Reactor,
SEFOR, 31
Space Radiation Laboratory, Northrop Corporate
Laboratories, TRIGA-Mk F, 37
SPADEFISH, SSN668, 44
Spain
Almaraz
Unit 1, XR-088, 17
Unit 2, XR-088, 17
Asco
Unit 1, XR-090, 17
Unit 2, XR-099, 17
Cofrentes, Unit 1, XR-097, 17
Jose Cabrera, XR-059, 17
Leoniz
Unit 1, XR-089, 18
Unit 2, XR-089, 18
Nuclear Energy Board-JEN, XR-010, 20
Santa Maria de Garona, XR-064, 17

REACTOR INDEX (Continued)

Spain (Continued)			
Valdecaballeros		Tennessee Valley Authority (Continued)	Transient Reactor Test Facility, TREAT, 39
Unit 1, XR-110, 18		Watts Bar Nuclear Plant	TREPANG, SSN674, 11
Unit 2, XR-110, 18		Unit 1, 5	Trident Prototype, S8G, 14
		Unit 2, 5	TRIGA
Vandellos, Unit 2, XR-122, 17			Maryland, University of, 9
Special Power Excursion Reactor Test		Test and Evaluation Command, USA	Texas A&M University, 9
No. 1, 35		Army Pulse Radiation Facility, APRF, 15	Wisconsin, University of, 10
No. 2, 35		Fast Burst Reactor Facility, FBRF, 15	TRIGA-FLIP, Puerto Rico Nuclear Center, 40
No. 3, 35		Test Pile, 42	TRIGA-Mk F
No. 4, 35		TEXAS (2 reactors), CGN39, 45	General Atomics, Advanced TRIGA-Mk F
SPERT-1 (Special Power Excursion Reactor		Texas A&M University	Prototype Reactor, 7
Test No. 1), 35		AGN-201M-106, 9	Northrop Corporate Laboratories, 37
SPERT-2 (Special Power Excursion Reactor		TRIGA, 9	TRIGA-Mk I
Test No. 2), 35		Texas at Austin, University of	Arizona, University of, 8
SPERT-3 (Special Power Excursion Reactor		TRIGA-Mk I, 40	California, Irvine, University of, 8
Test No. 3), 35		TRIGA-Mk II, 9	Dow Chemical Co., 7
SPERT-4 (Special Power Excursion Reactor		Texas Utilities Generating Co., Comanche Peak	General Atomics, TRIGA-Mk I Prototype
Test No. 4), 35		Steam Electric Station	Reactor, 7
SPR (Sandia Pulsed Reactor), 38		Unit 1, 2	Michigan State University, 40
SPR-II (Sandia Pulsed Reactor), 8		Unit 2, 2	Omaha Veterans Administration Hospital, 7
SPR-III (Sandia Pulsed Reactor), 8		Thailand, TRR-1, XR-112, 21	Reed College, 9
SPRINGFIELD, SSN761, 13		THEODORE ROOSEVELT (2 reactors),	Texas at Austin, University of, 40
SP/SE (Standard Pile/Subcritical Experimental		CVN71, 13	U.S. Geological Survey Laboratory, 8
Complex), 42		THEODORE ROOSEVELT, SSBN600, 43	Utah, University of, 10
SR 305-M Test Pile, Test Pile, 42		Thermal Test Reactor	TRIGA-Mk II
SRE (Sodium Reactor Experiment), 31		No. 1, TTR-1, 46	Columbia University, 39
Standard Pile/Subcritical Experimental Complex,		No. 2, TTR-2, 38	Cornell University, 8
SP/SE, 42		THOMAS A. EDISON, SSN610, 43	General Atomics Technologies, 37
Stanford University, 39		THOMAS JEFFERSON, SSN618, 44	Illinois, University of, 8
State University of New York, PULSTAR, 9		Three Mile Island Nuclear Station	Kansas State University, 9
Stationary Low Power Plant No. 1, SL-1, 45		Unit 1, 5	Korea, 20
Stationary Medium Power Plant		Unit 2, 28	Texas at Austin, University of, 9
No. 1, SM-1, 43		THRESHER, SSN593, 43	World Agricultural Fair, 36
No. 1A, SM-1A, 43		TINOSA, SSN606, 43	TRIGA-Mk III
STIR (Shield Test and Irradiation Reactor), 38		Tokyo Electric Power Co.	California, Berkeley, University of, 39
STONEWALL JACKSON, SSBN634, 44		Fukushima Dai-ichi Power Station	Korea, 20
Studsvik AB, Sweden, XR-019, 19		Unit 1, XR-066, 16	Torrey Pines, TRIGA-Mk III Reactor, 38
STURGEON, SSNG37, 44		Unit 2, XR-072, 16	TRITON (2 Reactors), SSN586, 43
STURGIS Floating Nuclear Power Plant,		Unit 6, XR-084, 16	Trojan Nuclear Plant, Unit 1, 28
MH-1A, 43		Kashiwazaki-Kariwa	TRUXTUN (2 reactors), CGN35, 45
Submarine Advanced Reactor Prototype, S3G, 46		Unit 6, 16	TSR, Tower Shielding Reactor, 38
Submarine Intermediate Reactor Mark A,		Unit 7, 18	TSR-2, Tower Shielding Reactor No. II, 38
SIG, 46		TOLEDO, SSN769, 13	TTR-1, Thermal Test Reactor No. 1, 46
Submarine Thermal Reactor Facility, SIW, 46		Toledo Edison Co., Davis-Besse Nuclear Power	TTR-2, Thermal Test Reactor No. 2, 38
Summer Nuclear Station, Unit 1, 5		Station, Unit 1, 2	TUCSON, SSN770, 13
SUNFISH, SSN649, 44		TOPEKA, SSN754, 13	TULLIBEE, SSN597, 43
Super KUKLA, 46		Torrey Pines, TRIGA-Mk III Reactor, 38	Tun Ismail Atomic Research Centre, Malaysia,
SUPO (Super Power Water Boiler), 37		TORY IIA, 45	XR-125, 20
Surry Power Station		TORY IIC, 45	TUNNY, SSN682, 11
Unit 1, 5		Tower Shielding Reactor	
Unit 2, 5		TSR, 38	
		TSR-2, 38	

REACTOR INDEX (Continued)

Turkey	Vertical/Split Table, 48	Westinghouse Electric Corporation (Continued)	Westinghouse Electric Corporation (Continued)
Atomic Energy Commission, XR-030, 21	Vienna Polytechnic Institute, Austria, XR-035, 21	Belgium	Belgium
Istanbul, Technical University of, XR-108, 21	Vietnam, Vietnam Institute of Nuclear Research, XR-032, 47	Doel	Doel
Turkey Point Plant	Virgil C. Summer Nuclear Station, Unit 1, 5	Unit 1, 15	Unit 1, 15
Unit 3, 5	VIRGINIA (2 reactors), CGN38, 45	Unit 2, 15	Unit 2, 15
Unit 4, 5	Virginia, University of	Unit 4, 15	Unit 4, 15
Tuskegee Institute, AGN-201-102, 41	CAVALIER, 41	Tihange, Unit 3, 15	Tihange, Unit 3, 15
UFR (University of Florida Test Reactor), 8	UVAR, 10	Braidwood Station	Braidwood Station
UHTREX, 31	Virginia Electric & Power Co.	Unit 1, 1	Unit 1, 1
ULR (University of Lowell Reactor), 9	North Anna Power Station	Unit 2, 1	Unit 2, 1
Ultra High Temperature Reactor Experiment, UHTREX, 31	Unit 1, 3	Brazil, Angra 1, Central Electrica de Furnas, 15	Brazil, Angra 1, Central Electrica de Furnas, 15
ULYSSES S. GRANT, SSBN631, 44	Unit 2, 3	Byron Station	Byron Station
UMR-R (University of Missouri at Rolla Reactor), 9	Surry Power Station	Unit 1, 1	Unit 1, 1
Union Electrica, S.A., Spain	Unit 1, 5	Unit 2, 1	Unit 2, 1
Almaraz	Unit 2, 5	Callaway Plant, Unit 1, 1	Callaway Plant, Unit 1, 1
Unit 1, XR-088, 17	Virginia Polytechnic Institute, UTR-10, 41	Carolinas-Virginia Tube Reactor, 27	Carolinas-Virginia Tube Reactor, 27
Unit 2, XR-088, 17	Vitro Corporation of America, Cornell University	Catawba Nuclear Station	Catawba Nuclear Station
Jose Cabrera, XR-059, 17	Zero Power Reactor, 8	Unit 1, 1	Unit 1, 1
Union Electric Co., Callaway Plant, Unit 1, 1	Vogtle Nuclear Power Plant	Unit 2, 2	Unit 2, 2
United Kingdom, Queen Mary College, London	Unit 1, 1	Comanche Peak Steam Electric Station	Comanche Peak Steam Electric Station
University, XR-049, 48	Unit 2, 1	Unit 1, 2	Unit 1, 2
United Nuclear Corporation	VON STEUBEN, SSBN632, 44	Unit 2, 2	Unit 2, 2
Army Pulse Radiation Facility, 15	Walter Reed Army Institute of Research, Development Division, PTF, 48	Diablo Canyon Nuclear Power Plant	Diablo Canyon Nuclear Power Plant
Pawling Research Reactor, 38	Washington, University of, Educator, 41	Unit 1, 2	Unit 1, 2
Universities of Frankfurt and Darmstadt, Germany, XR-009, 48	Washington Nuclear Project	Unit 2, 2	Unit 2, 2
U.S. Geological Survey Laboratory, TRIGA-Mk I, 8	Unit 1, 5	Donald C. Cook Nuclear Power Plant	Donald C. Cook Nuclear Power Plant
Utah, University of	Unit 2, 5	Unit 1, 2	Unit 1, 2
AGN-201-107, 41	Washington Public Power Supply System	Unit 2, 2	Unit 2, 2
TRIGA-Mk I, 10	N Reactor, 29	DREADNOUGHT, 47	DREADNOUGHT, 47
UTR-1, 35	Washington State University, WSTR, 10	England, Sizewell B, 15	England, Sizewell B, 15
UTR-10 (Iowa State University), 8	Water Reflector Tank, 48	Great Britain, SSW for HMS	Great Britain, SSW for HMS
UTR-10 (Virginia Polytechnic Institute), 41	Waterford Generating Station, Unit 3, 5	Haddam Neck Plant, 27	Haddam Neck Plant, 27
UTR Test Reactor, 39	Watts Bar Nuclear Plant	H.B. Robinson Plant, Unit 2, 2	H.B. Robinson Plant, Unit 2, 2
UVAR (University of Virginia), 10	Unit 1, 5	Indian Point Station	Indian Point Station
Vallecitos Boiling Water Reactor, VBWR, 31	Unit 2, 5	Unit 2, 2	Unit 2, 2
Vattenfall AB, Sweden, Ringhals	Unit 2, 5	Unit 3, 2	Unit 3, 2
Unit 2, XR-069, 17	WEST VIRGINIA, SSBN736, 12	Italy, Trino Vercellese, 47	Italy, Trino Vercellese, 47
Unit 3, XR-095, 17	West Virginia University, AGN-211-103, 41	Japan	Japan
Unit 4, XR-103, 17	Westinghouse Electric Corporation	Mihama Power Station, Unit 1, 16	Mihama Power Station, Unit 1, 16
VBWR (Vallecitos Boiling Water Reactor), 31	Alvin W. Vogtle Nuclear Plant	Ohi Power Station	Ohi Power Station
Venezuela, Institute for Scientific Research, XR-018, 21	Unit 1, 1	Unit 1, 16	Unit 1, 16
Venus, 48	Unit 2, 1	Unit 2, 16	Unit 2, 16
Vermont Yankee Nuclear Power Corp., Vermont	Beaver Valley Power Station	Unit 1, 3	Unit 1, 3
Yankee Nuclear Power Station, 5	Unit 1, 1	Unit 2, 3	Unit 2, 3
	Unit 2, 1	Kewaunee Nuclear Power Plant, 3	Kewaunee Nuclear Power Plant, 3

REACTOR INDEX (Continued)

- Westinghouse Electric Corporation (Continued)
- Spain (Continued)
- Asco
- Unit 1, 17
- Unit 2, 17
- Jose Cabrera, 17
- Lemoniz
- Unit 1, 18
- Unit 2, 18
- Vandellos, Unit 2, 17
- Submarine Thermal Reactor Facility, 46
- Surry Power Station
- Unit 1, 5
- Unit 2, 5
- Sweden, Ringhals
- Unit 2, 17
- Unit 3, 17
- Unit 4, 17
- Switzerland, Beznau
- Unit 1, 17
- Unit 2, 17
- Taiwan, Maanshan
- Unit 1, 17
- Unit 2, 17
- Westinghouse Electric Corporation (Continued)
- Takahama Power Station, Unit 1, 16
- Trojan Nuclear Plant, Unit 1, 28
- Turkey Point Plant
- Unit 3, 5
- Unit 4, 5
- Virgil C. Summer Nuclear Station, Unit 1, 5
- Watts Bar Nuclear Plant
- Unit 1, 5
- Unit 2, 5
- Westinghouse Nuclear Training Center, 39
- William B. McGuire Nuclear Station
- Unit 1, 5
- Unit 2, 5
- Wolf Creek Generating Station, 5
- Yankee Nuclear Power Station, 28
- Zion Nuclear Plant
- Unit 1, 5
- Unit 2, 5
- Westinghouse Hanford Co.
- Fast Flux Test Facility, 34
- N Reactor, 29
- Neutron Radiography Facility, 37
- Plutonium Recycle Test Reactor, 31
- Westinghouse Nuclear Training Center, WNTR, 38
- Westinghouse Testing Reactor, WTR, 34
- WHALE, SSN638, 44
- William B. McGuire Nuclear Station
- Unit 1, 5
- Unit 2, 5
- WILLIAM H. BATES, SSN680, 11
- William Marsh Rice University, AGN-21 I-101, 41
- WILL ROGERS, SSBN659, 44
- Wisconsin, University of, TRIGA, 10
- Wisconsin Electric Power Co.
- Point Beach Nuclear Plant
- Unit 1, 4
- Unit 2, 4
- Wisconsin Public Service Corp., Kewaunee Nuclear Power Plant, 3
- WNTR (Westinghouse Nuclear Training Reactor), 39
- Wolf Creek Generating Station, 5
- WOODROW WILSON, SSBN624, 44
- Worcester Polytechnic Institute, 10
- World Agricultural Fair - U.S. Exhibit Reactor, TRIGA-Mk II, 36
- WRRR (Walter Reed Research Reactor), 46
- WSTR (Washington State University), 10
- WTR (Westinghouse Test Reactor), 34
- WYOMING, SSBN742, 12
- Wyoming, University of, L-77, 41
- XE-Backup, 32
- XE-Prine, 33
- Yankee Atomic Electric Co., Yankee Nuclear Power Station, 28
- Yankee Nuclear Power Station, 28
- Zaire, Regional Center for Nuclear Studies, 21
- Zero Power Physics Reactor, ZPPR, 48
- Zero Power Reactor
- No. 6, ZPR-6, 49
- No. 9, ZPR-9, 49
- Zion Nuclear Plant
- Unit 1, 5
- Unit 2, 5
- ZPPR (Zero Power Physics Reactor), 48
- ZPR (Zero Power Reactor, ANL), 49
- ZPR (Zero Power Reactor, Cornell), 8