

NUCLEAR REACTORS

**BUILT,
BEING BUILT,
or PLANNED**

in the UNITED STATES as of

June 30, 1979

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FOREWORD

This compilation contains unclassified information about facilities built, being built, or planned in the United States for domestic use or export as of June 30, 1979, which are capable of sustaining a nuclear chain reaction. Information is presented in five parts, each of which is categorized by primary function or purpose. The major parts, namely, civilian, military, production, and export, as well as such categories as power and propulsion, are self-explanatory. Various classes of reactors within these categories are defined as follows:

CENTRAL-STATION NUCLEAR POWER PLANT

A facility designed and constructed for operation on a utility system. (Part I, Sec. 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, Sec. 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 out various aspects of reactor technology including fuel and other components. Power-conversion equipment may or may not be included as part of the facility. (Part I, Sec. 2A)

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, Sec. 3A, and Part IV, Sec. 2A)

HIGH-POWER RESEARCH AND TEST REACTOR

A reactor having a relatively high thermal power level (5 MW or more) but not classed as a general irradiation test reactor. (Part I, Sec. 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, Sec. 3C)

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 less than 5 MW. It may include facilities for testing reactor materials. (Part I, Sec. 3D; Part III, Sec. 3B; and Part IV, Sec. 2B)

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, Sec. 3E, and Part IV, Sec. 2C)

SPECIAL TEST REACTOR

A reactor designed for special testing purposes. (Part III, Sec. 3A)

CRITICAL FACILITY

A reactor capable of sustaining a nuclear chain reaction operating at extremely low power (a few watts) and designed to determine a critical mass, neutron-flux distribution, and other characteristics of a flexible arrangement of nuclear fuel, construction materials, coolant, and other reactor components. Fluid critical facilities are used to explore the critical masses of various concentrations of solutions in differing geometries. Metal critical assemblies are used to investigate the variations in heterogeneous cores. The tabulation of these facilities in Part V (pp.37-38) excludes those which have been operated and subsequently dismantled.

The abbreviated listings in the principal nuclear contractor column refer to the technical organization assigned primary responsibility for design and/or fabrication of the reactor system. The spelled-out forms for those abbreviations as well as those for designers, shipbuilders, and facility operators, are given in the table on page 10.

Startup dates refer to the year of first criticality. Estimated startup dates based on the best available information are included for projects not yet in service. The dates for non-DOE projects are estimates announced by the sponsoring organizations. Years of initial commercial operation for power reactors are given in the tabulation on pages 5 to 9.

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

1. Federal Government reactors (other than those of the Tennessee Valley Authority which are licensed by the Nuclear Regulatory Commission (NRC) and are treated in accordance with item 2)—when criticality is achieved.
2. Non-Federal Government reactors in the United States—an operating license is issued by the NRC.
3. Reactors for foreign locations—when criticality is achieved.

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

1. Federal Government reactors (other than those of the Tennessee Valley Authority which are licensed by NRC and are treated in accordance with item 2)—when ground is broken, components are ordered, or construction contract is awarded.
2. Non-Federal Government reactors in the United States—when a construction permit or limited work authorization is issued by NRC.

3. Reactors for foreign locations—when an application for an export license is received by NRC or when reliable information is received relating to the fabrication of reactor components.

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

1. Federal Government reactors—when publicly announced as a project planned for construction by the agency involved or the project is otherwise appropriately authorized.
2. Non-Federal Government reactors in the United States—when a public announcement that includes principal contractor and reactor type is made by the sponsoring organization or an application for a construction permit is received by NRC.
3. Reactors for foreign locations—when public announcement that includes principal contractor and

reactor type is made or 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.

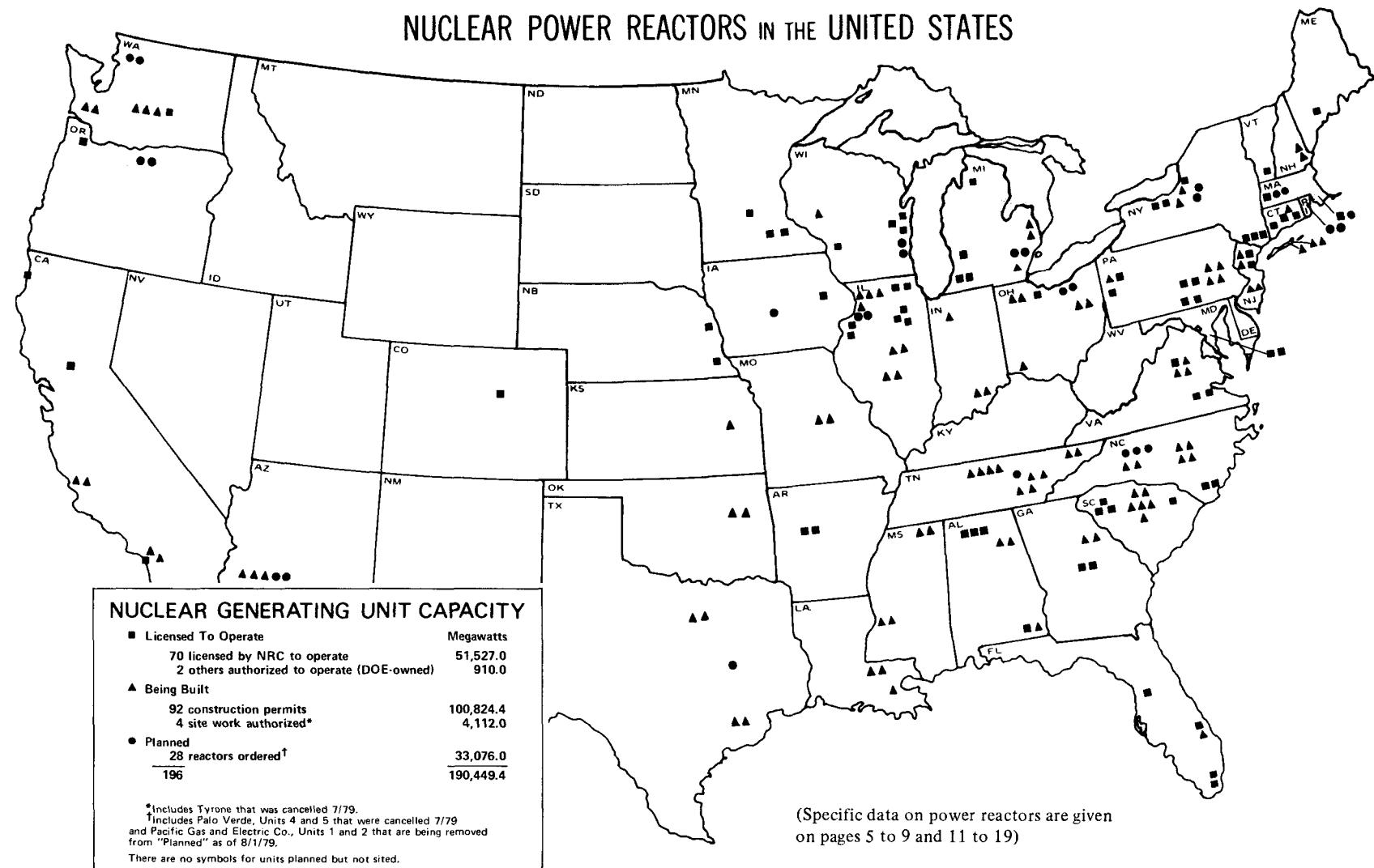
Reactors are listed as *shut down* or *dismantled* when the owner announces or verifies a decision to permanently shut down a facility and does not intend to restart the reactor. A reactor shut down owing to technical problems, extensive modifications, or refueling continues to be listed as *operable*.

The following Statistical Summary excludes critical facilities. All other categories are summarized. Shutdown and dismantled reactors in these categories are included since such facilities have made significant contributions to reactor technology.

STATISTICAL SUMMARY

| | Operable | Being built | Planned | Shut down or dismantled |
|--|----------|-------------|---------|-------------------------|
| I. CIVILIAN REACTORS | | | | |
| 1. Power Reactors | | | | |
| A. Central-Station Electric Power | 71 | 94 | 28 | 8 |
| B. Dual-Purpose Plants | 1 | 2 | | |
| C. Propulsion (Maritime) | | | | 1 |
| 2. Experimental Power-Reactor Systems | | | | |
| A. Electric-Power Systems | 1 | | | 23 |
| B. Auxiliary Power (SNAP) | | | | 9 |
| C. Space Propulsion (Rover) | | | | 21 |
| 3. Test, Research, and University Reactors | | | | |
| A. General Irradiation Test | 3 | 1 | | 3 |
| B. High-Power Research and Test | 9 | | | 4 |
| C. Safety Research and Test | 3 | 1 | | 8 |
| D. General Research | 24 | 1 | 1 | 40 |
| E. University Research and Teaching | 54 | 1 | | 9 |
| II. PRODUCTION REACTORS | | | | |
| 1. Materials Production | 3 | | | 10 |
| 2. Process Development | 4 | | | 1 |
| III. MILITARY REACTORS | | | | |
| 1. Defense Power-Reactor Applications | | | | |
| A. Remote Installations | 1 | | | 5 |
| B. Propulsion (Naval) | 121 | 28 | | 5 |
| 2. Developmental Power | | | | |
| A. Electric-Power Experiments and Prototypes | | | | 3 |
| B. Propulsion Experiments and Prototypes | 7 | | | 7 |
| 3. Test and Research | | | | |
| A. Test | | | | 4 |
| B. Research | 6 | | | 3 |
| IV. REACTORS FOR EXPORT | | | | |
| 1. Power Reactors | | | | |
| A. Central-Station Electric Power | 21 | 28 | 14 | 2 |
| B. Propulsion | 1 | | | |
| 2. Test, Research, and Teaching | | | | |
| A. General Irradiation Test | | 4 | | |
| B. General Research | | 30 | | 1 |
| C. University Research and Teaching | | 26 | | |

NUCLEAR POWER REACTORS IN THE UNITED STATES



(Specific data on power reactors are given on pages 5 to 9 and 11 to 19)

COMMERCIAL NUCLEAR POWER REACTORS IN THE UNITED STATES

| SITE | PLANT NAME | CAPACITY, NET MW(e) | UTILITY | COMMERCIAL OPERATION |
|---------------------|---|------------------------|---|-------------------------|
| ALABAMA | | | | |
| Decatur | Browns Ferry Nuclear Power Station, Unit 1 | 1065 | Tennessee Valley Authority | 1974 |
| Decatur | Browns Ferry Nuclear Power Station, Unit 2 | 1065 | Tennessee Valley Authority | 1975 |
| Decatur | Browns Ferry Nuclear Power Station, Unit 3 | 1065 | Tennessee Valley Authority | 1977 |
| Dothan | Joseph M. Farley Nuclear Plant, Unit 1 | 829 | Alabama Power Co. | 1977 |
| Dothan | Joseph M. Farley Nuclear Plant, Unit 2 | 820 | Alabama Power Co. | 1980 |
| Scottsboro | Bellefonte Nuclear Plant, Unit 1 | 1213 | Tennessee Valley Authority | 1981 |
| Scottsboro | Bellefonte Nuclear Plant, Unit 2 | 1213 | Tennessee Valley Authority | 1982 |
| ARIZONA | | | | |
| Wintersburg | Palo Verde Nuclear Generating Station, Unit 1 | 1270 | Arizona Public Service Co. | 1983 |
| Wintersburg | Palo Verde Nuclear Generating Station, Unit 2 | 1270 | Arizona Public Service Co. | 1984 |
| Wintersburg | Palo Verde Nuclear Generating Station, Unit 3 | 1270 | Arizona Public Service Co. | 1986 |
| *Wintersburg | Palo Verde Nuclear Generating Station, Unit 4 | 1270 | Arizona Public Service Co. | 1988 |
| *Wintersburg | Palo Verde Nuclear Generating Station, Unit 5 | 1270 | Arizona Public Service Co. | 1990 |
| ARKANSAS | | | | |
| Russellville | Arkansas Nuclear One, Unit 1 | 850 | Arkansas Power & Light Co. | 1974 |
| Russellville | Arkansas Nuclear One, Unit 2 | 912 | Arkansas Power & Light Co. | 1979 |
| CALIFORNIA | | | | |
| Eureka | Humboldt Bay Power Plant, Unit 3 | 65 | Pacific Gas & Electric Co. | 1963 |
| San Clemente | San Onofre Nuclear Generating Station, Unit 1 | 436 | Southern California Edison Co. and San Diego Gas & Electric Co. | 1968 |
| San Clemente | San Onofre Nuclear Generating Station, Unit 2 | 1100 | Southern California Edison Co. and San Diego Gas & Electric Co. | 1981 |
| San Clemente | San Onofre Nuclear Generating Station, Unit 3 | 1100 | Southern California Edison Co. and San Diego Gas & Electric Co. | 1983 |
| Diablo Canyon | Diablo Canyon Nuclear Power Plant, Unit 1 | 1084 | Pacific Gas & Electric Co. | 1979 |
| Diablo Canyon | Diablo Canyon Nuclear Power Plant, Unit 2 | 1106 | Pacific Gas & Electric Co. | 1979 |
| Clay Station | Rancho Seco Nuclear Generating Station | 918 | Sacramento Municipal Utility District | 1975 |
| † Site not selected | Unit 1 | 1200 | Pacific Gas & Electric Co. | Indef. |
| † Site not selected | Unit 2 | 1200 | Pacific Gas & Electric Co. | Indef. |
| COLORADO | | | | |
| Platteville | Ft. St. Vrain Nuclear Generating Station | 330 | Public Service Co. of Colorado | 1978 |
| CONNECTICUT | | | | |
| Haddam Neck | Haddam Neck Plant | 575 | Connecticut Yankee Atomic Power Co. | 1968 |
| Waterford | Millstone Nuclear Power Station, Unit 1 | 660 | Northeast Nuclear Energy Co. | 1971 |
| Waterford | Millstone Nuclear Power Station, Unit 2 | 830 | Northeast Nuclear Energy Co. | 1975 |
| Waterford | Millstone Nuclear Power Station, Unit 3 | 1156 | Northeast Nuclear Energy Co. | 1986 |
| FLORIDA | | | | |
| Florida City | Turkey Point Plant, Unit 3 | 693 | Florida Power & Light Co. | 1972 |
| Florida City | Turkey Point Plant, Unit 4 | 693 | Florida Power & Light Co. | 1973 |
| Red Level | Crystal River Nuclear Plant, Unit 3 | 825 | Florida Power Corp. | 1977 |
| Ft. Pierce | St. Lucie Plant, Unit 1 | 802 | Florida Power & Light Co. | 1976 |
| Ft. Pierce | St. Lucie Plant, Unit 2 | 810 | Florida Power & Light Co. | 1983 |
| GEORGIA | | | | |
| Baxley | Edwin I. Hatch Nuclear Plant, Unit 1 | 786 | Georgia Power Co. | 1975 |
| Baxley | Edwin I. Hatch Nuclear Plant, Unit 2 | 784 | Georgia Power Co. | 1978 |
| Waynesboro | Alvin W. Vogtle, Jr., Nuclear Plant, Unit 1 | 1110 | Georgia Power Co. | 1984 |
| Waynesboro | Alvin W. Vogtle, Jr., Nuclear Plant, Unit 2 | 1110 | Georgia Power Co. | 1987 |
| ILLINOIS | | | | |
| Morris | Dresden Nuclear Power Station, Unit 1 | 200 | Commonwealth Edison Co. | 1960 |
| Morris | Dresden Nuclear Power Station, Unit 2 | 794 | Commonwealth Edison Co. | 1970 |
| Morris | Dresden Nuclear Power Station, Unit 3 | 794 | Commonwealth Edison Co. | 1971 |
| Zion | Zion Nuclear Plant, Unit 1 | 1040 | Commonwealth Edison Co. | 1973 |
| Zion | Zion Nuclear Plant, Unit 2 | 1040 | Commonwealth Edison Co. | 1974 |
| Cordova | Quad-Cities Station, Unit 1 | 789 | Commonwealth Edison Co. and Iowa-Illinois Gas and Electric Co. | 1973 |
| Cordova | Quad-Cities Station, Unit 2 | 789 | Commonwealth Edison Co. and Iowa-Illinois Gas and Electric Co. | 1973 |
| Seneca | LaSalle County Station, Unit 1 | 1078 | Commonwealth Edison Co. | 1980 |

*Canceled 7/79.

†Removed from listing 8/79.

COMMERCIAL NUCLEAR POWER REACTORS IN THE UNITED STATES (Continued)

| SITE | PLANT NAME | CAPACITY, NET MW(e) | UTILITY | COMMERCIAL OPERATION |
|-----------------------------|---|------------------------|---|-------------------------|
| ILLINOIS (Continued) | | | | |
| Seneca | LaSalle County Station, Unit 2 | 1078 | Commonwealth Edison Co. | 1981 |
| Byron | Byron Station, Unit 1 | 1120 | Commonwealth Edison Co. | 1982 |
| Byron | Byron Station, Unit 2 | 1120 | Commonwealth Edison Co. | 1983 |
| Braidwood | Braidwood Station, Unit 1 | 1120 | Commonwealth Edison Co. | 1982 |
| Braidwood | Braidwood Station, Unit 2 | 1120 | Commonwealth Edison Co. | 1983 |
| Clinton | Clinton Power Station, Unit 1 | 933.4 | Illinois Power Co. | 1982 |
| Clinton | Clinton Power Station, Unit 2 | 933.4 | Illinois Power Co. | 1988 |
| Savanna | Carroll County Station, Unit 1 | 1120 | Commonwealth Edison Co. | 1990 |
| Savanna | Carroll County Station, Unit 2 | 1120 | Commonwealth Edison Co. | 1991 |
| INDIANA | | | | |
| Westchester | Bailey Generating Station Nuclear 1 | 643 | Northern Indiana Public Service Co. | 1984 |
| Madison | Marble Hill Nuclear Generating Station, Unit 1 | 1130 | Public Service Indiana | 1982 |
| Madison | Marble Hill Nuclear Generating Station, Unit 2 | 1130 | Public Service Indiana | 1984 |
| IOWA | | | | |
| Palo | Duane Arnold Energy Center, Unit 1 | 538 | Iowa Electric Light & Power Co. | 1975 |
| Vandalia | Vandalia Nuclear Project | 1270 | Iowa Power and Light Co. | Indef. |
| KANSAS | | | | |
| Burlington | Wolf Creek Generating Station, Unit 1 | 1150 | Kansas Gas & Electric Co. and Kansas City Power & Light Co. | 1983 |
| LOUISIANA | | | | |
| Taft | Waterford Generating Station, Unit 3 | 1113 | Louisiana Power & Light Co. | 1981 |
| St. Francisville | River Bend Station, Unit 1 | 934 | Gulf States Utilities Co. | 1984 |
| St. Francisville | River Bend Station, Unit 2 | 934 | Gulf States Utilities Co. | Indef. |
| MAINE | | | | |
| Wiscasset | Maine Yankee Atomic Power Plant | 825 | Maine Yankee Atomic Power Co. | 1972 |
| MARYLAND | | | | |
| Lusby | Calvert Cliffs Nuclear Power Plant, Unit 1 | 845 | Baltimore Gas and Electric Co. | 1975 |
| Lusby | Calvert Cliffs Nuclear Power Plant, Unit 2 | 845 | Baltimore Gas and Electric Co. | 1977 |
| MASSACHUSETTS | | | | |
| Rowe | Yankee Nuclear Power Station | 175 | Yankee Atomic Electric Co. | 1961 |
| Plymouth | Pilgrim Nuclear Power Station, Unit 1 | 655 | Boston Edison Co. | 1972 |
| Plymouth | Pilgrim Nuclear Power Station, Unit 2 | 1150 | Boston Edison Co. | 1985 |
| Montague | Montague Nuclear Power Station, Unit 1 | 1150 | Northeast Utilities | 1988 |
| Montague | Montague Nuclear Power Station, Unit 2 | 1150 | Northeast Utilities | 1989 |
| MICHIGAN | | | | |
| Big Rock Point | Big Rock Point Nuclear Plant | 72 | Consumers Power Co. | 1963 |
| South Haven | Palisades Nuclear Plant | 805 | Consumers Power Co. | 1971 |
| Newport | Enrico Fermi Atomic Power Plant, Unit 2 | 1093 | Detroit Edison Co. | 1982 |
| Bridgman | Donald C. Cook Nuclear Power Plant, Unit 1 | 1054 | Indiana & Michigan Electric Co. | 1975 |
| Bridgman | Donald C. Cook Nuclear Power Plant, Unit 2 | 1100 | Indiana & Michigan Electric Co. | 1978 |
| Midland | Midland Plant, Unit 1 | 460 | Consumers Power Co. | 1982 |
| Midland | Midland Plant, Unit 2 | 811 | Consumers Power Co. | 1981 |
| St. Clair County | Greenwood Energy Center, Unit 2 | 1264 | The Detroit Edison Co. | 1990 |
| St. Clair County | Greenwood Energy Center, Unit 3 | 1264 | The Detroit Edison Co. | 1992 |
| MINNESOTA | | | | |
| Monticello | Monticello Nuclear Generating Plant | 545 | Northern States Power Co. | 1971 |
| Red Wing | Prairie Island Nuclear Generating Plant, Unit 1 | 530 | Northern States Power Co. | 1973 |
| Red Wing | Prairie Island Nuclear Generating Plant, Unit 2 | 530 | Northern States Power Co. | 1974 |
| MISSISSIPPI | | | | |
| Corinth | Yellow Creek Nuclear Plant, Unit 1 | 1285 | Tennessee Valley Authority | 1985 |
| Corinth | Yellow Creek Nuclear Plant, Unit 2 | 1285 | Tennessee Valley Authority | 1986 |
| Port Gibson | Grand Gulf Nuclear Station, Unit 1 | 1250 | Mississippi Power & Light Co. | 1981 |
| Port Gibson | Grand Gulf Nuclear Station, Unit 2 | 1250 | Mississippi Power & Light Co. | 1984 |
| MISSOURI | | | | |
| Fulton | Callaway Plant, Unit 1 | 1120 | Union Electric Co. | 1982 |
| Fulton | Callaway Plant, Unit 2 | 1120 | Union Electric Co. | 1987 |
| NEBRASKA | | | | |
| Fort Calhoun | Ft. Calhoun Station, Unit 1 | 457 | Omaha Public Power District | 1973 |
| Brownville | Cooper Nuclear Station | 778 | Nebraska Public Power District and Iowa Power and Light Co. | 1974 |

COMMERCIAL NUCLEAR POWER REACTORS IN THE UNITED STATES (Continued)

| SITE | PLANT NAME | CAPACITY, NET MW(e) | UTILITY | COMMERCIAL OPERATION |
|-----------------------|---|------------------------|--|-------------------------|
| NEW HAMPSHIRE | | | | |
| Seabrook | Seabrook Nuclear Station, Unit 1 | 1200 | Public Service Co. of New Hampshire | 1983 |
| Seabrook | Seabrook Nuclear Station, Unit 2 | 1200 | Public Service Co. of New Hampshire | 1985 |
| NEW JERSEY | | | | |
| Toms River | Oyster Creek Nuclear Power Plant, Unit 1 | 650 | Jersey Central Power & Light Co. | 1969 |
| Forked River | Forked River Nuclear Station, Unit 1 | 1070 | Jersey Central Power & Light Co. | 1983 |
| Salem | Salem Nuclear Generating Station, Unit 1 | 1090 | Public Service Electric and Gas, N.J. | 1977 |
| Salem | Salem Nuclear Generating Station, Unit 2 | 1115 | Public Service Electric and Gas, N.J. | 1980 |
| Salem | Hope Creek Nuclear Generating Station, Unit 1 | 1067 | Public Service Electric and Gas, N.J. | 1984 |
| Salem | Hope Creek Nuclear Generating Station, Unit 2 | 1067 | Public Service Electric and Gas, N.J. | 1986 |
| NEW YORK | | | | |
| Buchanan | Indian Point Station, Unit 1 | 265 | Consolidated Edison Co. of New York, Inc. | 1962 |
| Buchanan | Indian Point Station, Unit 2 | 873 | Consolidated Edison Co. of New York, Inc. | 1973 |
| Buchanan | Indian Point Station, Unit 3 | 965 | Power Authority of the State of New York | 1976 |
| Scriba | Nine Mile Point Nuclear Station, Unit 1 | 620 | Niagara Mohawk Power Corp. | 1969 |
| Scriba | Nine Mile Point Nuclear Station, Unit 2 | 1099.8 | Niagara Mohawk Power Corp. | 1984 |
| Ontario | Robert Emmett Ginna Nuclear Power Plant, Unit 1 | 470 | Rochester Gas & Electric Corp. | 1970 |
| Brookhaven | Shoreham Nuclear Power Station | 819 | Long Island Lighting Co. | 1981 |
| Scriba | James A. FitzPatrick Nuclear Power Plant | 821 | Power Authority of the State of New York | 1975 |
| Jamesport | Jamesport Nuclear Power Station, Unit 1 | 1150 | Long Island Lighting Co. | 1988 |
| Jamesport | Jamesport Nuclear Power Station, Unit 2 | 1150 | Long Island Lighting Co. | 1990 |
| Oswego | Sterling Nuclear Power Project, Unit 1 | 1150 | Rochester Gas & Electric Corp. | 1988 |
| New Haven | Haven, Unit 1 | 1250 | New York State Electric & Gas Co. | 1992 |
| New Haven | Haven, Unit 2 | 1250 | New York State Electric & Gas Co. | 1994 |
| NORTH CAROLINA | | | | |
| Southport | Brunswick Steam Electric Plant, Unit 1 | 821 | Carolina Power and Light Co. | 1977 |
| Southport | Brunswick Steam Electric Plant, Unit 2 | 821 | Carolina Power and Light Co. | 1975 |
| Cowans Ford Dam | Wm. B. McGuire Nuclear Station, Unit 1 | 1180 | Duke Power Co. | 1980 |
| Cowans Ford Dam | Wm. B. McGuire Nuclear Station, Unit 2 | 1180 | Duke Power Co. | 1981 |
| Bonsal | Shearon Harris Nuclear Power Plant, Unit 1 | 900 | Carolina Power and Light Co. | 1984 |
| Bonsal | Shearon Harris Nuclear Power Plant, Unit 2 | 900 | Carolina Power and Light Co. | 1986 |
| Bonsal | Shearon Harris Nuclear Power Plant, Unit 3 | 900 | Carolina Power and Light Co. | 1990 |
| Bonsal | Shearon Harris Nuclear Power Plant, Unit 4 | 900 | Carolina Power and Light Co. | 1988 |
| Davie County | Thomas L. Perkins Nuclear Station, Unit 1 | 1280 | Duke Power Co. | 1991 |
| Davie County | Thomas L. Perkins Nuclear Station, Unit 2 | 1280 | Duke Power Co. | 1995 |
| Davie County | Thomas L. Perkins Nuclear Station, Unit 3 | 1280 | Duke Power Co. | Indef. |
| OHIO | | | | |
| Berlin Heights | Erie Nuclear Plant, Unit 1 | 1267 | Ohio Edison Co. | 1986 |
| Berlin Heights | Erie Nuclear Plant, Unit 2 | 1267 | Ohio Edison Co. | 1988 |
| Oak Harbor | Davis-Besse Nuclear Power Station, Unit 1 | 906 | Toledo Edison Co. and Cleveland Illuminating Co. | 1977 |
| Oak Harbor | Davis-Besse Nuclear Power Station, Unit 2 | 906 | Toledo Edison Co. and Cleveland Illuminating Co. | 1988 |
| Oak Harbor | Davis-Besse Nuclear Power Station, Unit 3 | 906 | Toledo Edison Co. and Cleveland Illuminating Co. | 1990 |
| Perry | Perry Nuclear Power Plant, Unit 1 | 1205 | Cleveland Electric Illuminating Co. | 1983 |
| Perry | Perry Nuclear Power Plant, Unit 2 | 1205 | Cleveland Electric Illuminating Co. | 1985 |
| Moscow | Wm. H. Zimmer Nuclear Power Station, Unit 1 | 810 | Cincinnati Gas & Electric Co. | 1981 |
| OKLAHOMA | | | | |
| Inola | Black Fox Station, Unit 1 | 1150 | Public Service Co. of Oklahoma | 1985 |
| Inola | Black Fox Station, Unit 2 | 1150 | Public Service Co. of Oklahoma | 1988 |

COMMERCIAL NUCLEAR POWER REACTORS IN THE UNITED STATES (Continued)

| SITE | PLANT NAME | CAPACITY, NET MW(e) | UTILITY | COMMERCIAL OPERATION |
|-----------------------|---|------------------------|--|-------------------------|
| OREGON | | | | |
| Prescott | Trojan Nuclear Plant, Unit 1 | 1130 | Portland General Electric Co. | 1976 |
| Arlington | Pebble Springs Nuclear Plant, Unit 1 | 1260 | Portland General Electric Co. | 1987 |
| Arlington | Pebble Springs Nuclear Plant, Unit 2 | 1260 | Portland General Electric Co. | 1989 |
| PENNSYLVANIA | | | | |
| Peach Bottom | Peach Bottom Atomic Power Station, Unit 2 | 1065 | Philadelphia Electric Co. | 1974 |
| Peach Bottom | Peach Bottom Atomic Power Station, Unit 3 | 1065 | Philadelphia Electric Co. | 1974 |
| Pottstown | Limerick Generating Station, Unit 1 | 1065 | Philadelphia Electric Co. | 1983 |
| Pottstown | Limerick Generating Station, Unit 2 | 1065 | Philadelphia Electric Co. | 1985 |
| Shippingport | Shippingport Atomic Power Station ² | 60 | Duquesne Light Co. ² | 1957 |
| Shippingport | Beaver Valley Power Station, Unit 1 | 852 | Duquesne Light Co. and Ohio Edison Co. | 1976 |
| Shippingport | Beaver Valley Power Station, Unit 2 | 833 | Duquesne Light Co. and Ohio Edison Co. | 1984 |
| Middletown | Three Mile Island Nuclear Station, Unit 1 | 819 | Metropolitan Edison Co. | 1974 |
| Middletown | Three Mile Island Nuclear Station, Unit 2 | 906 | Jersey Central Power & Light Co. | 1979 |
| Berwick | Susquehanna Steam Electric Station, Unit 1 | 1050 | Pennsylvania Power and Light Co. | 1981 |
| Berwick | Susquehanna Steam Electric Station, Unit 2 | 1050 | Pennsylvania Power and Light Co. | 1982 |
| RHODE ISLAND | | | | |
| Charlestown | NEP Nuclear Power Plant, Unit 1 | 1150 | New England Power Co. | 1987 |
| Charlestown | NEP Nuclear Power Plant, Unit 2 | 1150 | New England Power Co. | 1989 |
| SOUTH CAROLINA | | | | |
| Hartsville | H.B. Robinson Plant, Unit 2 | 700 | Carolina Power and Light Co. | 1971 |
| Seneca | Oconee Nuclear Plant, Unit 1 | 887 | Duke Power Co. | 1973 |
| Seneca | Oconee Nuclear Plant, Unit 2 | 887 | Duke Power Co. | 1974 |
| Seneca | Oconee Nuclear Plant, Unit 3 | 887 | Duke Power Co. | 1974 |
| Broad River | Virgil C. Summer Nuclear Station, Unit 1 | 900 | South Carolina Electric and Gas Co. | 1980 |
| Lake Wylie | Catawba Nuclear Station, Unit 1 | 1145 | Duke Power Co. | 1981 |
| Lake Wylie | Catawba Nuclear Station, Unit 2 | 1145 | Duke Power Co. | 1983 |
| Cherokee County | Cherokee Nuclear Station, Unit 1 | 1280 | Duke Power Co. | 1987 |
| Cherokee County | Cherokee Nuclear Station, Unit 2 | 1280 | Duke Power Co. | 1989 |
| Cherokee County | Cherokee Nuclear Station, Unit 3 | 1280 | Duke Power Co. | 1991 |
| TENNESSEE | | | | |
| Daisy | Sequoyah Nuclear Plant, Unit 1 | 1148 | Tennessee Valley Authority | 1980 |
| Daisy | Sequoyah Nuclear Plant, Unit 2 | 1148 | Tennessee Valley Authority | 1980 |
| Spring City | Watts Bar Nuclear Plant, Unit 1 | 1177 | Tennessee Valley Authority | 1980 |
| Spring City | Watts Bar Nuclear Plant, Unit 2 | 1177 | Tennessee Valley Authority | 1981 |
| Oak Ridge | Clinch River Breeder Reactor Plant | 350 | Department of Energy | 1988 |
| Hartsville | Hartsville Nuclear Plant, Unit 1 | 1233 | Tennessee Valley Authority | 1983 |
| Hartsville | Hartsville Nuclear Plant, Unit 2 | 1233 | Tennessee Valley Authority | 1984 |
| Hartsville | Hartsville Nuclear Plant, Unit 3 | 1233 | Tennessee Valley Authority | 1983 |
| Hartsville | Hartsville Nuclear Plant, Unit 4 | 1233 | Tennessee Valley Authority | 1984 |
| Kingsport | Phipps Bend Nuclear Plant, Unit 1 | 1233 | Tennessee Valley Authority | 1984 |
| Kingsport | Phipps Bend Nuclear Plant, Unit 2 | 1233 | Tennessee Valley Authority | 1985 |
| TEXAS | | | | |
| Glen Rose | Comanche Peak Steam Electric Station, Unit 1 | 1111 | Texas Utilities Generating Co. | 1981 |
| Glen Rose | Comanche Peak Steam Electric Station, Unit 2 | 1111 | Texas Utilities Generating Co. | 1983 |
| Wallis | Allens Creek Nuclear Generating Station, Unit 1 | 1150 | Houston Lighting & Power Co. | 1986 |
| Matagorda County | South Texas Project, Unit 1 | 1250 | Central Power & Light Co. and Houston Lighting & Power Co. | 1982 |
| Matagorda County | South Texas Project, Unit 2 | 1250 | Central Power & Light Co. and Houston Lighting & Power Co. | 1983 |
| VERMONT | | | | |
| Vernon | Vermont Yankee Nuclear Power Station | 514 | Vermont Yankee Nuclear Power Corp. | 1972 |
| VIRGINIA | | | | |
| Gravel Neck | Surry Power Station, Unit 1 | 822 | Virginia Electric & Power Co. | 1972 |
| Gravel Neck | Surry Power Station, Unit 2 | 822 | Virginia Electric & Power Co. | 1973 |
| Mineral | North Anna Power Station, Unit 1 | 907 | Virginia Electric & Power Co. | 1979 |
| Mineral | North Anna Power Station, Unit 2 | 907 | Virginia Electric & Power Co. | 1980 |
| Mineral | North Anna Power Station, Unit 3 | 907 | Virginia Electric & Power Co. | 1986 |
| Mineral | North Anna Power Station, Unit 4 | 907 | Virginia Electric & Power Co. | 1987 |

COMMERCIAL NUCLEAR POWER REACTORS IN THE UNITED STATES (Continued)

| SITE | PLANT NAME | CAPACITY, NET MW(e) | UTILITY | COMMERCIAL OPERATION |
|-------------------|--|------------------------|---------------------------------------|-------------------------|
| WASHINGTON | | | | |
| Richland | N-Reacto/WPPSS Steam | 850 | Department of Energy | 1966 |
| Richland | WPPSS Nuclear Project No. 1 | 1218 | Washington Public Power Supply System | 1982 |
| Richland | WPPSS Nuclear Project No. 2 | 1100 | Washington Public Power Supply System | 1980 |
| Satsop | WPPSS Nuclear Project No. 3 | 1242 | Washington Public Power Supply System | 1984 |
| Richland | WPPSS Nuclear Project No. 4 | 1218 | Washington Public Power Supply System | 1984 |
| Satsop | WPPSS Nuclear Project No. 5 | 1242 | Washington Public Power Supply System | 1985 |
| Sedro Woolley | Skagit Nuclear Power Project, Unit 1 | 1277 | Puget Sound Power & Light Co. | 1987 |
| Sedro Woolley | Skagit Nuclear Power Project, Unit 2 | 1277 | Puget Sound Power & Light Co. | 1989 |
| WISCONSIN | | | | |
| La Crosse | La Crosse (Genoa) Nuclear Generating Station | 50 | Dairyland Power Cooperative | 1969 |
| Two Creeks | Point Beach Nuclear Plant, Unit 1 | 497 | Wisconsin Michigan Power Co. | 1970 |
| Two Creeks | Point Beach Nuclear Plant, Unit 2 | 497 | Wisconsin Michigan Power Co. | 1972 |
| Carlton | Kewaunee Nuclear Power Plant, Unit 1 | 535 | Wisconsin Public Service Corp. | 1974 |
| Haven | Haven Nuclear Plant, Unit 1 | 900 | Wisconsin Electric Power Co. | 1989 |
| *Durand | Tyrone Energy Park, Unit 1 | 1100 | Northern States Power Co. | Indef. |

*Canceled 7/79.

**LIST OF CONTRACTORS, DESIGNERS, SHIPBUILDERS, AND FACILITY OPERATORS
FOR WHICH ABBREVIATIONS APPEAR IN TABLES**

| | | | |
|---------------|--|---------------|---|
| AC | Allis-Chalmers Mfg. Co. | HA | Hittman Associates |
| ACF | ACF Industries, Inc. (reactor activities absorbed by AC) | HEDL | Hanford Engineering Development Laboratory |
| AG | Aerojet-General Corporation | HKF | H. K. Ferguson Co. |
| AGN | Aerojet-General Nucleonics, formerly a subsidiary and now a division of Aerojet-General Corporation | Hughes | Hughes Aircraft Co. |
| AI | Atomics International, a division of Rockwell International | IC | Internuclear Co. |
| Alco | Alco Products, Inc. (reactor activities absorbed by AC) | INC | Idaho Nuclear Corporation |
| AMF | AMF Atomics, Inc., a division of American Machine & Foundry Co. | INEL | Idaho National Engineering Laboratory |
| ANL | Argonne National Laboratory, operated by the University of Chicago | Ingalls | Ingalls Shipbuilding Corp. |
| ANPD | Aircraft Nuclear Propulsion Department, General Electric Company (name changed to Flight Propulsion Laboratory Department) | Kaman | Kaman Nuclear, a division of Kaman Aircraft Corp. |
| AS Inc. | American Standard Inc. | KAPL | Knolls Atomic Power Laboratory, operated by General Electric Company |
| BAC | Bendix Aviation Corp. | KE | Kaiser Engineers, a division of Henry J. Kaiser Co. |
| Bethlehem | Shipbuilding Division, Bethlehem Steel Co. (now Quincy Division, General Dynamics Corp.) | LASL | Los Alamos Scientific Laboratory, operated by the University of California |
| Bettis | Bettis Atomic Power Laboratory, operated by Westinghouse Electric Corporation | Lockheed | Lockheed Aircraft Corp. |
| Blaw-Knox | Blaw-Knox Co. | Mare Island | Mare Island Naval Shipyard |
| BNL | Brookhaven National Laboratory, operated by Associated Universities, Inc. | Martin | Martin Marietta Corp. |
| B&R | Burns & Roe, Inc. | Maxon | Maxon Construction Co. |
| B&W | Babcock & Wilcox Co. | Met. Lab | Metallurgical Laboratory of the Manhattan Engineer District |
| CL | Clinton Laboratory of the Manhattan Engineer District | NASA | National Aeronautics and Space Administration |
| Comb. | Combustion Engineering, Inc. | NBS | National Bureau of Standards |
| Convair | Convair Division, General Dynamics Corp. | Newport News | Newport News Shipbuilding & Dry Dock Co. |
| Cook | Nucleidyne Co., a division of Cook Electric Company | NRDS | Nuclear Rocket Development Station |
| CW | Curtiss-Wright Corporation | NRL | Naval Research Laboratory |
| Daystrom | Daystrom, Inc. | NSA | Nuclear Systems Associates |
| DOD | Department of Defense | NTS | Nevada Test Site |
| du Pont | E. I. du Pont de Nemours & Company, Inc. | NYSC | New York Shipbuilding Corp. |
| Ebasco | Ebasco Services, Inc. | ORNL | Oak Ridge National Laboratory |
| EG&G-ID | EG&G Idaho, Inc. (a division of EG&G, Inc.) | PNL | Pacific Northwest Laboratory, operated by Battelle Memorial Institute |
| Electric Boat | Electric Boat Division, General Dynamics Corp. | Portsmouth | Portsmouth Naval Shipyard |
| Fluor | The Fluor Corporation, Ltd. | PPC | Phillips Petroleum Co. |
| FW | Foster Wheeler Corp. | PRDC | Power Reactor Development Company |
| GA | General Atomic, a Gulf and Royal Dutch/Shell Company | P&W | Pratt & Whitney Aircraft Division, United Aircraft Corp. |
| GD (Quincy) | Quincy Division, General Dynamics Corp. | RI | Rockwell International |
| GE | General Electric Company | Sandia | Sandia Laboratories, operated by Sandia Corp., a subsidiary of Western Electric Co. |
| GENMPO | General Electric Nuclear Materials and Propulsion Operation | San Francisco | San Francisco Bay Naval Shipyard |
| GM | General Motors Corp. | Bay | |
| GNEC | General Nuclear Engineering Corp. (became a division of Combustion Engineering, Inc., in 1964) | TVA | Tennessee Valley Authority |
| GSA | General Services Administration | UCLL | University of California Lawrence Livermore Laboratory |
| | | UNC | United Nuclear Coporation, Development Division |
| | | UNCNI | UNC Nuclear Industries |
| | | West. | Westinghouse Electric Corporation |

1. POWER REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

A. Central-Station Electric Power

(Docket numbers for commercial nuclear power plants are listed in brackets in the text.)

| | Name and/or owner | Location | Principal nuclear contractor | Type | Power ¹ | | |
|-----------------|---|-----------------------|------------------------------|-------------------|----------------------|----------------|----------|
| | | | | | Unit size, net MW(e) | Reactor, MW(t) | Start-up |
| OPERABLE | | | | | | | |
| | Arkansas Nuclear One, Unit 1 (Arkansas Power & Light Co.) [50-313] ³ | Russellville, Ark. | B&W | Pressurized water | 850 | 2568 | 1974 |
| | Arkansas Nuclear One, Unit 2 (Arkansas Power & Light Co.) [50-368] ³ | Russellville, Ark. | Comb. | Pressurized water | 912 | 2815 | 1978 |
| | Beaver Valley Power Station, Unit 1 (Duquesne Light Co., Ohio Edison Co., and Pennsylvania Power Co.) [50-334] ³ | Shippingport, Pa. | West. | Pressurized water | 852 | 2652 | 1976 |
| | Big Rock Point Nuclear Plant (Consumers Power Co.) [50-155] ^{3,4} | Big Rock Point, Mich. | GE | Boiling water | 72 | 240 | 1962 |
| | Browns Ferry Nuclear Power Station, Unit 1 (Tennessee Valley Authority) [50-259] ³ | Decatur, Ala. | GE | Boiling water | 1065 | 3293 | 1973 |
| | Browns Ferry Nuclear Power Station, Unit 2 (Tennessee Valley Authority) [50-260] ³ | Decatur, Ala. | GE | Boiling water | 1065 | 3293 | 1974 |
| | Browns Ferry Nuclear Power Station, Unit 3 (Tennessee Valley Authority) [50-296] ³ | Decatur, Ala. | GE | Boiling water | 1065 | 3293 | 1976 |
| | Brunswick Steam Electric Plant, Unit 1 (Carolina Power & Light Co.) [50-324] ³ | Southport, N. C. | GE | Boiling water | 821 | 2436 | 1976 |
| | Brunswick Steam Electric Plant, Unit 2 (Carolina Power & Light Co.) [50-325] ³ | Southport, N. C. | GE | Boiling water | 821 | 2436 | 1975 |
| | Calvert Cliffs Nuclear Power Plant, Unit 1 (Baltimore Gas & Electric Co.) [50-317] ³ | Lusby, Md. | Comb. | Pressurized water | 845 | 2700 | 1974 |
| | Calvert Cliffs Nuclear Power Plant, Unit 2 (Baltimore Gas & Electric Co.) [50-318] ³ | Lusby, Md. | Comb. | Pressurized water | 845 | 2700 | 1976 |
| | Cooper Nuclear Station (Nebraska Public Power District and Iowa Power and Light Co.) [50-298] ³ | Brownville, Nebr. | GE | Boiling water | 778 | 2381 | 1974 |
| | Crystal River Nuclear Plant, Unit 3 (Florida Power Corp.) [50-302] ³ | Red Level, Fla. | B&W | Pressurized water | 825 | 2452 | 1977 |
| | Davis-Besse Nuclear Power Station, Unit 1 (Toledo Edison Co. and Cleveland Electric Illuminating Co.) [50-346] ³ | Oak Harbor, Ohio | B&W | Pressurized water | 906 | 2772 | 1977 |
| | Donald C. Cook Nuclear Power Plant, Unit 1 (Indiana and Michigan Electric Co.) [50-315] ³ | Bridgman, Mich. | West. | Pressurized water | 1054 | 3250 | 1975 |
| | Donald C. Cook Nuclear Power Plant, Unit 2 (Indiana and Michigan Electric Co.) [50-316] ³ | Bridgman, Mich. | West. | Pressurized water | 1100 | 3391 | 1978 |
| | Dresden Nuclear Power Station, Unit 1 (Commonwealth Edison Co.) [50-010] ³ | Morris, Ill. | GE | Boiling water | 200 | 700 | 1959 |
| | Dresden Nuclear Power Station, Unit 2 (Commonwealth Edison Co.) [50-237] ³ | Morris, Ill. | GE | Boiling water | 794 | 2527 | 1970 |
| | Dresden Nuclear Power Station, Unit 3 (Commonwealth Edison Co.) [50-249] ³ | Morris, Ill. | GE | Boiling water | 794 | 2527 | 1971 |
| | Duane Arnold Energy Center, Unit 1 (Iowa Electric Light & Power Co., Central Iowa Power Cooperative, and Corn Belt Power Cooperative) [50-331] ³ | Palo, Iowa | GE | Boiling water | 538 | 1593 | 1974 |

1. POWER REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

A. Central-Station Electric Power (Continued)

| Name and/or owner | Location | Principal nuclear contractor | Type | Power ¹ | | | |
|--|---------------------|------------------------------|-------------------|----------------------|----------------|----------|----------|
| | | | | Unit size, net MW(e) | Reactor, MW(t) | Start-up | Shutdown |
| OPERABLE (Continued) | | | | | | | |
| Edwin I. Hatch Nuclear Plant, Unit 1 (Georgia Power Co.) [50-321] ³ | Baxley, Ga. | GE | Boiling water | 786 | 2436 | 1974 | |
| Edwin I. Hatch Nuclear Plant, Unit 2 (Georgia Power Co.) [50-366] ³ | Baxley, Ga. | GE | Boiling water | 784 | 2436 | 1978 | |
| Fort Calhoun Station, Unit 1 (Omaha Public Power District) [50-285] ³ | Fort Calhoun, Nebr. | Comb. | Pressurized water | 457 | 1420 | 1973 | |
| Fort St. Vrain Nuclear Generating Station (Public Service Co. of Colorado) [50-267] ^{3,4} | Platteville, Colo. | GA | High temperature | 330 | 842 | 1974 | |
| Haddam Neck Plant (Connecticut Yankee Atomic Power Co.) [50-213] ^{3,4} | Haddam Neck, Conn. | West. | Pressurized water | 575 | 1825 | 1967 | |
| H. B. Robinson Plant, Unit 2 (Carolina Power & Light Co.) [50-261] ³ | Hartsville, S. C. | West. | Pressurized water | 700 | 2200 | 1970 | |
| *Humboldt Bay Power Plant, Unit 3 (Pacific Gas & Electric Co.) [50-133] ³ | Eureka, Calif. | GE | Boiling water | 65 | 242 | 1963 | |
| *Indian Point Station, Unit 1 (Consolidated Edison Co. of New York, Inc.) [50-3] ^{3,5} | Buchanan, N. Y. | B&W | Pressurized water | 265 | 615 | 1962 | |
| Indian Point Station, Unit 2 (Consolidated Edison Co. of New York, Inc.) [50-247] ³ | Buchanan, N. Y. | West. | Pressurized water | 873 | 2758 | 1973 | |
| Indian Point Station, Unit 3 (Power Authority of New York) [50-286] ³ | Buchanan, N. Y. | West. | Pressurized water | 965 | 2760 | 1976 | |
| James A. FitzPatrick Nuclear Power Plant (Power Authority of the State of New York) [50-333] ³ | Scriba, N. Y. | GE | Boiling water | 821 | 2436 | 1974 | |
| Joseph M. Farley Nuclear Plant, Unit 1 (Alabama Power Co.) [50-348] ³ | Dothan, Ala. | West. | Pressurized water | 829 | 2652 | 1977 | |
| Kewaunee Nuclear Power Plant (Wisconsin Power & Light Co., Wisconsin Public Service Co., and Madison Gas & Electric Co.) [50-305] ³ | Carlton, Wis. | West. | Pressurized water | 535 | 1650 | 1974 | |
| La Crosse (Genoa) Nuclear Generating Station (Dairyland Power Cooperative) [50-409] ^{3,4} | La Crosse, Wis. | AC | Boiling water | 50 | 165 | 1967 | |
| Maine Yankee Atomic Power Plant (Maine Yankee Atomic Power Co.) [50-309] ³ | Wiscasset, Maine | Comb. | Pressurized water | 825 | 2500 | 1972 | |
| Millstone Nuclear Power Station, Unit 1 (Northeast Nuclear Energy Co.) [50-245] ³ | Waterford, Conn. | GE | Boiling water | 660 | 2011 | 1970 | |
| Millstone Nuclear Power Station, Unit 2 (Northeast Nuclear Energy Co.) [50-336] ³ | Waterford, Conn. | Comb. | Pressurized water | 830 | 2560 | 1975 | |
| Monticello Nuclear Generating Plant (Northern States Power Co.) [50-263] ³ | Monticello, Minn. | GE | Boiling water | 545 | 1670 | 1970 | |
| Nine Mile Point Nuclear Station, Unit 1 (Niagara Mohawk Power Corp.) [50-220] ³ | Scriba, N. Y. | GE | Boiling water | 620 | 1850 | 1969 | |
| North Anna Power Station, Unit 1 (Virginia Electric & Power Co.) [50-338] ³ | Mineral, Va. | West. | Pressurized water | 907 | 2775 | 1978 | |
| Oconee Nuclear Station, Unit 1 (Duke Power Co.) [50-269] ³ | Seneca, S. C. | B&W | Pressurized water | 887 | 2568 | 1973 | |
| Oconee Nuclear Station, Unit 2 (Duke Power Co.) [50-270] ³ | Seneca, S. C. | B&W | Pressurized water | 887 | 2568 | 1973 | |
| Oconee Nuclear Station, Unit 3 (Duke Power Co.) [50-287] ³ | Seneca, S. C. | B&W | Pressurized water | 887 | 2568 | 1974 | |

*Shutdown pending decision on future operation.

| | | | | | | |
|--|----------------------|-------|-------------------|------|------|------|
| Oyster Creek Nuclear Power Plant, Unit 1 (Jersey Central Power & Light Co.) [50-219] ³ | Toms River, N. J. | GE | Boiling water | 650 | 1930 | 1969 |
| Palisades Nuclear Plant, Unit 1 (Consumers Power Co. of Michigan) [50-255] ³ | South Haven, Mich. | Comb. | Pressurized water | 805 | 2530 | 1971 |
| Peach Bottom Atomic Power Station, Unit 2 (Philadelphia Electric Co., Public Service Electric & Gas Co., Atlantic City Electric Co., and Delmarva Power & Light Co.) [50-277] ³ | Peach Bottom, Pa. | GE | Boiling water | 1065 | 3293 | 1973 |
| Peach Bottom Atomic Power Station, Unit 3 (Philadelphia Electric Co., Public Service Electric & Gas Co., Atlantic City Electric Co., and Delmarva Power & Light Co.) [50-278] ³ | Peach Bottom, Pa. | GE | Boiling water | 1065 | 3293 | 1974 |
| Pilgrim Nuclear Power Station, Unit 1 (Boston Edison Co.) [50-293] ³ | Plymouth, Mass. | GE | Boiling water | 655 | 1998 | 1972 |
| Point Beach Nuclear Plant, Unit 1 (Wisconsin Electric Power Co. and Wisconsin Michigan Power Co.) [50-266] ³ | Two Creeks, Wis. | West. | Pressurized water | 497 | 1518 | 1970 |
| Point Beach Nuclear Plant, Unit 2 (Wisconsin Electric Power Co. and Wisconsin Michigan Power Co.) [50-301] ³ | Two Creeks, Wis. | West. | Pressurized water | 497 | 1518 | 1972 |
| Prairie Island Nuclear Generating Plant, Unit 1 (Northern States Power Co.) [50-282] ³ | Red Wing, Minn. | West. | Pressurized water | 530 | 1650 | 1973 |
| Prairie Island Nuclear Generating Plant, Unit 2 (Northern States Power Co.) [50-306] ³ | Red Wing, Minn. | West. | Pressurized water | 530 | 1650 | 1974 |
| Quad-Cities Station, Unit 1 (Commonwealth Edison Co. and Iowa-Illinois Gas & Electric Co.) [50-254] ³ | Cordova, Ill. | GE | Boiling water | 789 | 2511 | 1972 |
| Quad-Cities Station, Unit 2 (Commonwealth Edison Co. and Iowa-Illinois Gas & Electric Co.) [50-265] ³ | Cordova, Ill. | GE | Boiling water | 789 | 2511 | 1972 |
| Rancho Seco Nuclear Generating Station, Unit 1 (Sacramento Municipal Utility District) [50-312] ³ | Clay Station, Calif. | B&W | Pressurized water | 918 | 2772 | 1974 |
| Robert Emmett Ginna Nuclear Power Plant, Unit 1 (Rochester Gas & Electric Co.) [50-244] ³ | Ontario, N. Y. | West. | Pressurized water | 470 | 1520 | 1969 |
| Salem Nuclear Generating Station, Unit 1 (Public Service Electric & Gas Co., Philadelphia Electric Co., Atlantic City Electric Co., and Delmarva Power & Light Co.) [50-272] ³ | Salem, N. J. | West. | Pressurized water | 1090 | 3338 | 1976 |
| San Onofre Nuclear Generating Station, Unit 1 (Southern California Edison and San Diego Gas & Electric Co.) [50-206] ^{3,4} | San Clemente, Calif. | West. | Pressurized water | 436 | 1347 | 1967 |
| Shippingport Atomic Power Station (DOE and Duquesne Light Co.) ² | Shippingport, Pa. | West. | Pressurized water | 60 | 236 | 1957 |
| St. Lucie Plant, Unit 1 (Florida Power & Light Co.) [50-335] ³ | Fort Pierce, Fla. | Comb. | Pressurized water | 802 | 2560 | 1976 |
| Surry Power Station, Unit 1 (Virginia Electric & Power Co.) [50-280] ³ | Gravel Neck, Va. | West. | Pressurized water | 822 | 2441 | 1972 |
| Surry Power Station, Unit 2 (Virginia Electric & Power Co.) [50-281] ³ | Gravel Neck, Va. | West. | Pressurized water | 822 | 2441 | 1973 |
| Three Mile Island Nuclear Station, Unit 1 (Metropolitan Edison Co.) [50-289] ³ | Middletown, Pa. | B&W | Pressurized water | 819 | 2535 | 1974 |
| Three Mile Island Nuclear Station, Unit 2 (Metropolitan Edison Co.) [50-320] ³ | Middletown, Pa. | B&W | Pressurized water | 906 | 2772 | 1979 |
| Trojan Nuclear Plant, Unit 1 (Portland General Electric Co., Eugene Water & Electric Board, and Pacific Power & Light Co.) [50-344] ³ | Prescott, Oreg. | West. | Pressurized water | 1130 | 3411 | 1975 |
| Turkey Point Plant, Unit 3 (Florida Power & Light Co.) [50-250] ³ | Florida City, Fla. | West. | Pressurized water | 693 | 2200 | 1972 |
| Turkey Point Plant, Unit 4 (Florida Power & Light Co.) [50-251] ³ | Florida City, Fla. | West. | Pressurized water | 693 | 2200 | 1973 |
| Vermont Yankee Nuclear Power Station (Vermont Yankee Nuclear Power Corp.) [50-271] ³ | Vernon, Vt. | GE | Boiling water | 514 | 1593 | 1972 |
| Yankee-Rowe Nuclear Power Station (Yankee Atomic Electric Co.) [50-29] ^{3,4} | Rowe, Mass. | West. | Pressurized water | 175 | 600 | 1960 |
| Zion Nuclear Plant, Unit 1 (Commonwealth Edison Co.) [50-295] ³ | Zion, Ill. | West. | Pressurized water | 1040 | 3250 | 1973 |
| Zion Nuclear Plant, Unit 2 (Commonwealth Edison Co.) [50-304] ³ | Zion, Ill. | West. | Pressurized water | 1040 | 3250 | 1973 |

1. POWER REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

A. Central-Station Electric Power (Continued)

| Name and/or owner | Location | Principal nuclear contractor | Type | Power ¹ | | | |
|--|------------------------|------------------------------|-------------------|----------------------|----------------|----------|----------|
| | | | | Unit size, net MW(e) | Reactor, MW(t) | Start-up | Shutdown |
| BEING BUILT | | | | | | | |
| Alvin W. Vogtle Nuclear Plant, Unit 1 (Georgia Power Co.) [50-424] ³ | Waynesboro, Ga. | West. | Pressurized water | 1110 | 3425 | 1984 | |
| Alvin W. Vogtle Nuclear Plant, Unit 2 (Georgia Power Co.) [50-425] ³ | Waynesboro, Ga. | West. | Pressurized water | 1110 | 3425 | 1987 | |
| Bailly Generating Station (Northern Indiana Public Service Co.) [50-367] ³ | Westchester, Ind. | GE | Boiling water | 643.8 | 1931 | Indef. | |
| Beaver Valley Power Station, Unit 2 (Duquesne Light Co., Ohio Edison Co., and Pennsylvania Power Co.) [50-412] ³ | Shippingport, Pa. | West. | Pressurized water | 833 | 2660 | 1984 | |
| Bellefonte Nuclear Plant, Unit 1 (Tennessee Valley Authority) [50-438] ³ | Scottsboro, Ala. | B&W | Pressurized water | 1213 | 3621 | 1981 | |
| Bellefonte Nuclear Plant, Unit 2 (Tennessee Valley Authority) [50-439] ³ | Scottsboro, Ala. | B&W | Pressurized water | 1213 | 3621 | 1982 | |
| Black Fox Station, Unit 1 (Public Service of Oklahoma) [STN-50-556] ³ | Inola, Okla. | GE | Boiling water | 1150 | 3579 | 1985 | |
| Black Fox Station, Unit 2 (Public Service of Oklahoma) [STN-50-557] ³ | Inola, Okla. | GE | Boiling water | 1150 | 3579 | 1988 | |
| Braidwood Station, Unit 1 (Commonwealth Edison Co.) [50-456] ³ | Braidwood, Ill. | West. | Pressurized water | 1120 | 3425 | 1982 | |
| Braidwood Station, Unit 2 (Commonwealth Edison Co.) [50-457] ³ | Braidwood, Ill. | West. | Pressurized water | 1120 | 3425 | 1983 | |
| Byron Station, Unit 1 (Commonwealth Edison Co.) [50-454] ³ | Byron, Ill. | West. | Pressurized water | 1120 | 3425 | 1982 | |
| Byron Station, Unit 2 (Commonwealth Edison Co.) [50-455] ³ | Byron, Ill. | West. | Pressurized water | 1120 | 3425 | 1983 | |
| Callaway Plant, Unit 1 (Union Electric Co.) [STN-50-483] ³ | Fulton, Mo. | West. | Pressurized water | 1120 | 3411 | 1982 | |
| Callaway Plant, Unit 2 (Union Electric Co.) [STN-50-486] ³ | Fulton, Mo. | West. | Pressurized water | 1120 | 3411 | 1986 | |
| Catawba Nuclear Station, Unit 1 (Duke Power Co.) [50-413] ³ | Lake Wylie, S. C. | West. | Pressurized water | 1145 | 3411 | 1981 | |
| Catawba Nuclear Station, Unit 2 (Duke Power Co.) [50-414] ³ | Lake Wylie, S. C. | West. | Pressurized water | 1145 | 3411 | 1982 | |
| Cherokee Nuclear Station, Unit 1 (Duke Power Co.) [STN-50-491] ³ | Cherokee County, S. C. | Comb. | Pressurized water | 1280 | 3800 | 1986 | |
| Cherokee Nuclear Station, Unit 2 (Duke Power Co.) [STN-50-492] ³ | Cherokee County, S. C. | Comb. | Pressurized water | 1280 | 3800 | 1988 | |
| Cherokee Nuclear Station, Unit 3 (Duke Power Co.) [STN-50-493] ³ | Cherokee County, S. C. | Comb. | Pressurized water | 1280 | 3800 | 1990 | |
| Clinton Power Station, Unit 1 (Illinois Power Co.) [50-461] ³ | Clinton, Ill. | GE | Boiling water | 933.4 | 2894 | 1982 | |
| Clinton Power Station, Unit 2 (Illinois Power Co.) [50-462] ³ | Clinton, Ill. | GE | Boiling water | 933.4 | 2894 | 1987 | |
| Comanche Peak Steam Electric Station, Unit 1 (Texas Power & Light Co., Texas Electric Service Co., and Dallas Power and Light Co.) [50-445] ³ | Glen Rose, Tex. | West. | Pressurized water | 1111 | 3411 | 1981 | |
| Comanche Peak Steam Electric Station, Unit 2 (Texas Power & Light Co., Texas Electric Service Co., and Dallas Power and Light Co.) [50-446] ³ | Glen Rose, Tex. | West. | Pressurized water | 1111 | 3411 | 1982 | |
| Davis-Besse Nuclear Power Station, Unit 2 (Toledo Edison Co.) [50-500] ³ | Oak Harbor, Ohio | B&W | Pressurized water | 906 | 2772 | 1988 | |
| Davis-Besse Nuclear Power Station, Unit 3 (Toledo Edison Co.) [50-501] ³ | Oak Harbor, Ohio | B&W | Pressurized water | 906 | 2772 | 1990 | |
| Diablo Canyon Nuclear Power Plant, Unit 1 (Pacific Gas & Electric Co.) [50-275] ³ | Diablo Canyon, Calif. | West. | Pressurized water | 1084 | 3338 | 1979 | |
| Diablo Canyon Nuclear Power Plant, Unit 2 (Pacific Gas & Electric Co.) [50-323] ³ | Diablo Canyon, Calif. | West. | Pressurized water | 1106 | 3411 | 1979 | |
| Enrico Fermi Atomic Power Plant, Unit 2 (Detroit Edison Co.) [50-341] ³ | Newport, Mich. | GE | Boiling water | 1093 | 3292 | 1981 | |

| | | | | | | |
|---|---------------------|-------|-------------------|--------|------|------|
| Forked River Nuclear Station, Unit 1 (Jersey Central Power and Light Co.) [50-363] ³ | Forked River, N. J. | Comb. | Pressurized water | 1070 | 3390 | 1983 |
| Grand Gulf Nuclear Station, Unit 1 (Mississippi Power & Light Co.) [50-416] ³ | Port Gibson, Miss. | GE | Boiling water | 1250 | 3833 | 1980 |
| Grand Gulf Nuclear Station, Unit 2 (Mississippi Power & Light Co.) [50-417] ³ | Port Gibson, Miss. | GE | Boiling water | 1250 | 3833 | 1983 |
| Hartsville Nuclear Plant, Unit 1 (Tennessee Valley Authority) [STN-50-518] ³ | Tennessee | GE | Boiling water | 1233 | 3583 | 1982 |
| Hartsville Nuclear Plant, Unit 2 (Tennessee Valley Authority) [STN-50-519] ³ | Tennessee | GE | Boiling water | 1233 | 3583 | 1983 |
| Hartsville Nuclear Plant, Unit 3 (Tennessee Valley Authority) [STN-50-520] ³ | Tennessee | GE | Boiling water | 1233 | 3583 | 1982 |
| Hartsville Nuclear Plant, Unit 4 (Tennessee Valley Authority) [STN-50-521] ³ | Tennessee | GE | Boiling water | 1233 | 3583 | 1983 |
| Hope Creek Nuclear Generating Station, Unit 1 (Public Service Electric & Gas Co.) [50-354] ³ | Salem, N. J. | GE | Boiling water | 1067 | 3293 | 1983 |
| Hope Creek Nuclear Generating Station, Unit 2 (Public Service Electric & Gas Co.) [50-355] ³ | Salem, N. J. | GE | Boiling water | 1067 | 3293 | 1985 |
| Jamesport Nuclear Power Station, Unit 1 (Long Island Lighting Co.) [STN-50-516] ³ | Jamesport, N. Y. | West. | Pressurized water | 1150 | 3411 | 1988 |
| Jamesport Nuclear Power Station, Unit 2 (Long Island Lighting Co.) [STN-50-517] ³ | Jamesport, N. Y. | West. | Pressurized water | 1150 | 3411 | 1990 |
| Joseph M. Farley Nuclear Plant, Unit 2 (Alabama Power Co.) [50-364] ³ | Dothan, Ala. | West. | Pressurized water | 829 | 2652 | 1980 |
| La Salle County Station, Unit 1 (Commonwealth Edison Co.) [50-373] ³ | Seneca, Ill. | GE | Boiling water | 1078 | 3293 | 1980 |
| La Salle County Station, Unit 2 (Commonwealth Edison Co.) [50-374] ³ | Seneca, Ill. | GE | Boiling water | 1078 | 3293 | 1981 |
| Limerick Generating Station, Unit 1 (Philadelphia Electric Co.) [50-352] ³ | Pottstown, Pa. | GE | Boiling water | 1065 | 3293 | 1983 |
| Limerick Generating Station, Unit 2 (Philadelphia Electric Co.) [50-353] ³ | Pottstown, Pa. | GE | Boiling water | 1065 | 3293 | 1985 |
| Marble Hill Nuclear Generating Power Station, Unit 1 (Public Service Indiana) [STN-50-546] ³ | Madison, Ind. | West. | Pressurized water | 1130 | 3425 | 1982 |
| Marble Hill Nuclear Generating Power Station, Unit 2 (Public Service Indiana) [STN-50-547] ³ | Madison, Ind. | West. | Pressurized water | 1130 | 3425 | 1983 |
| Millstone Nuclear Power Station, Unit 3 (Millstone Point Co.) [50-423] ³ | Waterford, Conn. | West. | Pressurized water | 1156 | 3411 | 1986 |
| Nine Mile Point Nuclear Station, Unit 2 (Niagara Mohawk Power Corp.) [50-410] ³ | Scriba, N. Y. | GE | Boiling water | 1099.8 | 3323 | 1984 |
| North Anna Power Station, Unit 2 (Virginia Electric & Power Co.) [50-339] ³ | Mineral, Va. | West. | Pressurized water | 907 | 2775 | 1979 |
| North Anna Power Station, Unit 3 (Virginia Electric & Power Co.) [50-404] ³ | Mineral, Va. | B&W | Pressurized water | 907 | 2631 | 1986 |
| North Anna Power Station, Unit 4 (Virginia Electric & Power Co.) [50-405] ³ | Mineral, Va. | B&W | Pressurized water | 907 | 2631 | 1987 |
| Palo Verde Nuclear Generating Station, Unit 1 (Arizona Public Service Co., Tucson Gas & Electric Co., Salt River Project, Public Service Co. of New Mexico, and El Paso Electric Co.) [STN-50-528] ³ | Wintersburg, Ariz. | Comb. | Pressurized water | 1270 | 3817 | 1982 |
| Palo Verde Nuclear Generating Station, Unit 2 (Arizona Public Service Co., Tucson Gas & Electric Co., Salt River Project, Public Service Co. of New Mexico, and El Paso Electric Co.) [STN-50-529] ³ | Wintersburg, Ariz. | Comb. | Pressurized water | 1270 | 3817 | 1983 |
| Palo Verde Nuclear Generating Station, Unit 3 (Arizona Public Service Co., Tucson Gas & Electric Co., Salt River Project, Public Service Co. of New Mexico, and El Paso Electric Co.) [STN-50-530] ³ | Wintersburg, Ariz. | Comb. | Pressurized water | 1270 | 3817 | 1985 |

1. POWER REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

A. Central-Station Electric Power (Continued)

| Name and/or owner | Location | Principal nuclear contractor | Type | Power ¹ | | |
|---|-----------------------|------------------------------|-------------------|----------------------|----------------|----------|
| | | | | Unit size, net MW(e) | Reactor, MW(t) | Start-up |
| BEING BUILT (Continued) | | | | | | |
| Perry Nuclear Power Plant, Unit 1 (Cleveland Electric Illuminating Co.) [50-440] ³ | Perry, Ohio | GE | Boiling water | 1205 | 3579 | 1982 |
| Perry Nuclear Power Plant, Unit 2 (Cleveland Electric Illuminating Co.) [50-441] ³ | Perry, Ohio | GE | Boiling water | 1205 | 3579 | 1984 |
| Phipps Bend Nuclear Plant, Unit 1 (Tennessee Valley Authority) [50-553] ³ | Kingsport, Tenn. | GE | Boiling water | 1233 | 3583 | 1983 |
| Phipps Bend Nuclear Plant, Unit 2 (Tennessee Valley Authority) [50-554] ³ | Kingsport, Tenn. | GE | Boiling water | 1233 | 3583 | 1984 |
| River Bend Station, Unit 1 (Gulf States Utilities Co.) [50-458] ³ | St. Francisville, La. | GE | Boiling water | 934 | 2894 | 1984 |
| River Bend Station, Unit 2 (Gulf States Utilities Co.) [50-459] ³ | St. Francisville, La. | GE | Boiling water | 934 | 2894 | Indef. |
| Salem Nuclear Generating Station, Unit 2 (Public Service Electric & Gas Co., Philadelphia Electric Co., Atlantic City Electric Co., and Delmarva Power & Light Co.) [50-311] ³ | Salem, N. J. | West. | Pressurized water | 1115 | 3423 | 1979 |
| San Onofre Nuclear Generating Station, Unit 2 (Southern California Edison Co. and San Diego Gas & Electric Co.) [50-361] ³ | San Clemente, Calif. | Comb. | Pressurized water | 1100 | 3410 | 1981 |
| San Onofre Nuclear Generating Station, Unit 3 (Southern California Edison Co. and San Diego Gas & Electric Co.) [50-362] ³ | San Clemente, Calif. | Comb. | Pressurized water | 1100 | 3410 | 1982 |
| Seabrook Nuclear Station, Unit 1 (Public Service Co. of New Hampshire and United Illuminating Co.) [50-443] ³ | Seabrook, N. H. | West. | Pressurized water | 1200 | 3411 | 1983 |
| Seabrook Nuclear Station, Unit 2 (Public Service Co. of New Hampshire and United Illuminating Co.) [50-444] ³ | Seabrook, N. H. | West. | Pressurized water | 1200 | 3411 | 1985 |
| Sequoynah Nuclear Plant, Unit 1 (Tennessee Valley Authority) [50-327] ³ | Daisy, Tenn. | West. | Pressurized water | 1148 | 3423 | 1979 |
| Sequoynah Nuclear Plant, Unit 2 (Tennessee Valley Authority) [50-328] ³ | Daisy, Tenn. | West. | Pressurized water | 1148 | 3423 | 1980 |
| Shearon Harris Nuclear Power Plant, Unit 1 (Carolina Power & Light Co.) [50-400] ³ | Bonsal, N. C. | West. | Pressurized water | 900 | 2775 | 1983 |
| Shearon Harris Nuclear Power Plant, Unit 2 (Carolina Power & Light Co.) [50-401] ³ | Bonsal, N. C. | West. | Pressurized water | 900 | 2775 | 1985 |
| Shearon Harris Nuclear Power Plant, Unit 3 (Carolina Power & Light Co.) [50-402] ³ | Bonsal, N. C. | West. | Pressurized water | 900 | 2775 | 1989 |
| Shearon Harris Nuclear Power Plant, Unit 4 (Carolina Power & Light Co.) [50-403] ³ | Bonsal, N. C. | West. | Pressurized water | 900 | 2775 | 1987 |
| Shoreham Nuclear Power Station (Long Island Lighting Co.) [50-322] ³ | Brookhaven, N. Y. | GE | Boiling water | 819 | 2436 | 1981 |
| South Texas Project, Unit 1 (Houston Lighting & Power Co., Central Power & Light Co., City Public Service Board of San Antonio, and City of Austin) [STN-50-498] ³ | Bay City, Tex. | West. | Pressurized water | 1250 | 3817 | 1982 |
| South Texas Project, Unit 2 (Houston Lighting & Power Co., Central Power & Light Co., City Public Service Board of San Antonio, and City of Austin) [STN-50-499] ³ | Bay City, Tex. | West. | Pressurized water | 1250 | 3817 | 1983 |

| | | | | | | |
|--|------------------------|-------|----------------------------|------|------|--------|
| St. Lucie Plant, Unit 2 (Florida Power & Light Co.) [50-389] ³ | Fort Pierce, Fla. | Comb. | Pressurized water | 810 | 2570 | 1982 |
| Sterling Power Project Nuclear, Unit 1 (Rochester Gas & Electric Corp.) [STN-50-485] ³ | Oswego, N. Y. | West. | Pressurized water | 1150 | 3411 | 1987 |
| Susquehanna Steam Electric Station, Unit 1, (Pennsylvania Power & Light Co.) [50-387] ³ | Berwick, Pa. | GE | Boiling water | 1050 | 3293 | 1980 |
| Susquehanna Steam Electric Station, Unit 2 (Pennsylvania Power & Light Co.) [50-388] ³ | Berwick, Pa. | GE | Boiling water | 1050 | 3293 | 1981 |
| Tyrone Energy Park, Unit 1 (Northern States Power Co.) [STN-50-484] ³ | Durand, Wis. | West. | Pressurized water | 1100 | 3411 | Indef. |
| Virgil C. Summer Nuclear Station, Unit 1 (South Carolina Electric & Gas Co.) [50-395] ³ | Broad River, S. C. | West. | Pressurized water | 900 | 2785 | 1980 |
| Waterford Generating Station, Unit 3 (Louisiana Power & Light Co.) [50-382] ³ | Taft, La. | Comb. | Pressurized water | 1113 | 3410 | 1981 |
| Watts Bar Nuclear Plant, Unit 1 (Tennessee Valley Authority) [50-390] ³ | Spring City, Tenn. | West. | Pressurized water | 1177 | 3425 | 1979 |
| Watts Bar Nuclear Plant, Unit 2 (Tennessee Valley Authority) [50-391] ³ | Spring City, Tenn. | West. | Pressurized water | 1177 | 3425 | 1980 |
| William B. McGuire Nuclear Station, Unit 1 (Duke Power Co.) [50-369] ³ | Cowans Ford Dam, N. C. | West. | Pressurized water | 1180 | 3411 | 1979 |
| William B. McGuire Nuclear Station, Unit 2 (Duke Power Co.) [50-370] ³ | Cowans Ford Dam, N. C. | West. | Pressurized water | 1180 | 3411 | 1980 |
| William H. Zimmer Nuclear Power Station, Unit 1 (Cincinnati Gas & Electric Co., Columbus & Southern Ohio Electric Co., and Dayton Power & Light Co.) [50-358] ³ | Moscow, Ohio | GE | Boiling water | 810 | 2436 | 1980 |
| Wolf Creek Generating Station (Kansas Gas & Electric Co. and Kansas City Power & Light Co.) [STN-50-482] ³ | Burlington, Kans. | West. | Pressurized water | 1150 | 3411 | 1982 |
| WPPSS Nuclear Project, Unit 1 (Washington Public Power Supply System) [50-460] ³ | Richland, Wash. | B&W | Pressurized water | 1218 | 3619 | 1982 |
| WPPSS Nuclear Project, Unit 2 (Washington Public Power Supply System) [50-397] ³ | Richland, Wash. | GE | Boiling water | 1100 | 3323 | 1980 |
| WPPSS Nuclear Project, Unit 3 (Washington Public Power Supply System) [STN-50-508] ³ | Satsop, Wash. | Comb. | Pressurized water | 1242 | 3817 | 1983 |
| WPPSS Nuclear Project, Unit 4 (Washington Public Power Supply System) [50-513] ³ | Richland, Wash. | B&W | Pressurized water | 1218 | 3619 | 1984 |
| WPPSS Nuclear Project, Unit 5 (Washington Public Power Supply System) [STN-50-509] ³ | Satsop, Wash. | Comb. | Pressurized water | 1242 | 3817 | 1985 |
| Yellow Creek Nuclear Plant, Unit 1 (Tennessee Valley Authority) [STN-50-566] ³ | Corinth, Miss. | Comb. | Pressurized water | 1285 | 3817 | 1984 |
| Yellow Creek Nuclear Plant, Unit 2 (Tennessee Valley Authority) [STN-50-567] ³ | Corinth, Miss. | Comb. | Pressurized water | 1285 | 3817 | 1985 |
| PLANNED | | | | | | |
| Allens Creek Nuclear Generating Plant, Unit 1 (Houston Lighting & Power) [50-466] ³ | Wallis, Tex. | GE | Boiling water | 1150 | 3579 | 1985 |
| Carroll County Station, Unit 1 (Commonwealth Edison Co.) | Savanna, Ill. | West. | Pressurized water | 1120 | | 1990 |
| Carroll County Station, Unit 2 (Commonwealth Edison Co.) | Savanna, Ill. | West. | Pressurized water | 1120 | | 1991 |
| Clinch River Breeder Reactor Plant (DOE) [50-537] ³ | Oak Ridge, Tenn. | West. | Sodium cooled fast breeder | 350 | 975 | 1988 |
| Erie Nuclear Plant, Unit 1 (Ohio Edison Co.) [STN-50-580] ³ | Berlin Heights, Ohio | B&W | Pressurized water | 1267 | 3760 | 1986 |
| Erie Nuclear Plant, Unit 2 (Ohio Edison Co.) [STN-50-581] ³ | Berlin Heights, Ohio | B&W | Pressurized water | 1267 | 3760 | 1988 |
| Greenwood Energy Center, Unit 2 (Detroit Edison Co.) [50-452] ³ | Michigan | B&W | Pressurized water | 1264 | 3600 | Indef. |

1. POWER REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

A. Central-Station Electric Power (Continued)

| Name and/or owner | Location | Principal nuclear contractor | Type | Power ¹ | | | |
|--|-----------------------|------------------------------|-------------------|--------------------|----------------|----------|----------|
| | | | | Plant, net MW(e) | Reactor, MW(t) | Start-up | Shutdown |
| PLANNED (Continued) | | | | | | | |
| Greenwood Energy Center, Unit 3 (Detroit Edison Co.) [50-453] ³ | Michigan | B&W | Pressurized water | 1264 | 3600 | Indef. | |
| Haven, Unit 1 [50-596] ³ | New Haven, N. Y. | Comb. | Pressurized water | 1250 | | 1992 | |
| Haven, Unit 2 [50-597] ³ | New Haven, N. Y. | Comb. | Pressurized water | 1250 | | 1994 | |
| Haven Nuclear Plant, Unit 1 (Wisconsin Electric Power Co., Wisconsin Public Service Corp., Wisconsin Power and Light Co., and Madison Gas and Electric Co.) [STN-50-502] ³ | Haven, Wis. | West. | Pressurized water | 900 | 2785 | 1989 | |
| Montague Nuclear Power Station, Unit 1 (Northeast Utilities) [50-496] ³ | Montague Plain, Mass. | GE | Boiling water | 1150 | 3579 | 1988 | |
| Montague Nuclear Power Station, Unit 2 (Northeast Utilities) [50-497] ³ | Montague Plain, Mass. | GE | Boiling water | 1150 | 3579 | 1989 | |
| NEP Nuclear Power Plant, Unit 1 (New England Power Co.) [STN-50-568] ³ | Charlestown, R. I. | West. | Pressurized water | 1150 | 3425 | 1987 | |
| NEP Nuclear Power Plant, Unit 2 (New England Power Co.) [STN-50-569] ³ | Charlestown, R. I. | West. | Pressurized water | 1150 | 3425 | 1989 | |
| *Pacific Gas & Electric Co., Unit 1 ³ | California | GE | Boiling water | 1200 | 3323 | Indef. | |
| *Pacific Gas & Electric Co., Unit 2 ³ | California | GE | Boiling water | 1200 | 3323 | Indef. | |
| †Palo Verde Nuclear Generating Station, Unit 4 (Arizona Public Service Co., Salt River Project, El Paso Electric Co., Tucson Gas & Electric Co., Public Service Co. of New Mexico, and Arizona Electric Power Co., Inc.) [STN-50-592] ³ | Wintersburg, Ariz. | Comb. | Pressurized water | 1270 | 3817 | 1987 | |
| †Palo Verde Nuclear Generating Station, Unit 5 (Arizona Public Service Co., Salt River Project, El Paso Electric Co., Tucson Gas & Electric Co., Public Service Co. of New Mexico, and Arizona Electric Power Co., Inc.) [STN-50-593] ³ | Wintersburg, Ariz. | Comb. | Pressurized water | 1270 | 3817 | 1989 | |
| Pebble Springs Nuclear Plant, Unit 1 (Portland General Electric Co.) [50-514] ³ | Arlington, Oreg. | B&W | Pressurized water | 1260 | 3600 | 1986 | |
| Pebble Springs Nuclear Plant, Unit 2 (Portland General Electric Co.) [50-515] ³ | Arlington, Oreg. | B&W | Pressurized water | 1260 | | 1988 | |
| Pilgrim Nuclear Power Station, Unit 2 (Boston Edison Co.) [50-471] ³ | Plymouth, Mass. | Comb. | Pressurized water | 1150 | 3456 | 1985 | |
| Skagit Nuclear Power Project, Unit 1 (Puget Sound Power & Light Co.) [STN-50-522] ³ | Sedro Woolley, Wash. | GE | Boiling water | 1277 | 3800 | 1986 | |
| Skagit Nuclear Power Project, Unit 2 (Puget Sound Power & Light Co.) [STN-50-523] ³ | Sedro Woolley, Wash. | GE | Boiling water | 1277 | 3800 | 1988 | |
| Thomas L. Perkins Nuclear Station, Unit 1 (Duke Power Co.) [STN-50-488] ³ | Davie County, N. C. | Comb. | Pressurized water | 1280 | 3800 | Indef. | |
| Thomas L. Perkins Nuclear Station, Unit 2 (Duke Power Co.) [STN-50-489] ³ | Davie County, N. C. | Comb. | Pressurized water | 1280 | 3800 | Indef. | |

*Removed from "Planned" as of 8/1/79.

†Canceled 7/79.

| | | | | | | |
|---|----------------------|-------|---|------|------|-----------|
| Thomas L. Perkins Nuclear Station, Unit 3 (Duke Power Co.) [STN-50-490] ³ | Davie County, N. C. | Comb. | Pressurized water | 1280 | 3800 | Indef. |
| Vandalia Nuclear Project (Iowa Power & Light Co., Associated Electric Cooperative, Inc., and Central Iowa Power Cooperative) ³ | Iowa | B&W | Pressurized water | 1270 | | Indef. |
| SHUT DOWN OR DISMANTLED | | | | | | |
| Boiling Nuclear Superheater Power Station (AEC and Puerto Rico Water Resources Authority) ^{3,4} | Punta Higuera, P. R. | Comb. | Boiling water, integral nuclear superheat | 16.5 | 50 | 1964 1968 |
| Carolinas—Virginia Tube Reactor (Carolinas—Virginia Nuclear Power Associates, Inc.) ^{3,4,7} | Parr, S. C. | West. | Pressure tube, heavy water | 17 | 64 | 1963 1967 |
| Elk River Reactor (AEC and Rural Cooperative Power Association) ^{3,4,10} | Elk River, Minn. | AC | Boiling water | 22 | 58.2 | 1962 1968 |
| Enrico Fermi Atomic Power Plant, Unit 1 (Power Reactor Development Co.) [50-16] ^{3,4} | Lagoona Beach, Mich. | PRDC | Sodium cooled, fast | 60.9 | 200 | 1963 1973 |
| Hallam Nuclear Power Facility, Sheldon Station (AEC and Consumers Public Power District) ^{4,6} | Hallam, Nebr. | AI | Sodium graphite | 75 | 240 | 1962 1964 |
| Pathfinder Atomic Plant (Northern States Power Co.) ⁹ | Sioux Falls, S. Dak. | AC | Boiling water | 58.5 | 190 | 1964 1967 |
| Peach Bottom Atomic Power Station, Unit 1 (Philadelphia Electric Co. [50-171]) ^{3,4} | Peach Bottom, Pa. | GA | High temperature gas cooled | 40 | 115 | 1966 1974 |
| Piqua Nuclear Power Facility (AEC and City of Piqua) ^{3,4,8} | Piqua, Ohio | AI | Organic cooled and moderated | 11.4 | 45.5 | 1963 1966 |

B. Dual-Purpose Plants

19

OPERABLE

| | | | | | | |
|---|-----------------|-------|----------|-----|------|------|
| N Reactor (DOE and Washington Public Power Supply System) ¹¹ | Richland, Wash. | UNCNI | Graphite | 850 | 4000 | 1963 |
|---|-----------------|-------|----------|-----|------|------|

BEING BUILT

| | | | | | | |
|--|----------------|-----|-------------------|-----|------|------|
| Midland Nuclear Power Plant, Unit 1 (Consumers Power Co. of Michigan) [50-329] ^{3,12} | Midland, Mich. | B&W | Pressurized water | 460 | 2468 | 1981 |
| Midland Nuclear Power Plant, Unit 2 (Consumers Power Co. of Michigan) [50-330] ^{3,12} | Midland, Mich. | B&W | Pressurized water | 811 | 2468 | 1980 |

C. Propulsion (Maritime)

| Name and/or owner | Nuclear designer | Shipbuilder | Type | Maximum shaft horsepower | Power, ¹ kW(t) | Start-up | Shutdown |
|--|------------------|-------------|-------------------|--------------------------|---------------------------|----------|----------|
| SHUT DOWN | | | | | | | |
| Nuclear Ship SAVANNAH (Maritime Administration) ³ | B&W | NYSC | Pressurized water | 22,000 | 80,000 | 1961 | 1971 |

2. EXPERIMENTAL POWER-REACTOR SYSTEMS

PART I CIVILIAN REACTORS (DOMESTIC)

A. Electric-Power Systems

| Name (all owned by DOE except as noted) | Designation | Location | Principal nuclear contractor | Type | Power ¹ | | | |
|---|-----------------|---|------------------------------|---|--------------------|----------------|------------|----------|
| | | | | | Plant, net kW(e) | Reactor, kW(t) | Start-up | Shutdown |
| OPERABLE | | | | | | | | |
| Experimental Breeder Reactor No. 2 ^{7,9} | EBR-2 | INEL Site, Idaho | ANL | Sodium cooled, fast | 20,000 | 62,500 | 1963 | |
| SHUT DOWN OR DISMANTLED | | | | | | | | |
| Boiling Reactor Experiment No. 1 | BORAX-1 | INEL Site, Idaho | ANL | Boiling water | No elec. | 1,400 | 1953 | 1954 |
| Boiling Reactor Experiment No. 5 | BORAX-5 | INEL Site, Idaho | ANL | Boiling water, integral nuclear superheat | 2,600 | 20,000 | 1962 | 1964 |
| Boiling Reactor Experiments ^{1,3} | BORAX-2, -3, -4 | INEL Site, Idaho | ANL | Boiling water | 2,400 | 15,500 | 1954 | 1958 |
| ESADA Vallecitos Experimental Superheat Reactor (Empire States Atomic Development Associates and General Electric Company) ³ | EVESR | Pleasanton, Calif. | GE | Light-water moderated, superheater | No elec. | 17,000 | 1963 | 1967 |
| Experimental Beryllium Oxide Reactor ^{1,5} | EBOR | INEL Site, Idaho | GA | Gas cooled, BeO moderated | No elec. | 10,000 | Terminated | |
| Experimental Boiling Water Reactor ^{2,0} | EBWR | Argonne, Ill. | ANL | Boiling water | 4,000 | 100,000 | 1956 | 1967 |
| Experimental Breeder Reactor No. 1 ^{1,6} | EBR-1 | INEL Site, Idaho | ANL | NaK cooled, fast | 150 | 1,400 | 1951 | 1964 |
| Experimental Gas Cooled Reactor ^{1,8} | EGCR | Oak Ridge, Tenn. | KE-AC | Gas cooled, graphite moderated | 21,900 | 84,300 | Terminated | |
| Experimental Organic Cooled Reactor ^{1,9} | EOCR | INEL Site, Idaho | Fluor-AI | Organic cooled and moderated | No elec. | 40,000 | Terminated | |
| Heavy Water Components Test Reactor | HWCTR | Savannah River Laboratory, Aiken, S. C. | du Pont | Pressurized heavy water | No elec. | 61,100 | 1962 | 1964 |
| Homogeneous Reactor Experiment No. 1 | HRE-1 | Oak Ridge, Tenn. | ORNL | Aqueous homogeneous solution (UO ₂ SO ₄) | 140 | 1,000 | 1952 | 1954 |
| Homogeneous Reactor Experiment No. 2 | HRE-2 | Oak Ridge, Tenn. | ORNL | Aqueous homogeneous solution (UO ₂ SO ₄) | 300 | 5,200 | 1957 | 1961 |
| Los Alamos Molten Plutonium Reactor Experiment | LAMPRE-1 | Los Alamos, N. Mex. | LASL | Fast molten plutonium fueled, sodium cooled | No elec. | 1,000 | 1961 | 1963 |
| Los Alamos Power Reactor Experiment No. 1 | LAPRE-1 | Los Alamos, N. Mex. | LASL | Aqueous homogeneous (phosphoric acid) | No elec. | 2,000 | 1956 | 1957 |
| Los Alamos Power Reactor Experiment No. 2 | LAPRE-2 | Los Alamos, N. Mex. | LASL | Aqueous homogeneous (phosphoric acid) | No elec. | 1,000 | 1959 | 1959 |
| Molten Salt Reactor Experiment | MSRE | Oak Ridge, Tenn. | ORNL | Single region, graphite moderated | No elec. | 8,000 | 1965 | 1969 |
| Organic Moderated Reactor Experiment ^{1,4} | OMRE | INEL Site, Idaho | AI | Organic cooled and moderated | No elec. | 12,000 | 1957 | 1963 |
| Plutonium Recycle Test Reactor | PRTR | Richland, Wash. | PNL | Pressure tube, heavy-water moderated and cooled | No elec. | 70,000 | 1960 | 1969 |

| | | | | | | | | |
|---|--------|----------------------|-------|---------------------|----------|--------|------|------|
| Saxton Nuclear Experimental Reactor Project (Saxton Nuclear Experimental Corp.) ³ | | Saxton, Pa. | West. | Pressurized water | 3,000 | 23,500 | 1962 | 1972 |
| Sodium Reactor Experiment (DOE and Southern California Edison Co.) ⁷ | SRE | Santa Susana, Calif. | AI | Sodium graphite | 5,700 | 20,000 | 1957 | 1964 |
| Southwest Experimental Fast Oxide Reactor (Southwest Atomic Energy Associates) ³ | SEFOR | Strickler, Ark. | GE | Sodium cooled, fast | | 20,000 | 1969 | 1972 |
| Ultra High Temperature Reactor Experiment | UHTREX | Los Alamos, N. Mex. | LASL | Helium cooled | No elec. | 3,000 | 1968 | 1970 |
| Vallecitos Boiling Water Reactor (General Electric Company and Pacific Gas & Electric Co.) ³ | VBWR | Pleasanton, Calif. | GE | Boiling water | 5,000 | 33,000 | 1957 | 1963 |

B. Auxiliary Power (SNAP)

SHUT DOWN OR DISMANTLED

| | | | | | | | | |
|--|----------|----------------------|---------|------------|----------|-----|------|---------|
| SNAP-2 Developmental System | S2DS | Santa Susana, Calif. | AI | NaK cooled | No elec. | 50 | 1961 | 1963 |
| SNAP-2 Experimental Reactor | SER | Santa Susana, Calif. | AI | NaK cooled | No elec. | 50 | 1959 | 1960 |
| SNAP-2/10A TSF Shielding Experiment | SNAP-TSF | Oak Ridge, Tenn. | AI-ORNL | NaK cooled | | 10 | 1967 | 1973 |
| SNAP-8 Developmental Reactor | S8DR | Santa Susana, Calif. | AI | NaK cooled | | 600 | 1968 | 1969 |
| SNAP-8 Experimental Reactor | S8ER | Santa Susana, Calif. | AI | NaK cooled | No elec. | 600 | 1962 | 1965 |
| SNAP-10A Flight System Ground Test No. 1 | S10FS-1 | Los Alamos, N. Mex. | AI | NaK cooled | | 0.5 | 39 | 1964 |
| SNAP-10A Flight System Ground Test No. 3 ²² | S10FS-3 | Santa Susana, Calif. | AI | NaK cooled | | 0.5 | 39 | 1964 |
| SNAP-10A Flight System ²² | S10FS-4 | In orbit | AI | NaK cooled | | 0.5 | 39 | 1965 |
| SNAP-10A Flight System | S10FS-5 | Oak Ridge, Tenn. | AI | NaK cooled | | 0.5 | 39 | (Spare) |

C. Space Propulsion (Rover)

| Name (all owned by DOE except as noted) | Designation | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Year of operation | Dis-mantled |
|---|--------------|------------|------------------------------|------------------------------|---------------------------|-------------------|-------------|
| SHUT DOWN OR DISMANTLED | | | | | | | |
| Fuel Element Test Bed | NF-1 | NRDS, Nev. | LASL | Open cycle, gaseous hydrogen | 44,000 | 1972 | 1972 |
| Fuel Element Test Reactor | Pewee-1 | NRDS, Nev. | LASL | Open cycle, liquid hydrogen | 514,000 | 1968 | 1968 |
| Fuel Element Test Reactor | Pewee-2 | NRDS, Nev. | LASL | Open cycle, liquid hydrogen | 514,000 | Indef. | 1973 |
| Ground Experimental Engine Experiment | XE-Prime | NRDS, Nev. | AG-West. | Open cycle, liquid hydrogen | 1,100,000 | 1968 | 1969 |
| Ground Experimental Engine Experiment | XE-Backup | NRDS, Nev. | AG-West. | Open cycle, liquid hydrogen | 1,100,000 | Indef. | 1973 |
| Nuclear Rocket Engine Reactor Experiment (NERVA) | NRX-A2 | NRDS, Nev. | AG-West. | Open cycle, liquid hydrogen | 1,096,000 | 1964 | 1964 |
| Nuclear Rocket Engine Reactor Experiment (NERVA) | NRX-A3 | NRDS, Nev. | AG-West. | Open cycle, liquid hydrogen | 1,100,000 | 1965 | 1965 |
| Nuclear Rocket Engine Reactor Experiment (NERVA) | NRX-A5 | NRDS, Nev. | AG-West. | Open cycle, liquid hydrogen | 1,120,000 | 1966 | 1966 |
| Nuclear Rocket Engine Reactor Experiment (NERVA) | NRX-A6 | NRDS, Nev. | AG-West. | Open cycle, liquid hydrogen | 1,199,000 | 1967 | 1967 |
| Nuclear Rocket Reactor Engine System Test (NERVA) | NRX-A4/EST | NRDS, Nev. | AG-West. | Open cycle, liquid hydrogen | 1,155,000 | 1966 | 1966 |
| Nuclear Rocket Reactor Experiment | Kiwi-A | NRDS, Nev. | LASL | Open cycle, gaseous hydrogen | 70,000 | 1959 | 1959 |
| Nuclear Rocket Reactor Experiment | Kiwi-A Prime | NRDS, Nev. | LASL | Open cycle, gaseous hydrogen | 85,000 | 1960 | 1960 |

2. EXPERIMENTAL POWER-REACTOR SYSTEMS

PART I CIVILIAN REACTORS (DOMESTIC)

C. Space Propulsion (Rover) (Continued)

| Name (all owned by DOE except as noted) | Designation | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Year of operation | Dismantled |
|--|-------------|------------|------------------------------|------------------------------|---------------------------|-------------------|------------|
| SHUT DOWN OR DISMANTLED (Continued) | | | | | | | |
| Nuclear Rocket Reactor Experiment | Kiwi-A3 | NRDS, Nev. | LASL | Open cycle, gaseous hydrogen | 100,000 | 1960 | 1960 |
| Nuclear Rocket Reactor Experiment | Kiwi-B1A | NRDS, Nev. | LASL | Open cycle, gaseous hydrogen | 300,000 | 1961 | 1961 |
| Nuclear Rocket Reactor Experiment | Kiwi-B1B | NRDS, Nev. | LASL | Open cycle, liquid hydrogen | 900,000 | 1962 | 1962 |
| Nuclear Rocket Reactor Experiment | Kiwi-B4A | NRDS, Nev. | LASL | Open cycle, liquid hydrogen | 500,000 | 1962 | 1962 |
| Nuclear Rocket Reactor Experiment | Kiwi-B4D | NRDS, Nev. | LASL | Open cycle, liquid hydrogen | 1,000,000 | 1964 | 1964 |
| Nuclear Rocket Reactor Experiment | Kiwi-B4E | NRDS, Nev. | LASL | Open cycle, liquid hydrogen | 950,000 | 1964 | 1964 |
| Nuclear Rocket Reactor Experiment | Phoebus 1A | NRDS, Nev. | LASL | Open cycle, liquid hydrogen | 1,070,000 | 1965 | 1965 |
| Nuclear Rocket Reactor Experiment | Phoebus 1B | NRDS, Nev. | LASL | Open cycle, liquid hydrogen | 1,400,000 | 1967 | 1967 |
| Nuclear Rocket Reactor Experiment | Phoebus 2A | NRDS, Nev. | LASL | Open cycle, liquid hydrogen | 4,200,000 | 1968 | 1968 |

22

3. TEST, RESEARCH, AND UNIVERSITY REACTORS

A. General Irradiation Test

| Name and/or owner | Designation | Location | Principal nuclear contractor | Operator | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|---|-------------|--------------------|------------------------------|----------|---------------|---------------------------|----------|-----------|
| OPERABLE | | | | | | | | |
| Advanced Test Reactor (DOE) | ATR | INEL, Idaho | Ebasco-B&W | EG&G-ID | Tank | 250,000 | 1968 | |
| Engineering Test Reactor (DOE) ^{2 3} | ETR | INEL, Idaho | KE-GE | EG&G-ID | Tank | 175,000 | 1957 | |
| BEING BUILT | | | | | | | | |
| Fast Flux Test Facility (DOE) | FFTF | Richland, Wash. | HEDL | HEDL | Sodium cooled | 400,000 | 1979 | |
| SHUT DOWN OR DISMANTLED | | | | | | | | |
| General Electric Testing Reactor ³ | GETR | Pleasanton, Calif. | Owner | Owner | Tank | 50,000 | 1958 | 1977 |
| Materials Testing Reactor (DOE) ^{2 4} | MTR | INEL, Idaho | ORNL-ANL-Blaw-Knox | INC | Tank | 40,000 | 1952 | 1970 |
| Plum Brook Reactor Facility (NASA) ³ | NASA-TR | Sandusky, Ohio | NASA | NASA | Tank | 60,000 | 1961 | 1974 |
| Westinghouse Testing Reactor ³ | WTR | Waltz Mill, Pa. | Owner | Owner | Tank | 60,000 | 1959 | 1962 |

B. High-Power Research and Test

| Name and/or owner | Designation | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|---|-------------|-----------------------------|------------------------------|----------------|---------------------------|----------|-----------|
| OPERABLE | | | | | | | |
| Brookhaven High Flux Beam Research Reactor (DOE) | HFBR | Upton, N. Y. | BNL | Heavy water | 40,000 | 1965 | |
| Brookhaven Medical Research Reactor (DOE) | BMRR | Upton, N. Y. | Daystrom | Tank | 5,000 | 1959 | |
| High Flux Isotope Reactor (DOE) | HFIR | Oak Ridge, Tenn. | ORNL | Tank flux trap | 100,000 | 1965 | |
| National Bureau of Standards Reactor ³ | NBSR | Gaithersburg, Md. | NBS-B&R | Heavy water | 10,000 | 1967 | |
| Oak Ridge Research Reactor (DOE) | ORR | Oak Ridge, Tenn. | ORNL | Tank | 30,000 | 1958 | |
| Omega West Reactor (DOE) | OWR | Los Alamos, N. Mex. | LASL | Tank | 8,000 | 1956 | |
| Union Carbide Corporation Reactor ³ | UCNR | Sterling Forest, N. Y. | AMF | Pool | 5,000 | 1961 | |
| SHUT DOWN OR DISMANTLED | | | | | | | |
| Ames Laboratory Research Reactor (DOE) | ALRR | Ames, Iowa | AMF | Heavy water | 5,000 | 1965 | 1977 |
| Argonne Research Reactor (DOE) | CP-5 | Argonne, Ill. | ANL | Heavy water | 5,000 | 1954 | 1979 |
| Babcock & Wilcox Nuclear Development Center Test Reactor ³ | BAWTR | Lynchburg, Va. | Owner | Pool | 6,000 | 1964 | 1971 |
| Brookhaven Graphite Research Reactor (DOE) | BGRR | Upton, N. Y. | HKF | Graphite | 20,000 | 1950 | 1969 |
| Industrial Reactor Laboratories, Inc. ³ | | Plainsboro, N. J. | AMF | Pool | 5,000 | 1958 | 1975 |
| Sandia Engineering Reactor (DOE) | SER | Kirtland AFB, East, N. Mex. | Sandia | Tank | 5,000 | 1961 | 1970 |

C. Safety Research and Test

| Name and/or owner | Designation | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|--|-------------|---------------------|------------------------------|-------------------------------------|---------------------------|----------|-----------|
| OPERABLE | | | | | | | |
| Loss of Fluid Test (DOE) | LOFT | INEL, Idaho | EG&G-ID | Pressurized water | 55,000 | 1978 | |
| Power-Burst Facility (DOE) | PBF | INEL, Idaho | EG&G-ID | Open tank | Transient, 28,000 | 1973 | |
| Transient Reactor Test (DOE) | TREAT | INEL Site, Idaho | ANL | Graphite | Transient | 1959 | |
| SHUT DOWN OR DISMANTLED | | | | | | | |
| Intrinsic Subcriticality Experiment (DOE) ^{2 7} | SNAPTRAN-1 | Los Alamos, N. Mex. | AI | Be-reflected SNAP-10A | Transient | 1968 | 1971 |
| King Intense Neutron Generator (DOE) | Kinglet | Los Alamos, N. Mex. | LASL | Homogeneous | Transient | 1972 | 1977 |
| Kiwi-Transient Test Reactor (DOE) | Kiwi-TTR | NRDS, Nev. | LASL | Kiwi/NERVA | Transient | 1965 | 1965 |
| SNAP-10A Transient Test No. 2 (DOE) ^{2 5} | SNAPTRAN-2 | INEL, Idaho | AI-PPC | Be-reflected SNAP-10A | Transient | 1965 | 1966 |
| SNAP-10A Transient Test No. 3 (DOE) ^{2 5} | SNAPTRAN-3 | INEL, Idaho | PPC-AI | H ₂ O-reflected SNAP-10A | Transient | 1964 | 1964 |
| Special Power Excursion Reactor Test No. 1 (DOE) | SPERT-1 | INEL, Idaho | PPC | Open tank | Transient | 1955 | 1964 |
| Special Power Excursion Reactor Test No. 2 (DOE) | SPERT-2 | INEL, Idaho | PPC | Pressurized water | Transient | 1960 | 1965 |
| Special Power Excursion Reactor Test No. 3 (DOE) | SPERT-3 | INEL, Idaho | PPC | Pressurized water | Transient | 1958 | 1968 |
| Special Power Excursion Reactor Test No. 4 (DOE) | SPERT-4 | INEL, Idaho | INC | Pool | Transient | 1962 | 1970 |

3. TEST, RESEARCH, AND UNIVERSITY REACTORS (Continued)

PART I CIVILIAN REACTORS (DOMESTIC)

D. General Research

| Name and/or owner | Designation | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|---|------------------|-----------------------------|------------------------------|---------------------|---------------------------|----------|-----------|
| OPERABLE | | | | | | | |
| Aerotest Operations, Inc. ³ | AGNIR | San Ramon, Calif. | AGN | Pool-TRIGA core | 250 | 1965 | |
| Annular Core Research Reactor (DOE) | ACRR | Kirtland AFB, East, N. Mex. | Sandia | UO ₂ BeO | 2000 and transient | 1978 | |
| Argonne Thermal Source Reactor (DOE) | ATSR | Argonne, Ill. | ANL | Thermal | 10 | 1957 | |
| Babcock & Wilcox Lynchburg Pool Reactor ³ | LPR | Lynchburg, Va. | Owner | Pool | 1,000 | 1958 | |
| Biological Research Reactor (DOE) | JANUS | Argonne, Ill. | ANL | Tank | 200 | 1964 | |
| Bulk Shielding Reactor (DOE) ^{2,8} | BSR | Oak Ridge, Tenn. | ORNL | Pool | 2,000 | 1950 | |
| Dow Chemical Co. ³ | TRIGA-Mk I | Midland, Mich. | GA | U-Zr hydride | 100 | 1967 | |
| Fast Source Reactor (DOE) | AFSR | INEL Site, Idaho | ANL | Fast | 1 | 1959 | |
| General Atomic Company, Advanced TRIGA-Mk F Prototype Reactor ³ | TRIGA-Mk F | La Jolla, Calif. | Owner | U-Zr hydride | 1,500 | 1960 | |
| General Atomic Company, TRIGA-Mk I Prototype Reactor ^{3,30} | TRIGA-Mk I | La Jolla, Calif. | Owner | U-Zr hydride | 250 | 1958 | |
| General Electric Nuclear Test Reactor ³ | NTR | Pleasanton, Calif. | GE | Light water | 100 | 1957 | |
| Health Physics Research Reactor (DOE) ^{3,1} | HPRR | Oak Ridge, Tenn. | ORNL | Fast burst | 10 | 1962 | |
| Livermore Pool Type Reactor (DOE) | LPTR | Livermore, Calif. | FW | Tank | 3,000 | 1957 | |
| Neutron Radiography Facility (DOE) | TRIGA-Mk I | Richland, Wash. | HEDL | U-Zr hydride | 250 | 1977 | |
| Neutron Radiography Facility (DOE) | NRAD | INEL, Idaho | ANL | Pool-TRIGA core | 250 | 1977 | |
| Northrop Corporate Laboratories (Space Radiation Laboratory) ^{3,30} | TRIGA-Mk F | Hawthorne, Calif. | GA | U-Zr hydride | 1,000 | 1963 | |
| Nuclear Examination Reactor (Rockwell International) ^{3,2,9} | L-85 (AE-6) | Santa Susana, Calif. | AI | Homogeneous | 3 | 1952 | |
| Omaha Veterans Administration Hospital ³ | TRIGA-Mk I | Omaha, Nebr. | GA | U-Zr hydride | 18 | 1959 | |
| Rhode Island Nuclear Science Center ³ | | Fort Kearney, R. I. | GE | Pool | 2,000 | 1964 | |
| Rockwell International ³ | L-77 | Canoga Park, Calif. | AI | Homogeneous | Neglig. | 1958 | |
| Sandia Pulsed Reactor II (DOE) | SPR-II | Kirtland AFB, East, N. Mex. | Sandia | Prompt burst | Transient | 1967 | |
| Sandia Pulsed Reactor III (DOE) | SPR-III | Kirtland AFB, East, N. Mex. | Sandia | Prompt burst | Transient | 1975 | |
| Tower Shielding Reactor No. 2 (DOE) | TSR-2 | Oak Ridge, Tenn. | ORNL | Light water | 1,000 | 1960 | |
| U. S. Geological Survey Laboratory (Department of the Interior) ^{3,30} | TRIGA-Mk I | Denver, Colo. | GA | U-Zr hydride | 1,000 | 1969 | |
| Westinghouse Nuclear Training Center ³ | | Zion, Ill. | West. | | 10 | 1972 | |
| SHUT DOWN OR DISMANTLED | | | | | | | |
| Accelerator Pulsed Fast Critical Assembly ^{3,4,2} | APFA-III | La Jolla, Calif. | GA | Fast | 1 | 1967 | 1973 |
| American Standard Inc. ^{3,5} | UTR-1 | Mountain View, Calif. | AS Inc. | Graphite/water | Neglig. | 1958 | 1960 |
| Annular Core Pulsed Reactor (DOE) | ACPR | Kirtland AFB, East, N. Mex. | GA | U-Zr hydride | Transient | 1967 | 1977 |
| Argonne CP-3, rebuilt as CP-3' (Manhattan Engineer District—DOE) | CP-3' | Palos Park, Ill. | Met. Lab. | Heavy water | 300 | 1944 | 1963 |
| Argonne Low Power Research Reactor (DOE) ^{3,9} | Juggernaut | Argonne, Ill. | ANL | Graphite/water | 250 | 1962 | 1970 |
| Argonne National Laboratory (DOE) | AGN-201-108 | Argonne, Ill. | AGN | Homog. solid | Neglig. | 1957 | 1972 |
| Argonne Nuclear Assembly for University Training (DOE) | Argonaut (CP-11) | Argonne, Ill. | ANL | Graphite/water | 10 | 1957 | 1972 |
| Atomics International ³ | L-47 | Canoga Park, Calif. | AI | Homogeneous | Neglig. | 1957 | 1958 |
| Battelle Memorial Institute ³ | BRR | West Jefferson, Ohio | AMF | Pool | 2,000 | 1956 | 1974 |

| | | | | | | | | | |
|----|---|--------------|-----------------------------|-----------|--------------------------------------|---------|-----------|------|------|
| 25 | Brookhaven Neutron Source Reactor No. 1 (DOE) | SCHIZO | Upton, N. Y. | BNL | Tank | 100 | 1958 | 1970 | |
| | Brookhaven Neutron Source Reactor No. 2 (DOE) | PHRENIC | Upton, N. Y. | BNL | Tank | 100 | 1965 | 1970 | |
| | Chicago Pile 1, rebuilt as CP-2 (Manhattan Engineer District—DOE) ^{3,4} | CP-2 | Chicago, Ill. | Met. Lab. | Graphite | 0.2–2 | 1942 | 1954 | |
| | Curtiss-Wright Nuclear Research Laboratory of the Commonwealth of Pennsylvania | | Quehanna, Pa. | Owner | Pool | 1,000 | 1958 | 1966 | |
| | DOE Demonstration Reactor ^{4,3} | Demo Reac | Oak Ridge, Tenn. | Lockheed | Pool | 10 | 1969 | 1969 | |
| | European–Asian Exhibit Program (DOE) ^{3,3} | | Oak Ridge, Tenn. | Lockheed | Pool | 10 | 1963 | 1969 | |
| | Fast Neutron Source Reactor (DOE) | BNL/FS-1 | Upton, N. Y. | BNL | Fast | | 1967 | 1970 | |
| | General Atomic Co. (World Agricultural Fair—U. S. Exhibit Reactor) ^{3,6} | TRIGA-Mk II | San Diego, Calif. | Owner | U–Zr hydride | 50 | 1960 | 1960 | |
| | High Temperature Lattice Test Reactor (DOE) | HTLTR | Richland, Wash. | PNL | Graphite | 2 | 1967 | 1971 | |
| | Illinois Institute of Technology Research Institute (Armour Research Foundation) ³ | ARR(L-54) | Chicago, Ill. | AI | Homogeneous | 75 | 1956 | 1967 | |
| | Kinetic Experiment on Water Boilers (Rockwell International) ^{3,3,2} | KEWB | Santa Susana, Calif. | AI | Homogeneous | | Transient | 1956 | 1967 |
| | Livermore Water Boiler (DOE) | LIWB | Livermore, Calif. | AI | Homogeneous | 0.5 | 1953 | 1961 | |
| | Lockheed Aircraft Corp. | | Dawsonville, Ga. | Lockheed | Pool | Neglig. | 1960 | 1960 | |
| | Los Alamos Fast Reactor (DOE) | Clementine | Los Alamos, N. Mex. | LASL | Fast, plutonium fuel, mercury cooled | 25 | 1946 | 1953 | |
| | Los Alamos LOPO Reactor (DOE) | LOPO | Los Alamos, N. Mex. | LASL | Homogeneous | 5 to 15 | 1944 | 1944 | |
| | Los Alamos Water Boiler (DOE) | HYPO | Los Alamos, N. Mex. | LASL | Homogeneous | 5.5 | 1944 | 1950 | |
| | Los Alamos Water Boiler (DOE) | SUPO | Los Alamos, N. Mex. | LASL | Homogeneous | 25 | 1950 | 1974 | |
| | Louisiana State University Nuclear Science Center (Phillips Petroleum Co.) ^{3,7} | SNARE | Baton Rouge, La. | Sandia | Pool | 2 | 1965 | 1966 | |
| | Low Intensity Test Reactor (DOE) | LITR | Oak Ridge, Tenn. | ORNL | Tank | 3,000 | 1950 | 1968 | |
| | NASA Mock-Up Reactor ³ | MUR | Sandusky, Ohio | Lockheed | Light water, pool | 100 | 1963 | 1973 | |
| | Nuclear Effects Reactor (DOE) ^{3,8} | FRAN | NTS, Nev. | UCLLL/PPC | Prompt burst | | Transient | 1962 | 1970 |
| | Nuclear Effects Reactor (DOE) | KUKLA | San Diego, Calif. | UCLLL | Prompt burst | | Transient | 1959 | 1964 |
| | Oak Ridge Graphite Reactor (DOE) | X-10 | Oak Ridge, Tenn. | CL | Graphite | 3,500 | 1943 | 1963 | |
| | Pawling Research Reactor (United Nuclear Corp.) ³ | PRR | Pawling, N. Y. | UNC | Light water | Neglig. | 1958 | 1971 | |
| | Physical Constants Test Reactor (DOE) | PCTR | Richland, Wash. | PNL | Graphite | 0.1 | 1955 | 1972 | |
| | Radiation Effects Reactor (Lockheed Aircraft Corp.) ^{3,4,9} | RER | Dawsonville, Ga. | Lockheed | Pool | 3,000 | 1958 | 1970 | |
| | Sandia Pulsed Reactor (DOE) | SPR | Kirtland AFB, East, N. Mex. | Sandia | Prompt burst | | Transient | 1961 | 1967 |
| | Shield Test and Irradiation Reactor (DOE) ^{4,1} | STIR | Santa Susana, Calif. | AI | Pool | 1,000 | 1961 | 1972 | |
| | Thermal Test Reactor No. 2 (DOE) | TTR-2 | Richland, Wash. | PNL | Graphite | 0.1 | 1955 | 1972 | |
| | Torrey Pines, TRIGA-Mk III Reactor ³ | TRIGA-Mk III | La Jolla, Calif. | GA | U–Zr hydride | 2,000 | 1965 | 1973 | |
| | Tower Shielding Reactor No. 1 | TSR-1 | Oak Ridge, Tenn. | ORNL | Tank | 500 | 1954 | 1958 | |
| | UTR Test Reactor (American Radiator & Standard Sanitary Corp.) ³ | | Mountain View, Calif. | Owner | Graphite/water | Neglig. | 1961 | 1963 | |

E. University Research and Teaching

(Footnote 3 applies to all reactors in this section except as noted.)

| Name and/or owner | Designation | Location | Principal nuclear contractor | Type | Power, kW(t) | Start-up | Shut-down |
|---|-------------|-------------------------|------------------------------|--------------|-----------------|----------|-----------|
| OPERABLE | | | | | | | |
| Brigham Young University | L-77 | Provo, Utah | AI | Homogeneous | Neglig. | 1967 | |
| California State Polytechnic ^{5,4} | AGN-201-100 | San Luis Obispo, Calif. | AGN | Homog. solid | Neglig. | 1973 | |

3. TEST, RESEARCH, AND UNIVERSITY REACTORS

PART I CIVILIAN REACTORS (DOMESTIC)

E. University Research and Teaching (Continued)

| Name and/or owner | Designation | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|--|------------------|------------------------|------------------------------|-----------------------|---------------------------|----------|-----------|
| OPERABLE (Continued) | | | | | | | |
| Catholic University of America | AGN-201-101 | Washington, D. C. | AGN | Homog. solid | Neglig. | 1957 | |
| Columbia University ^{3,0} | TRIGA-Mk II | New York, N. Y. | GA | U-Zr hydride | 250 | 1977 | |
| Cornell University ^{3,0} | TRIGA-Mk II | Ithaca, N. Y. | GA | U-Zr hydride | 100 | 1962 | |
| Cornell University Zero Power Reactor | ZPR | Ithaca, N. Y. | Vitro | Tank | Neglig. | 1962 | |
| Georgia Institute of Technology ^{4,5} | AGN-201-104 | Atlanta, Ga. | AGN | Homog. solid | Neglig. | 1957 | |
| Georgia Tech. Research Reactor | GTRR | Atlanta, Ga. | GNEC | Heavy water | 10,000 | 1964 | |
| Idaho State University ^{5,2} | AGN-201P-103 | Pocatello, Idaho | AGN | Homog. solid | Neglig. | 1967 | |
| Iowa State University | UTR-10 | Ames, Iowa | AS Inc. | Graphite/water | 10 | 1959 | |
| Kansas State University ^{3,0} | TRIGA-Mk II | Manhattan, Kans. | GA | U-Zr hydride | 250 | 1962 | |
| Manhattan College | | New York, N. Y. | AMF | Tank | Neglig. | 1964 | |
| Massachusetts Institute of Technology | MITR | Cambridge, Mass. | ACF | Heavy-water reflected | 5,000 | 1958 | |
| Memphis State | AGN-201-108 | Memphis, Tenn. | AGN | Homog. solid | Neglig. | 1977 | |
| Michigan State University ^{3,0,5,3} | TRIGA-Mk I | East Lansing, Mich. | GA | U-Zr hydride | 250 | 1969 | |
| North Carolina State University | PULSTAR | Raleigh, N. C. | AMF | Pool | 1,000 | 1972 | |
| Nuclear Science Center Reactor, Texas A&M University ^{3,0,4,9} | NSCR | College Station, Tex. | Convair | Pool-TRIGA core | 1,000 | 1961 | |
| Ohio State University | | Columbus, Ohio | Lockheed | Pool | 10 | 1961 | |
| Oregon State University | AGN-201-114 | Corvallis, Oreg. | AGN | Homog. solid | Neglig. | 1958 | |
| Oregon State University ^{3,0} | TRIGA-Mk II | Corvallis, Oreg. | GA | U-Zr hydride | 1,000 | 1967 | |
| Penn State TRIGA Reactor (Pennsylvania State University) ^{3,0,5,1} | PSTR | University Park, Pa. | Owner | Pool-TRIGA core | 1,000 | 1965 | |
| Puerto Rico Nuclear Center (DOE) ^{4,7} | L-77 | Mayagüez, P. R. | AI | Homogeneous | Neglig. | 1959 | |
| Purdue University | | West Lafayette, Ind. | Lockheed | Pool | 10 | 1962 | |
| Reed College | TRIGA-Mk I | Portland, Oreg. | GA | U-Zr hydride | 250 | 1968 | |
| State University of New York (Western New York Nuclear Research Center, Inc.) | PULSTAR | Buffalo, N. Y. | AMF | Pool | 2,000 | 1961 | |
| Texas A&M University | TRIGA Conversion | College Station, Tex. | GA | U-Zr hydride | 1,000 | 1968 | |
| Tuskegee Institute ^{4,4} | AGN-201-102 | Tuskegee, Ala. | AGN | Homog. solid | Neglig. | 1957 | |
| University of Arizona | TRIGA-Mk I | Tucson, Ariz. | GA | U-Zr hydride | 250 | 1958 | |
| University of California ^{3,0} | TRIGA-Mk III | Berkeley, Calif. | GA | U-Zr hydride | 1,000 | 1966 | |
| University of California | L-77 | Santa Barbara, Calif. | AI | Homogeneous | Neglig. | | |
| University of California ^{3,0} | TRIGA-Mk I | Irvine, Calif. | GA | U-Zr hydride | 250 | 1969 | |
| University of California at Los Angeles, School of Engineering and Applied Science | Educator | Los Angeles, Calif. | AMF | Graphite/water | 100 | 1960 | |
| University of Florida | UFTR | Gainesville, Fla. | GNEC | Graphite/water | 100 | 1959 | |
| University of Illinois | LOPRA | Urbana, Ill. | GA | U-Zr hydride | 10 | 1971 | |
| University of Illinois | TRIGA-Mk II | Urbana-Champaign, Ill. | GA | U-Zr hydride | 1,500 | 1960 | |
| University of Kansas | Model 4180 | Lawrence, Kans. | BAC | Pool | 10 | 1961 | |

| | | | | | |
|--|-----------------------------------|-----------|--------------------|---------|------|
| University of Lowell | Lowell, Mass. | GE | Pool | 1,000 | |
| University of Maryland | College Park, Md. | AC | Tank | 250 | 1960 |
| University of Michigan (Ford Nuclear Reactor) | Ann Arbor, Mich. | B&W | Pool | 2,000 | 1957 |
| University of Missouri | Columbia, Mo. | Owner-IC | Tank | 10,000 | 1966 |
| University of Missouri at Rolla | Rolla, Mo. | CW | Pool | 200 | 1961 |
| University of New Mexico ^{4,6} | AGN-201M-112 Albuquerque, N. Mex. | AGN | Homog. solid | Neglig. | 1957 |
| University of Oklahoma | AGN-211-102 Norman, Okla. | AGN | Homog. solid, pool | Neglig. | 1958 |
| University of Texas ^{3,0} | TRIGA-Mk I Austin, Tex. | GA | U-Zr hydride | 250 | 1963 |
| University of Utah | TRIGA-Mk I Salt Lake City, Utah | GA | U-Zr hydride | 250 | 1975 |
| University of Utah | AGN-201-107 Salt Lake City, Utah | AGN | Homog. solid | Neglig. | 1957 |
| University of Virginia | CAVALIER Charlottesville, Va. | Owner | | Neglig. | |
| University of Virginia | UVAR Charlottesville, Va. | Owner-B&W | Pool | 2,000 | 1960 |
| University of Washington | Educator Seattle, Wash. | AMF | Graphite/water | 100 | 1961 |
| University of Wisconsin ^{3,0,4,8} | TRIGA Madison, Wis. | GE | Pool-TRIGA core | 1,000 | 1960 |
| Virginia Polytechnic Institute | UTR-10 Blacksburg, Va. | AS Inc. | Graphite/water | 100 | 1959 |
| Washington State University ^{3,0,5,0} | WSTR Pullman, Wash. | GE | Pool-TRIGA core | 1,000 | 1961 |
| Worcester Polytechnic Institute | Worcester, Mass. | GE | Pool | 10 | 1959 |
| BEING BUILT | | | | | |
| Mississippi State University ^{5,5} | RRR State College, Miss. | Owner-NSA | Homogeneous | Neglig. | |
| SHUT DOWN OR DISMANTLED | | | | | |
| Colorado State University | AGN-201-109 Fort Collins, Colo. | AGN | Homog. solid | Neglig. | 1957 |
| Leland Stanford University | Palo Alto, Calif. | GE | Pool | 10 | 1959 |
| North Carolina State University | Raleigh, N. C. | Cook | Graphite/water | 10 | 1960 |
| Polytechnic Institute of New York ^{5,6} | AGN-201M-105 New York, N. Y. | AGN | Homog. solid | Neglig. | 1967 |
| Puerto Rico Nuclear Center (DOE) ^{7,8} | TRIGA-FLIP Mayagüez, P. R. | GA | Pool-TRIGA core | 2,000 | 1960 |
| University of Delaware | AGN-201-113 Newark, Del. | AGN | Homog. solid | Neglig. | 1958 |
| University of Nevada | L-77 Reno, Nev. | AI | Homogeneous | Neglig. | 1963 |
| University of Wyoming | L-77 Laramie, Wyo. | AI | Homogeneous | Neglig. | 1959 |
| West Virginia University | AGN-211-103 Morgantown, W. Va. | AGN | Homog. solid, pool | Neglig. | 1959 |
| William Marsh Rice University | AGN-211-101 Houston, Tex. | AGN | Homog. solid, pool | Neglig. | 1959 |

1. MATERIALS PRODUCTION

PART II PRODUCTION REACTORS

(All owned by DOE)

| Designation | Nuclear designer | Type | Location | Start-up | Shut-down |
|------------------|------------------|-------------|------------------------------------|----------|-----------|
| OPERABLE* | | | | | |
| C Reactor | du Pont | Heavy water | Savannah River Plant, Aiken, S. C. | 1955 | |
| K Reactor | du Pont | Heavy water | Savannah River Plant, Aiken, S. C. | 1954 | |
| P Reactor | du Pont | Heavy water | Savannah River Plant, Aiken, S. C. | 1954 | |
| SHUT DOWN | | | | | |
| B Reactor | du Pont | Graphite | Richland, Wash. | 1944 | 1968 |
| C Reactor | GE | Graphite | Richland, Wash. | 1952 | 1969 |
| D Reactor | du Pont | Graphite | Richland, Wash. | 1944 | 1967 |
| DR Reactor | GE | Graphite | Richland, Wash. | 1950 | 1964 |
| F Reactor | du Pont | Graphite | Richland, Wash. | 1945 | 1965 |
| H Reactor | GE | Graphite | Richland, Wash. | 1949 | 1965 |
| KE Reactor | GE | Graphite | Richland, Wash. | 1955 | 1971 |
| KW Reactor | GE | Graphite | Richland, Wash. | 1955 | 1970 |
| L Reactor | du Pont | Heavy water | Savannah River Plant, Aiken, S. C. | 1954 | 1968 |
| R Reactor | du Pont | Heavy water | Savannah River Plant, Aiken, S. C. | 1953 | 1964 |

*The N Reactor, Richland, Wash., is listed on page 19; see also footnote 11.

2. PROCESS DEVELOPMENT

| Name (all owned by DOE) | Designation | Location | Nuclear designer | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|--------------------------------|-------------|---|------------------|-------------|---------------------------|----------|-----------|
| OPERABLE | | | | | | | |
| Lattice Test Reactor | LTR | Savannah River Laboratory, Aiken, S. C. | du Pont | Heavy water | 1 | 1967 | |
| Process Development Pile | PDP | Savannah River Laboratory, Aiken, S. C. | du Pont | Heavy water | 1 | 1953 | |
| Savannah River Test Pile 305 | SR-305 | Savannah River Laboratory, Aiken, S. C. | du Pont | Graphite | 1 | 1953 | |
| Standard Pile | SP | Savannah River Laboratory, Aiken, S. C. | du Pont | Graphite | 2-10 | 1953 | |
| SHUT DOWN OR DISMANTLED | | | | | | | |
| Hanford 305 Test Reactor | HTR | Richland, Wash. | du Pont | Graphite | Neglig. | 1944 | 1976 |

1. DEFENSE POWER-REACTOR APPLICATIONS

PART III MILITARY REACTORS

A. Remote Installations

| Name (all owned by DOD) | Designation ^{5 7} | Location | Principal nuclear contractor | Type | Power ¹ | | | |
|---|----------------------------|---------------------------|------------------------------|-------------------|--------------------|----------------|----------|----------|
| | | | | | Plant, net kW(e) | Reactor, kW(t) | Start-up | Shutdown |
| SHUT DOWN OR DISMANTLED | | | | | | | | |
| Portable Medium Power Plant No. 1 | PM-1 | Sundance, Wyo. | Martin | Pressurized water | 1,000 | 9,370 | 1962 | 1968 |
| Portable Medium Power Plant No. 2A ^{5 9} | PM-2A | Camp Century, Greenland | Alco | Pressurized water | 1,560 | 10,000 | 1960 | 1963 |
| Portable Medium Power Plant No. 3A | PM-3A | McMurdo Sound, Antarctica | Martin | Pressurized water | 1,500 | 9,510 | 1962 | 1973 |
| Stationary Medium Power Plant No. 1 | SM-1 | Fort Belvoir, Va. | Alco | Pressurized water | 1,855 | 10,000 | 1957 | 1973 |
| Stationary Medium Power Plant No. 1A ^{6 0} | SM-1A | Fort Greely, Alaska | Alco | Pressurized water | 1,650 | 20,200 | 1962 | 1972 |
| STURGIS Floating Nuclear Power Plant ^{5 8} | MH-1A | Gatun Lake, Canal Zone | Martin | Pressurized water | 10,000 | 45,000 | 1967 | 1976 |

B. Propulsion (Naval)

| Name (all owned by U. S. Navy) | Designation ^{6 1} | Shipbuilder | Start-up | Name (all owned by U. S. Navy) | Designation ^{6 1} | Shipbuilder | Start-up | Shutdown |
|--------------------------------|----------------------------|------------------------|----------|--------------------------------|----------------------------|------------------------|----------|----------|
| OPERABLE | | | | | | | | |
| USS NAUTILUS | SSN571 | Electric Boat (Groton) | 1954 | USS STURGEON | SSN637 | Electric Boat (Groton) | 1966 | |
| USS SEAWOLF ^{6 2} | SSN575 | Electric Boat (Groton) | 1960 | USS WHALE | SSN638 | GD (Quincy) | 1968 | |
| USS SKATE | SSN578 | Electric Boat (Groton) | 1957 | USS TAUTOG | SSN639 | Ingalls | 1968 | |
| USS SWORDFISH | SSN579 | Portsmouth | 1958 | USS GRAYLING | SSN646 | Portsmouth | 1969 | |
| USS SARGO | SSN583 | San Francisco Bay | 1958 | USS POGY | SSN647 | NYSC/Ingalls | 1970 | |
| USS SEADRAGON | SSN584 | Portsmouth | 1959 | USS ASPRO | SSN648 | Ingalls | 1968 | |
| USS SKIPJACK | SSN585 | Electric Boat (Groton) | 1958 | USS SUNFISH | SSN649 | GD (Quincy) | 1968 | |
| USS SCAMP | SSN588 | San Francisco Bay | 1961 | USS PARGO | SSN650 | Electric Boat (Groton) | 1967 | |
| USS SCULPIN | SSN590 | Ingalls | 1961 | USS QUEENFISH | SSN651 | Newport News | 1966 | |
| USS SHARK | SSN591 | Newport News | 1960 | USS PUFFER | SSN652 | Ingalls | 1969 | |
| USS SNOOK | SSN592 | Ingalls | 1961 | USS RAY | SSN653 | Newport News | 1967 | |
| USS PERMIT | SSN594 | San Francisco Bay | 1962 | USS SAND LANCE | SSN660 | Portsmouth | 1971 | |
| USS PLUNGER | SSN595 | San Francisco Bay | 1962 | USS LAPON | SSN661 | Newport News | 1967 | |
| USS BARB | SSN596 | Ingalls | 1963 | USS GURNARD | SSN662 | San Francisco Bay | 1968 | |
| USS TULLIBEE | SSN597 | Electric Boat (Groton) | 1960 | USS HAMMERHEAD | SSN663 | Newport News | 1967 | |
| USS POLLACK | SSN603 | NYSC | 1963 | USS SEA DEVIL | SSN664 | Newport News | 1968 | |
| USS HADDO | SSN604 | NYSC | 1964 | USS GUITARRO | SSN665 | Mare Island | 1972 | |
| USS JACK | SSN605 | Portsmouth | 1965 | USS HAWKBILL | SSN666 | Mare Island | 1970 | |
| USS TINOSA | SSN606 | Portsmouth | 1963 | USS BERGALL | SSN667 | Electric Boat (Groton) | 1969 | |
| USS DACE | SSN607 | Ingalls | 1963 | USS SPADEFISH | SSN668 | Newport News | 1969 | |
| USS GUARDFISH | SSN612 | NYSC | 1966 | USS SEA HORSE | SSN669 | Electric Boat (Groton) | 1969 | |
| USS FLASHER | SSN613 | Electric Boat (Groton) | 1966 | USS FINBACK | SSN670 | Newport News | 1969 | |
| USS GREENLING | SSN614 | GD (Quincy) | 1967 | USS NARWHAL | SSN671 | Electric Boat (Groton) | 1969 | |
| USS GATO | SSN615 | GD (Quincy) | 1967 | USS PINTADO | SSN672 | Mare Island | 1970 | |
| USS HADDOCK | SSN621 | Ingalls | 1967 | USS FLYING FISH | SSN673 | Electric Boat (Groton) | 1969 | |

1. DEFENSE POWER-REACTOR APPLICATIONS

PART III MILITARY REACTORS

B. Propulsion (Naval) (Continued)

| Name (all owned by U. S. Navy) | Designation ^{6 1} | Shipbuilder | Start-up | Name (all owned by U. S. Navy) | Designation ^{6 1} | Shipbuilder | Start-up | Shutdown |
|--------------------------------|----------------------------|------------------------|----------|-----------------------------------|----------------------------|------------------------|----------|----------|
| OPERABLE (Continued) | | | | | | | | |
| USS TREPANG | SSN674 | Newport News | 1970 | USS GEORGE WASHINGTON | SSBN656 | Newport News | 1966 | |
| USS BLUEFISH | SSN675 | Newport News | 1970 | CARVER | | | | |
| USS BILLFISH | SSN676 | Newport News | 1970 | USS FRANCIS SCOTT KEY | SSBN657 | Electric Boat (Groton) | 1966 | |
| USS DRUM | SSN677 | Newport News | 1971 | USS MARIANO G. VALLEJO | SSBN658 | San Francisco Bay | 1966 | |
| USS ARCHERFISH | SSN678 | Electric Boat (Groton) | 1971 | USS WILL ROGERS | SSBN659 | Electric Boat (Groton) | 1967 | |
| USS SILVERSIDES | SSN679 | Newport News | 1971 | USS ENTERPRISE (8 reactors) | CVN65 | Newport News | 1960 | |
| USS WILLIAM H. BATES | SSN680 | Electric Boat (Groton) | 1972 | USS NIMITZ (2 reactors) | CVN68 | Newport News | 1974 | |
| USS BATFISH | SSN681 | Newport News | 1972 | USS DWIGHT D. EISENHOWER | CVN69 | Newport News | 1977 | |
| USS TUNNY | SSN682 | Electric Boat (Groton) | 1973 | (2 reactors) | | | | |
| USS PARCHE | SSN683 | Electric Boat (Groton) | 1974 | USS LONG BEACH (2 reactors) | CGN9 | Bethlehem | 1961 | |
| USS CAVALLA | SSN684 | Electric Boat (Groton) | 1972 | USS BAINBRIDGE (2 reactors) | CGN25 | Bethlehem | 1962 | |
| USS GLENARD P. LIPSCOMB | SSN685 | San Francisco Bay | 1974 | USS TRUXTUN (2 reactors) | CGN35 | NYSC | 1967 | |
| USS L. MENDELL RIVERS | SSN686 | Newport News | 1974 | USS CALIFORNIA (2 reactors) | CGN36 | Newport News | 1973 | |
| USS RICHARD B. RUSSELL | SSN687 | Portsmouth | 1974 | USS SOUTH CAROLINA (2 reactors) | CGN37 | Newport News | 1974 | |
| USS LOS ANGELES | SSN688 | Electric Boat (Groton) | 1976 | USS VIRGINIA (2 reactors) | CGN38 | Newport News | 1976 | |
| USS BATON ROUGE | SSN689 | Newport News | 1977 | USS TEXAS (2 reactors) | CGN39 | Newport News | 1977 | |
| USS PHILADELPHIA | SSN690 | Electric Boat (Groton) | 1976 | USS MISSISSIPPI (2 reactors) | CGN40 | Newport News | 1978 | |
| USS MEMPHIS | SSN691 | Newport News | 1977 | Deep Submergence Research Vehicle | NR-1 | Electric Boat (Groton) | 1969 | |
| USS OMAHA | SSN692 | Electric Boat (Groton) | 1977 | | | | | |
| USS CINCINNATI | SSN693 | Electric Boat (Groton) | 1978 | | | | | |
| USS GROTON | SSN694 | Electric Boat (Groton) | 1978 | | | | | |
| USS BIRMINGHAM | SSN695 | Newport News | 1978 | | | | | |
| USS NEW YORK CITY | SSN696 | Electric Boat (Groton) | 1978 | | | | | |
| USS GEORGE WASHINGTON | SSBN598 | Electric Boat (Groton) | 1959 | | | | | |
| USS PATRICK HENRY | SSBN599 | Electric Boat (Groton) | 1960 | | | | | |
| USS THEODORE ROOSEVELT | SSBN600 | Mare Island | 1960 | | | | | |
| USS ROBERT E. LEE | SSBN601 | Electric Boat (Groton) | 1960 | | | | | |
| USS ABRAHAM LINCOLN | SSBN602 | Electric Boat (Groton) | 1960 | | | | | |
| USS ETHAN ALLEN | SSBN608 | Ingalls | 1961 | | | | | |
| USS SAM HOUSTON | SSBN609 | Electric Boat (Groton) | 1961 | | | | | |
| USS THOMAS A. EDISON | SSBN610 | Ingalls | 1961 | | | | | |
| USS JOHN MARSHALL | SSBN611 | Ingalls | 1962 | | | | | |
| USS LAFAYETTE | SSBN616 | Electric Boat (Groton) | 1963 | | | | | |
| USS ALEXANDER HAMILTON | SSBN617 | Electric Boat (Groton) | 1963 | | | | | |
| USS THOMAS JEFFERSON | SSBN618 | Newport News | 1962 | | | | | |
| USS ANDREW JACKSON | SSBN619 | San Francisco Bay | 1963 | | | | | |
| USS JOHN ADAMS | SSBN620 | Portsmouth | 1964 | | | | | |
| USS JAMES MONROE | SSBN622 | Newport News | 1963 | | | | | |
| USS NATHAN HALE | SSBN623 | Electric Boat (Groton) | 1963 | | | | | |
| USS WOODROW WILSON | SSBN624 | San Francisco Bay | 1963 | | | | | |
| USS HENRY CLAY | SSBN625 | Newport News | 1963 | | | | | |
| USS DANIEL WEBSTER | SSBN626 | Electric Boat (Groton) | 1964 | | | | | |
| BEING BUILT | | | | | | | | |
| | | | | INDIANAPOLIS | SSN697 | Electric Boat (Groton) | | |
| | | | | BREMERTON | SSN698 | Electric Boat (Groton) | | |
| | | | | JACKSONVILLE | SSN699 | Electric Boat (Groton) | | |
| | | | | DALLAS | SSN700 | Electric Boat (Groton) | | |
| | | | | LA JOLLA | SSN701 | Electric Boat (Groton) | | |
| | | | | PHOENIX | SSN702 | Electric Boat (Groton) | | |
| | | | | BOSTON | SSN703 | Electric Boat (Groton) | | |
| | | | | BALTIMORE | SSN704 | Electric Boat (Groton) | | |
| | | | | Submarine | SSN705 | Electric Boat (Groton) | | |
| | | | | Submarine | SSN706 | Electric Boat (Groton) | | |
| | | | | Submarine | SSN707 | Electric Boat (Groton) | | |
| | | | | Submarine | SSN708 | Electric Boat (Groton) | | |
| | | | | Submarine | SSN709 | Electric Boat (Groton) | | |
| | | | | Submarine | SSN710 | Electric Boat (Groton) | | |
| | | | | SAN FRANCISCO | SSN711 | Newport News | | |
| | | | | ATLANTA | SSN712 | Newport News | | |
| | | | | HOUSTON | SSN713 | Newport News | | |
| | | | | Submarine | SSN714 | Newport News | | |
| | | | | Submarine | SSN715 | Newport News | | |
| | | | | Submarine | SSN716 | Newport News | | |
| | | | | Submarine | SSN717 | Newport News | | |
| | | | | Submarine | SSN718 | Newport News | | |

| | | | | | | |
|------------------------|---------|------------------------|------|---------------------------------------|---------|----------------------------------|
| USS JAMES MADISON | SSBN627 | Newport News | 1964 | Submarine | SSN719 | Electric Boat (Groton) |
| USS TECUMSEH | SSBN628 | Electric Boat (Groton) | 1964 | Submarine | SSN720 | Electric Boat (Groton) |
| USS DANIEL BOONE | SSBN629 | San Francisco Bay | 1963 | OHIO | SSBN726 | Electric Boat (Groton) |
| USS JOHN C. CALHOUN | SSBN630 | Newport News | 1964 | MICHIGAN | SSBN727 | Electric Boat (Groton) |
| USS ULYSSES S. GRANT | SSBN631 | Electric Boat (Groton) | 1964 | Submarine | SSBN728 | Electric Boat (Groton) |
| USS VON STEUBEN | SSBN632 | Newport News | 1964 | GEORGIA | SSBN729 | Electric Boat (Groton) |
| USS CASIMIR PULASKI | SSBN633 | Electric Boat (Groton) | 1964 | Submarine | SSBN730 | Electric Boat (Groton) |
| USS STONEWALL JACKSON | SSBN634 | San Francisco Bay | 1964 | Submarine | SSBN731 | Electric Boat (Groton) |
| USS SAM RAYBURN | SSBN635 | Newport News | 1964 | Submarine | SSBN732 | Electric Boat (Groton) |
| USS NATHANAEL GREENE | SSBN636 | Portsmouth | 1964 | ARKANSAS (2 reactors) | CGN41 | Newport News |
| USS BENJAMIN FRANKLIN | SSBN640 | Electric Boat (Groton) | 1965 | CARL VINSON (2 reactors) | CVN70 | Newport News |
| USS SIMON BOLIVAR | SSBN641 | Newport News | 1965 | | | |
| USS KAMEHAMEHA | SSBN642 | San Francisco Bay | 1965 | | | |
| USS GEORGE BANCROFT | SSBN643 | Electric Boat (Groton) | 1965 | SEAWOLF Sodium Reactor ^{6,2} | | |
| USS LEWIS AND CLARK | SSBN644 | Newport News | 1965 | USS TRITON (2 reactors) | SSN586 | Electric Boat (Groton) 1957 1959 |
| USS JAMES K. POLK | SSBN645 | Electric Boat (Groton) | 1966 | USS HALIBUT | SSN587 | San Francisco Bay 1959 1976 |
| USS GEORGE C. MARSHALL | SSBN654 | Newport News | 1966 | USS SCORPION ^{6,3} | SSN589 | Electric Boat (Groton) 1960 1968 |
| USS HENRY L. STIMSON | SSBN655 | Electric Boat (Groton) | 1966 | USS THRESHER ^{6,3} | SSN593 | Portsmouth 1961 1963 |

2. DEVELOPMENTAL POWER

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A. Electric-Power Experiments and Prototypes

| Name (all owned by DOE) | Designation ^{5,7} | Location | Principal nuclear contractor | Type | Power ¹ | | | |
|----------------------------------|----------------------------|------------------|------------------------------|-----------------------------------|--------------------|---------------|----------|-----------|
| | | | | | Plant, net kW(e) | Reactor kW(t) | Start-up | Shut-down |
| SHUT DOWN OR DISMANTLED | | | | | | | | |
| Gas Cooled Reactor Experiment | GCRE | INEL Site, Idaho | AGN | Gas cooled, light water moderated | No elec. | 2,200 | 1960 | 1962 |
| Mobile Low Power Plant No. 1 | ML-1 | INEL Site, Idaho | AGN | Gas cooled, light water moderated | 300 | 3,300 | 1961 | 1965 |
| Stationary Low Power Plant No. 1 | SL-1 | INEL Site, Idaho | ANL | Boiling water | 300 | 2,200 | 1958 | 1961 |

B. Propulsion Experiments and Prototypes

| Name (all owned by DOE) | Designation | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|---|-------------|--------------------|------------------------------|-------------------|---------------------------|----------|-----------|
| | | | | | | | |
| OPERABLE | | | | | | | |
| Destroyer Reactor Prototype | D1G | West Milton, N. Y. | GE | Pressurized water | | | 1962 |
| Large Ship Reactor Prototype (2 reactors) | A1W | INEL Site, Idaho | West. | Pressurized water | | | 1958 |
| Modifications and Additions to Reactor Facility | MARF | West Milton, N. Y. | GE | Pressurized water | | | 1976 |
| Natural Circulation Test Plant | S5G | INEL Site, Idaho | West. | Pressurized water | | | 1965 |
| Small Submarine Reactor Prototype | S1C | Windsor, Conn. | GE | Pressurized water | | | 1959 |
| S1W Reactor Facility | S1W | INEL Site, Idaho | West. | Pressurized water | | | 1953 |
| Submarine Advanced Reactor Prototype | S3G | West Milton, N. Y. | GE | Pressurized water | | | 1958 |
| Trident Prototype | S8G | West Milton, N. Y. | GE | Pressurized water | | | 1978 |

2. DEVELOPMENTAL POWER

PART III MILITARY REACTORS

B. Propulsion Experiments and Prototypes (Continued)

| Name (all owned by DOE) | Designation | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|---|-------------|--------------------|------------------------------|-------------|---------------------------|----------|-----------|
| SHUT DOWN OR DISMANTLED | | | | | | | |
| Aircraft Reactor Experiment | ARE | Oak Ridge, Tenn. | ORNL | Molten salt | 1,500 | 1954 | 1954 |
| Experimental Propulsion Test Reactor | TORY IIA | NTS, Nev. | UCLLL | Air cooled | 150,000 | 1960 | 1961 |
| Experimental Propulsion Test Reactor ^{6,4} | TORY IIC | NTS, Nev. | UCLLL | Air cooled | 600,000 | 1964 | 1964 |
| Heat Transfer Reactor Experiment No. 1 | HTRE-1 | INEL Site, Idaho | ANPD | Air cooled | 20,000 | 1956 | 1957 |
| Heat Transfer Reactor Experiment No. 2 | HTRE-2 | INEL Site, Idaho | ANPD | Air cooled | 14,000 | 1957 | 1961 |
| Heat Transfer Reactor Experiment No. 3 | HTRE-3 | INEL Site, Idaho | ANPD | Air cooled | 32,000 | 1958 | 1961 |
| Submarine Intermediate Reactor Mark A | S1G | West Milton, N. Y. | GE | Sodium | | 1955 | 1957 |

3. TEST AND RESEARCH

A. Test

| Name and/or owner | Designation | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|---|-------------|------------------|------------------------------|-------------|---------------------------|----------|-----------|
| SHUT DOWN OR DISMANTLED | | | | | | | |
| Aerospace Systems Test Reactor (USAF) | ASTR | Fort Worth, Tex. | Convair | Light water | 10,000 | 1954 | 1971 |
| Ground Test Reactor (USAF) | GTR | Fort Worth, Tex. | Convair | Pool | 10,000 | 1953 | 1973 |
| Nuclear Engineering Test Reactor (USAF) | NETR | Dayton, Ohio | Maxon-AC | Tank | 10,000 | 1965 | 1970 |

B. Research

| OPERABLE | | | | | | | |
|--|-------------|----------------------|-------|--------------------------|-------|-----------|------|
| Aberdeen Pulsed Reactor Facility (Ballistic Research Laboratories, USA) | APRF | Aberdeen, Md. | UNC | Bare, fast, prompt burst | 10 | 1968 | |
| Armed Forces Radiobiology Research Institute (DNA, DOD) ^{3,30} | AFRRI | Bethesda, Md. | GA | U-Zr hydride | 100 | 1962 | |
| Fast Burst Reactor Facility (Army Missile Test and Evaluation Directorate, USA) | FBRF | White Sands, N. Mex. | Kaman | Bare, fast, prompt burst | 10 | 1964 | |
| Thermal Test Reactor No. 1 (DOE) | TTR-1 | Schenectady, N. Y. | KAPL | Graphite | 10 | 1951 | |
| SHUT DOWN OR DISMANTLED | | | | | | | |
| Army Materials Research Reactor (Army Materials and Mechanics Research Center, USA) ³ | AMRR | Watertown, Mass. | BAC | Pool | 5,000 | 1960 | 1970 |
| Diamond Ordnance Radiation Facility (Harry Diamond Laboratories, USA) ^{3,0} | DORF | Forest Glen, Md. | GA | TRIGA-Mk F | 250 | 1961 | 1977 |
| Naval Research Reactor (USN) ³ | NRR | Washington, D. C. | NRL | Pool | 1,000 | 1956 | 1970 |
| Nuclear Effects Reactor (DOE) | Super KUKLA | NTS, Nev. | UCLLL | Prompt burst | | Transient | 1964 |
| Walter Reed Research Reactor (Walter Reed Army Institute of Research, USA) ³ | WRRR | Washington, D. C. | AI | Homogeneous | 50 | 1962 | 1970 |

A. Central-Station Electric Power

| Name and/or owner | Location | Principal nuclear contractor | Type | Power ¹ | | | |
|--|-----------------------------------|------------------------------|-------------------|--------------------|----------------|----------|----------|
| | | | | Plant, net MW(e) | Reactor, MW(t) | Start-up | Shutdown |
| OPERABLE | | | | | | | |
| France, Franco-Belgian Society for Nuclear Energy of Ardennes, SENA | Givet (near Chooz) | West. | Pressurized water | 305 | 1040 | 1967 | |
| Germany, Kahl Nuclear Power Station (Rhine-Westphalia Power Co., RWE) | Kahl-am-Main | GE | Boiling water | 15.6 | 60 | 1961 | |
| Germany, Kernkraftwerk-RWE-Bayernwerk, KRB1 | Gundremmingen (near Gunzburg) | GE | Boiling water | 237 | 801 | 1967 | |
| India, Tarapur Nuclear Power Station, Unit 1 | Tarapur (north of Bombay) | GE | Boiling water | 200 | 707 | 1969 | |
| India, Tarapur Nuclear Power Station, Unit 2 | Tarapur (north of Bombay) | GE | Boiling water | 200 | 707 | 1969 | |
| Italy, Garigliano Nuclear Power Station (Project ENEL of SENN) | Punta Fiume (on Garigliano River) | GE | Boiling water | 150 | 506 | 1964 | |
| Italy, Project Enrico Fermi of SELNI, Edisonvolta (ENEL) | Trino Vercellese | West. | Pressurized water | 260 | 825 | 1965 | |
| Japan, Fukushima Station I, Unit 1 (Tokyo Electric Power Co.) | Okuma, Fukushima Pref. | GE | Boiling water | 439 | 1380 | 1971 | |
| Japan, Fukushima Station I, Unit 2 (Tokyo Electric Power Co.) | Okuma, Fukushima Pref. | GE | Boiling water | 760 | 2381 | 1974 | |
| Japan, Japan Power Demonstration Reactor (JAERI) ^{6,6} | Tokai-Mura, Ibaraki Pref. | GE | Boiling water | 12 | 90 | 1963 | |
| Japan, Mihama Nuclear Power Station, Unit 1 (Kansai Electric Power Co.) | Mihama, Fuki Pref. | West. | Pressurized water | 320 | 1031 | 1970 | |
| Japan, Ohi Nuclear Power Plant, Unit 1 (Kansai Electric Power Co.) | Ohi Fukui Pref. | West. | Pressurized water | 1120 | 3423 | 1979 | |
| Japan, Takahama, Unit 1 (Kansai Electric Power Co.) | Takahama, Fuki Pref. | West. | Pressurized water | 780 | 2440 | 1974 | |
| Japan, Tokai, Unit 2 (Japan Atomic Power Co.) | Tokai-Mura, Ibaraki Pref. | GE | Boiling water | 1080 | 3293 | 1978 | |
| Japan, Tsuruga Nuclear Power Plant (Japan Atomic Power Co.) | Tsuruga, Fuki Pref. | GE | Boiling water | 341 | 1070 | 1970 | |
| The Netherlands, Dodewaard (GKN) | Dodewaard, Betuwe | GE | Boiling water | 52 | 1968 | | |
| Spain, José Cabrera Nuclear Power Plant, Unit 1 | Almonacid de Zorita | West. | Pressurized water | 153 | 510 | 1969 | |
| Spain, Santa Maria de Garona Nuclear Power Plant (Centrales Nucleares del Norte, SA, Nuclenor) | Near Bilbao | GE | Boiling water | 440 | 1381 | 1971 | |
| Sweden, Ringhals, Unit 2 (Swedish State Power Board) | Göteborg | West. | Pressurized water | 822 | 2440 | 1975 | |
| Switzerland, Beznau, Unit 1 (Nordostschweizerische Kraftwerke AG) | Döttingen | West. | Pressurized water | 350 | 1130 | 1969 | |
| Switzerland, Beznau, Unit 2 (Nordostschweizerische Kraftwerke AG) | Döttingen | West. | Pressurized water | 350 | 1130 | 1972 | |
| Switzerland, Mühleberg (Bernische Kraftwerke AG) | Mühleberg (near Bern) | GE | Boiling water | 306 | 947 | 1972 | |
| Taiwan, Chin-shan, Unit 1 (Taiwan Power Co.) | Chin-shan | GE | Boiling water | 610 | 1775 | 1978 | |
| Taiwan, Chin-shan, Unit 2 (Taiwan Power Co.) | Chin-shan | GE | Boiling water | 610 | 1775 | 1979 | |
| BEING BUILT | | | | | | | |
| Belgium, Tihange, Unit 3 | Huy, Liege | West. | Pressurized water | 3000 | 1000 | 1983 | |
| Belgium, Doel, Unit 4 | Antwerp | West. | Pressurized water | 3000 | 1000 | 1983 | |
| Brazil, Central Electricia de Furnas | Angra Dos Reis | West. | Pressurized water | 626 | 1882 | 1978 | |
| Italy, Caorso Nuclear Station (ENEL) | Piacenza/Cremona | GE | Boiling water | 822 | 2651 | 1979 | |
| Japan, Fukushima Station I, Unit 6 (Tokyo Electric Power Co.) | Futaba, Fukushima Pref. | GE | Boiling water | 1067 | 3293 | 1979 | |
| Japan, Ohi Nuclear Power Plant, Unit 2 (Kansai Electric Power Co.) | Ohi Fukui Pref. | West. | Pressurized water | 1120 | 3423 | 1979 | |
| Korea, Ko-Ri, Unit 1 (Korea Electric Power Co.) | Ko-Ri (near Pusan) | West. | Pressurized water | 564 | 1724 | 1977 | |
| Korea, Ko-Ri, Unit 2 (Korea Electric Power Co.) | Ko-Ri (near Pusan) | West. | Pressurized water | 605 | 1882 | 1983 | |
| Mexico, Laguna Verde Station, Unit 1 | Laguna Verde | GE | Boiling water | 654 | 1931 | 1982 | |

A. Central-Station Electric Power (Continued)

| Name and/or owner | Location | Principal nuclear contractor | Type | Power ¹ | | | |
|---|--------------------------|------------------------------|-------------------|--------------------|----------------|----------|-----------|
| | | | | Plant, net MW(e) | Reactor, MW(t) | Start-up | Shut-down |
| BEING BUILT (Continued) | | | | | | | |
| Mexico, Laguna Verde Station, Unit 2 | Laguna Verde | GE | Boiling water | 654 | 1931 | 1983 | |
| The Philippines, Republic of, Bagac Nuclear Power Project (National Power Corp.) | Luzon | West. | Pressurized water | 626 | 1886 | 1982 | |
| Spain, Almaraz, Unit 1 (Union Electricas, S. A.) | Almaraz | West. | Pressurized water | 902 | 2696 | 1978 | |
| Spain, Almaraz, Unit 2 (Union Electricas, S. A.) | Almaraz | West. | Pressurized water | 902 | 2696 | 1979 | |
| Spain, Cofrentes, Unit 1 (Hidroelectrica Espanola, S. A.) | Cofrentes | GE | Boiling water | 930 | 2894 | 1982 | |
| Spain, Fesca, Asco, Unit 1 | Asco | West. | Pressurized water | 902 | 2696 | 1979 | |
| Spain, Fesca, Asco, Unit 2 | Asco | West. | Pressurized water | 902 | 2696 | 1979 | |
| Spain, Lemoniz, Unit 1 (Iberdyro, S. A.) | Lemoniz | West. | Pressurized water | 902 | 2696 | 1978 | |
| Spain, Lemoniz, Unit 2 (Iberduero, S. A.) | Lemoniz | West. | Pressurized water | 902 | 2696 | 1979 | |
| Sweden, Ringhals, Unit 3 (Swedish State Power Board) | Göteborg | West. | Pressurized water | 912 | 2783 | 1979 | |
| Sweden, Ringhals, Unit 4 (Swedish State Power Board) | Göteborg | West. | Pressurized water | 912 | 2783 | 1979 | |
| Switzerland, Leibstadt (Kernkraftwerk Leibstadt) | Leibstadt | GE | Boiling water | 940 | 3012 | 1981 | |
| Taiwan, Kuosheng, Unit 1 (Taiwan Power Co.) | Wanli Hsiang | GE | Boiling water | 951 | 2894 | 1981 | |
| Taiwan, Kuosheng, Unit 2 (Taiwan Power Co.) | Wanli Hsiang | GE | Boiling water | 951 | 2894 | 1982 | |
| Taiwan, Maanshan, Unit 1 (Taiwan Power Co.) | Heng-chun | West. | Pressurized water | 907 | 2785 | 1983 | |
| Taiwan, Maanshan, Unit 2 (Taiwan Power Co.) | Heng-chun | West. | Pressurized water | 907 | 2785 | 1984 | |
| Yugoslavia (Savske Electrane) | Krsko | West. | Pressurized water | 615 | 1882 | 1980 | |
| PLANNED | | | | | | | |
| Egypt, EFAPP-1 | West of Alexandria | West. | Pressurized water | 600 | | 1982 | |
| Italy, ENEL-5 [Ente Nazionale per l'Energia Electrica (ENEL)] | | West. | Pressurized water | 952 | 2775 | 1984 | |
| Italy, ALTO LAZIO, Unit 1 | Montalto di Castro | GE | Boiling water | 982 | 2894 | 1984 | |
| Italy, ENEL-7 [Ente Nazionale per l'Energia Electrica (ENEL)] | | West. | Pressurized water | 952 | 2775 | 1984 | |
| Italy, ALTO LAZIO, Unit 2 | Montalto di Castro | GE | Boiling water | 982 | 2894 | 1985 | |
| Korea, Ko-Ri, Unit 3 (Korea Electric Power Co.) | Ko-Ri (near Pusan) | | Pressurized water | 900 | | 1984 | |
| Korea, Ko-Ri, Unit 4 (Korea Electric Power Co.) | Ko-Ri (near Pusan) | | Pressurized water | 900 | | 1985 | |
| The Philippines, Republic of, Bagac Nuclear Power Project (National Power Corp.) PNPP, Unit 1 | Bataan | West. | Pressurized water | 636 | | 1983 | |
| Spain, Sayago (Iberduero, S. A.) | Savago Zomora | West. | Pressurized water | 1000 | 2785 | 1982 | |
| Spain, Valdecaballeros, Unit 1 (HE: Sevillana de Electricidad) | Valdecaballeros, Badajos | GE | Boiling water | 937 | 2894 | 1980 | |
| Spain, Valdecaballeros, Unit 2 (HE: Sevillana de Electricidad) | Valdecaballeros, Badajos | GE | Boiling water | 937 | 2894 | 1981 | |
| Spain, Vandelllos, Unit 2 (ENHER) | Falset, Tarragona | West. | Pressurized water | 920 | 2785 | 1981 | |
| Switzerland, Graben (Bernische Kraftwerke AG) | Graben | GE | Boiling water | 1140 | 3579 | 1990 | |
| Switzerland, Kaiseraugst (Kernkraftwerke Kaiseraugst AG) | Kaiseraugst (near Basel) | GE | Boiling water | 925 | 2894 | 1987 | |
| Taiwan, Unit 7 (Taiwan Power Co.) | | | | 900-1000 | | 1988 | |
| Taiwan, Unit 8 (Taiwan Power Co.) | | | | 900-1000 | | 1989 | |
| Taiwan, Unit 9 (Taiwan Power Co.) | | | | 900-1000 | | 1990 | |
| Taiwan, Unit 10 (Taiwan Power Co.) | | | | 900-1000 | | 1991 | |

B. Propulsion

| Name | Owner | Designer | Designation | Type | Start-up | Shut-down |
|-------------------------|---------------|----------|-------------|-------------------|----------|-----------|
| OPERABLE | | | | | | |
| S5W for HMS DREADNOUGHT | Great Britain | West. | S5W | Pressurized water | 1962 | |

2. TEST, RESEARCH, AND TEACHING

A. General Irradiation Test

| Owner | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|---|---------------------------|------------------------------|-------------------|---------------------------|----------|-----------|
| OPERABLE | | | | | | |
| Japan, Japan Atomic Energy Research Institute | Tokai-Mura, Ibaraki Pref. | AMF | Heavy water, CP-5 | 10,000 | 1960 | |
| Netherlands, Reactor Center | Petten | AC | Tank (MTR) | 45,000 | 1961 | |
| South Africa, Atomic Energy Board | Pelindaba (near Pretoria) | AC | Tank | 20,000 | 1965 | |
| Sweden, Atomic Energy Company | Studsvik | AC | Tank (MTR) | 5,000 | 1960 | |

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B. General Research

| | | | | | | |
|---|--------------------------------|----------|-------------------|---------|------|--|
| Australia, Atomic Energy Commission | Lucas Heights, New South Wales | AS Inc. | UTR-10 | 15 | 1961 | |
| Austria, Seibersdorf Research Center | Seibersdorf | AMF | Pool | 5,000 | 1960 | |
| Colombia, Colombian Institute of Nuclear Affairs | Bogotá | Lockheed | Pool | 20 | 1965 | |
| Denmark, Risø National Laboratory | Risø | AI | L-55 | 2.0 | 1957 | |
| England (Imperial Chemical Industries) | Billingham, Teesside | GE | TRIGA-Mk I | 250 | 1971 | |
| Germany, Brown Boveri/Krupp ⁶ | Jülich | AI | L-77A | 0.01 | 1967 | |
| Germany, Society for the Utilization of Nuclear Energy in Shipbuilding and Navigation, Inc. | Geesthacht | B&W | Pool | 5,000 | 1958 | |
| Greece, Atomic Energy Commission | Athens | AMF | Pool | 1,000 | 1961 | |
| Indonesia, National Atomic Energy Agency | Bandung | GA | TRIGA-Mk II | 1,000 | 1976 | |
| Israel, Atomic Energy Commission | Nahal Soreq | AMF | Pool | 5,000 | 1960 | |
| Italy, Center for Military Application of Nuclear Energy | Near Pisa | B&W | Pool | 5,000 | 1963 | |
| Italy, National Committee for Nuclear Energy | Ispra | AC | Heavy water, tank | 5,000 | 1959 | |
| Italy, National Committee for Nuclear Energy | Padua | AMF | Pool | Neglig. | 1971 | |
| Italy, National Committee for Nuclear Energy | Rome | GA | TRIGA-Mk II | 1,000 | 1960 | |
| Italy, SORIN Nuclear Center | Saluggia | AMF | Pool | 7,000 | 1959 | |
| Japan, Japan Atomic Energy Research Institute ^{3,0} | Tokai-Mura | GA | TRIGA-ACPR | 300 | 1975 | |
| Korea, Atomic Energy Research Institute | Seoul | GA | TRIGA-Mk II | 250 | 1962 | |
| Korea, Atomic Energy Research Institute | Seoul | GA | TRIGA-Mk III | 2,000 | 1972 | |
| Mexico, National Commission for Nuclear Energy ^{3,0} | Salazar | GA | TRIGA-Mk III | 1,000 | 1968 | |

B. General Research (Continued)

| Owner | Location | Principal nuclear contractor | Type | Power, ¹ kW(t) | Start-up | Shut-down |
|--|------------------------------|------------------------------|--------------|---------------------------|----------|-----------|
| OPERABLE (Continued) | | | | | | |
| Pakistan, Atomic Energy Commission | Islamabad | AMF | Pool | 5,000 | 1965 | |
| Philippines, National Science Development Board | Quezon City | GE | Pool | 1,000 | 1963 | |
| Portugal, National Laboratory of Engineering and Industrial Technology | Sacavém | AMF | Pool | 1,000 | 1961 | |
| Switzerland, Institute for Reactor Research ^{6,8} | Wuerenlingen | ORNL | Pool | 5,000 | 1957 | |
| Thailand, Office of Atomic Energy for Peace ^{3,0,6,9} | Bangkok | GA | TRIGA-Mk III | 2,000 | 1977 | |
| Turkey, Atomic Energy Commission | Istanbul | AMF | Pool | 1,000 | 1962 | |
| Venezuela Institute for Scientific Research | Caracas | GE | Pool | 3,000 | 1960 | |
| Yugoslavia, Josef Stefan Nuclear Institute ^{3,0} | Podgarica | GA | TRIGA-Mk II | 250 | 1966 | |
| Zaire (Regional Center for Nuclear Studies) | Kinsha | GA | TRIGA-Mk II | 1,000 | 1959 | |
| SHUT DOWN OR DISMANTLED | | | | | | |
| Denmark, Risø National Laboratory (DR-2) | Risø | FW | Tank | 5,000 | 1958 | 1975 |
| Japan, Japan Atomic Energy Research Institute | Tokai-Mura, Ibaraki Pref. | AI | L-54 | 50 | 1957 | 1969 |
| Spain, Nuclear Energy Board | Moncloa | GE | Pool | 3,000 | 1958 | 1970 |
| West Berlin, City of (Institute for Nuclear Research) | West Berlin | AI | L-54 | 50 | 1958 | 1970 |

C. University Research and Teaching

| | | | | | | |
|--|----------------|---------|--------------|---------|------|--|
| OPERABLE | | | | | | |
| Austria, Vienna Polytechnic Institute ^{3,0} | Vienna | GA | TRIGA-Mk II | 250 | 1962 | |
| Brazil, University of Minas Gerais | Belo Horizonte | GA | TRIGA-Mk I | 250 | 1960 | |
| Brazil, University of São Paulo | São Paulo | B&W | Pool | 5,000 | 1957 | |
| Canada, McMaster University | Hamilton, Ont. | AMF | Pool | 5,000 | 1959 | |
| China, Republic of (National Tsing-Hua University) | Hsinchu | GE | Pool | 1,000 | 1961 | |
| Congo, Republic of the (University of Lovanium) ^{7,0} | Kinshasa | GA | TRIGA-Mk I | 1,000 | 1959 | |
| Finland, Institute of Technology ^{3,0} | Helsinki | GA | TRIGA-Mk II | 250 | 1962 | |
| Germany, Association for Radiation Research ^{3,0,7,1} | Munich | GA | TRIGA-Mk III | 1,000 | 1972 | |
| Germany, Institute for Nuclear Medicine ^{7,1} | Heidelberg | GA | TRIGA-Mk I | 250 | 1966 | |
| Germany, Johannes Gutenberg University of Mainz ^{3,0} | Mainz | GA | TRIGA-Mk II | 100 | 1965 | |
| Germany, Medical College of Hanover ^{7,1} | Hanover | GA | TRIGA-Mk I | 250 | 1972 | |
| Germany, Technical University of Munich | Munich | AMF | Pool | 2,500 | 1957 | |
| Iran, University of Tehran | Tehran | AMF | Pool | 5,000 | 1967 | |
| Italy, University of Milan | Milan | AI | L-54 | 50 | 1959 | |
| Italy, University of Palermo | Palermo | AGN | 201-110 | Neglig. | 1960 | |
| Italy, University of Pavia ^{3,0} | Pavia | GA | TRIGA-Mk II | 250 | 1965 | |
| Japan, Kinki University | Higashi-Osaka | AS Inc. | UTR-10 | Neglig. | 1961 | |
| Japan, Musashi University | Kawasaki | GA | TRIGA-Mk II | 100 | 1963 | |

| | | | | | |
|---|--------------------------------|----------|-------------|---------|-----------|
| Japan, Rikkyo University | Yokosuka, Kanagawa Pref. | GA | TRIGA-Mk II | 100 | 1961 |
| Netherlands, Delft Technical University ⁷² | Delft | AMF | Pool | 2,000 | 1963 |
| Switzerland, University of Basel ⁷³ | Basel | AGN | 211-100 | Neglig. | 1958 |
| Switzerland, University of Geneva ⁷⁴ | Geneva | AGN | 201-111 | Neglig. | 1958 |
| United Kingdom, Queen Mary College, London University | London | AS Inc. | UTR-B | 100 | 1965 |
| United Kingdom, Scottish Research Reactor Center | East Kilbride | AS Inc. | UTR-100 | 300 | 1963 |
| Uruguay, University of Montevideo ⁷⁵ | Montevideo | Lockheed | Pool | 1,000 | 1973 |
| SHUT DOWN OR DISMANTLED | | | | | |
| Germany, Universities of Frankfurt and Darmstadt | Frankfurt | AI | L-54 | 50 | 1958 1968 |

1. IDENTIFICATION OF FACILITIES

PART V CRITICAL ASSEMBLY FACILITIES

| Abbreviation | Name and location of facility | Operator | No. of cells | No. of control panels |
|--------------|---|----------|--------------|-----------------------|
| ANL | Argonne National Laboratory (DOE), Argonne, Ill. | ANL | 2 | 2 |
| ANL-IDAHO | Argonne National Laboratory, Idaho Division (DOE), INEL Site, Idaho | ANL | 1 | 1 |
| ARMF-I | Advanced Reactivity Measurement Facility (DOE), INEL Site, Idaho | EG&G-ID | 1 | 1 |
| ATRC | Advanced Test Reactor Critical Facility (DOE), INEL Site, Idaho | EG&G-ID | 1 | 1 |
| Bettis | Bettis Atomic Power Laboratory (DOE), Pittsburgh, Pa. | West. | 3 | 3 |
| CFRMF | Coupled Fast Reactor Measurement Facility (DOE), INEL Site, Idaho | EG&G-ID | 1 | 1 |
| CX-10 | Critical Facility-10, Lynchburg Research Center Lynchburg, Va. | B&W | 2 | 1 |
| ETRC | Engineering Test Reactor Critical Facility (DOE), INEL Site, Idaho | EG&G-ID | 1 | 1 |
| KAPL | Knolls Atomic Power Laboratory (DOE), Schenectady, N. Y. | GE | 5 | 5 |
| LASL | Los Alamos Scientific Laboratory (DOE), Los Alamos, N. Mex. | LASL | 3 | 3 |
| Lockheed | Lockheed Aircraft Co., Critical Facility for RER, Dawsonville, Ga. ³ | Owner | 1 | 1 |
| OR-CEF | Oak Ridge Critical Experiment Facility (DOE), Oak Ridge, Tenn. | UCC-ND | 3 | 3 |
| ORNL-PCA | Pool Critical Assembly, BSF Pool (DOE), Oak Ridge, Tenn. | ORNL | 1 | 1 |
| PNL-CML | Critical Mass Laboratory (DOE), Richland, Wash. | PNL | 1 | 1 |
| Rensselaer | Rensselaer Polytechnic Institute, Troy, N. Y. ³ | Owner | 1 | 1 |
| RFP-NSF | Nuclear Safety Facility, Rocky Flats Plant (DOE), Colo. | RI | 1 | 1 |
| UNC | United Nuclear Corporation, Development Division, Pawling, N. Y. ³ | Owner | 4 | 3 |

2. IDENTIFICATION OF EXPERIMENTS AND STUDIES

PART V CRITICAL ASSEMBLY FACILITIES

A. Civilian

| Facility | Subject of current experiment or study | Designation | Start-up |
|-------------------------------|---|-------------|----------|
| OPERABLE | | | |
| ANL | Basic fast reactor studies and mock-up for LMFBR | ZPR-6 | 1963 |
| ANL ⁷⁶ | Basic fast reactor studies and mock-up for LMFBR | ZPR-9 | 1967 |
| ANL-IDAH0 | Basic fast reactor studies and mock-up for LMFBR | ZPPR | 1969 |
| Bettis | LWB physics ⁷⁹ | LWBCC | 1963 |
| CML | Plutonium criticals | Solution | 1961 |
| CX-10 | Close storage of spent reactor fuel | SSRF | 1977 |
| INEL, ARMF-I | Reactor-physics constants and reactivity changes caused by test-reactor irradiation | ARMF-I | 1960 |
| INEL, ATRC | ATR physics, core-loading and core-design measurements | ATRC | 1964 |
| INEL, CFRMF | Studies of differential cross sections to test calculational methods | CFRMF | 1968 |
| INEL, ETRC | ETR physics, core-loading and core-design measurements | ETRC | 1957 |
| LASL, Kiva I | Cold critical for gas core reactor studies | PCA | 1974 |
| LASL, Kiva I | Flexible split table assembly | Honeycomb | 1956 |
| LASL, Kiva II | Critical-configuration safety and neutronic tests | Comet | 1952 |
| LASL, Kiva II | Plated bare-plutonium sphere | Jezebel | 1954 |
| LASL, Kiva II | Spherical metal cores in thick metal reflector | Flattop | 1957 |
| LASL, Kiva II | U(10)-metal cylinder in thick metal reflector | Big Ten | 1972 |
| LASL, Kiva III | Cold critical for instrumentation testing | Parka | 1963 |
| LASL, Kiva III | Fast neutron irradiation, pulse capability | Godiva-IV | 1967 |
| LASAL, Kiva III | Fast neutron irradiation, pulse capability | SKVA | 1978 |
| OR-CEF, Building 9213, Cell W | HFIR core reactivity measurements | | 1950 |
| ORNL-PCA, Building 3010 | Physics research on reactivity effects | PCA | 1958 |
| PNL-CML | Plutonium criticals | Horizontal | 1961 |
| Rensselaer | Critical experiment assembly | | 1966 |
| UNC | Proff test facility | PTF | 1967 |

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B. Military

| Facility | Subject of current experiment or study | Designation | Start-up |
|-----------------|--|-------------|----------|
| OPERABLE | | | |
| Bettis | Surface-ship physics ⁷⁷ | SS-CF | 1957 |
| Bettis | High-temperature physics and mock-up | HTTF | 1959 |
| KAPL | Full core physics experiment | FCPE | 1970 |
| KAPL | Flexible critical experiments | FPR | 1956 |
| KAPL | Cold water experiments | CWA | 1958 |
| KAPL | High-temperature high-pressure physics and mock-up | PTR | 1958 |
| KAPL | Cold water reactor test assembly | CWTA | 1960 |
| Lockheed | RER core configurations | CERF | 1958 |
| RFP-NFS | Critical-configuration safety tests | Horizontal | 1965 |
| RFP-NFS | Critical-configuration safety tests | Vertical | 1965 |
| RFP-NFS | Critical-configuration safety tests | Solution | 1965 |
| RFP-NFS | Critical-configuration safety tests | Tank | 1965 |

FOOTNOTES

1. Power-capacity figures are based on the best available information. In all instances thermal capacity of the nuclear reactor is given; the electrical output, when shown, is the net electrical capacity of the power plant. Where a plant has a stretch capacity, the initial capacity is given until the stretch value is approved.
2. The first core for the Shippingport station began power operation in 1957. The second core began power operation in 1965 and operated until shutdown in 1974. The Shippingport station now has a light-water breeder reactor (LWBR) core which went critical on Aug. 26, 1977. The station with the LWBR core installed was released for routine commercial power generation on Dec. 2, 1977. The reactor plant is owned by the Department of Energy.
3. This facility is regulated by the Nuclear Regulatory Commission and has been issued an operating license (or authorization) or a construction permit, or an application for same has been submitted.
4. This project is under the Power Demonstration Program.
5. In the Consolidated Edison Indian Point Station, the 615 MW(t) is increased by an oil-fired superheater to produce 265 MW(e) net.
6. The Hallam Nuclear Power Facility was shut down in September 1964 due to moderator-can failures. Entombment of the reactor was completed in 1968.
7. The last CVTR shutdown occurred Jan. 24, 1967. A license amendment issued June 14, 1967, authorizes CVNPA to possess but not operate the CVTR.
8. The dismantlement program for the Piqua Nuclear Power Facility was completed in February 1969.
9. The Pathfinder Plant has been shut down since November 1967. On Sept. 9, 1968, Northern States Power Company announced plans to install gas-fired boilers for operation the summer of 1969.
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.
11. N Reactor, a DOE-owned reactor for production of special nuclear materials, also produces steam that is supplied to the adjacent electric generating plant, owned and operated by Washington Public Power Supply System (WPPSS). Initial electric-power generation began Apr. 8, 1966. Gross power output of 800 MW(e) utilizing N Reactor steam was achieved on Dec. 9, 1966, and gross generation of 860 MW(e) was achieved in 1972.
12. Midland Unit 1 supplies 3,625,000 pounds per hour of process steam, and Unit 2 supplies 425,000 pounds per hour.
13. 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 July 17, 1955, produced sufficient electricity to light and power Arco, Idaho—a U. S. first. BORAX-4, a further modification, operated from December 1956 to June 1958 when the experiment was shut down.
14. OMRE demonstrated the technical and economic feasibility of using liquid hydrocarbon terphenyls as coolant and/or moderator.
15. The EBOR reactor experiment was terminated in December 1966 prior to the completion of construction.
16. In a trial run on Dec. 21 and 22, 1951, EBR-1 generated the world's first electric power from nuclear energy and was the first to demonstrate, in July 1953, 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 November 1962 to December 1963. The reactor was decommissioned and dismantled early in 1964. The facility was dedicated as a historic landmark Aug. 26, 1966. It is open to the public June 14 to September 15 annually, beginning in 1975.
17. SRE operated at 20 MW(t) until shut down in February 1964 for modification to permit an increase in power level to 30 MW(t). On Dec. 2, 1966, deactivation of SRE was announced.
18. The EGCR project was terminated in January 1966 prior to the completion of construction.
19. EOCR construction was terminated in December 1962. The facility was mothballed prior to operation.
20. The EBWR achieved 100,000 kW(t) on Nov. 11, 1962. Operation of EBWR in the Boiling Water Program was closed out in December 1962. The reactor was used in support of the Plutonium Recycle Program and attained criticality using plutonium as its principal fuel on Sept. 22, 1965. In support of that program, it operated at power levels as high as 70,000 kW(t). Operation in that program was completed in June 1967.
21. Footnote deleted.
22. S10FS-4 operated in orbit during 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 resulting 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.
23. Reactor was shut down in 1973 for modifications and insertion of Sodium Loop Safety Facility (SLSF) loop. Operation resumed in 1975.
24. 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 on June 30, 1969, and a ^{240}Pu (Phoenix) core was run in FY 1970. Reactor decommissioned in 1974.
25. 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.
26. Footnote deleted.
27. This reactor is basically the same as the SNAP-10A Transient Test Reactor No. 1 (SNAPTRAN-1) that operated at Idaho National Engineering Laboratory (INEL) from 1963–1965. It was moved from INEL to its present location in the SNAP Environmental Test Facility. It was used there to evaluate the effects of separated ^{155}Gd as a burnable poison and as a shutdown agent in the event of water immersion. It was defueled in 1971 and placed on standby. The reactor was transferred to Los Alamos, N. Mex., in 1973.
28. The BSR-2, which became operable in 1959, is a stainless-steel- UO_2 core that can be used alternately in the same facility with BSR-1 (aluminum-alloy core).
29. Ownership of this reactor was transferred to North American Rockwell in December 1971 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, Calif. It was moved to Santa Susana in 1956.

FOOTNOTES (Continued)

30. This TRIGA reactor is capable of being pulsed and of steady-state operation.

31. The HPRR was previously operated in the Nevada BREN facility. It is now installed in the Dosimetry Applications Research Facility.

32. The KEWB reactor was operated by AI from 1956 to 1967 as the Kinetic Experiment on Water Boilers.

33. This reactor was operated in the USAEC Atoms for Peace Exhibit in Vienna, Austria, in June 1963; in Belgrade, Yugoslavia, in September 1963; in Madrid, Spain, in April 1964; in Lisbon, Portugal, in April 1965; in Utrecht, Netherlands, in March 1966; in Dublin, Ireland, in September–October 1966; Ankara, Turkey, in April–May 1967; Tehran, Iran, in November–December 1967; Taipei, Taiwan, in April–May 1968; Seoul, Korea, in September–October 1968; Manila, Philippines, in February–March 1969; and Bucharest, Romania, in October 1969. The reactor instrumentation has been shipped to Howard University, Washington, D. C., and the fuel is currently in storage at Oak Ridge pending shipment to Howard University.

34. In 1943 the Manhattan Engineer District disassembled Chicago Pile 1 and rebuilt it at Palos Park, Ill., as Chicago Pile 2. CP-2 had a thermal-power level of 10 kW.

35. 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.

36. This TRIGA-Mk II was operated at the New Delhi World Agricultural Fair in 1960. It has been dismantled for storage in California by Gulf Oil Corporation.

37. In 1965 and 1966 this reactor was operated at Sandia, N. Mex., as SNARE. Prior to that time it 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 in June 1966, where it was never assembled.

38. Until mid-1967 FRAN was operated by UCLLL 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 UCLLL.

39. After the assembly and operation of this reactor in the government exhibit at Geneva in September 1958, it was dismantled and returned to ANL, where it was rebuilt as a 250-kW(t) Juggernaut.

40. 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 in July 1962, and in August 1962 the USAF transferred the facility to the General Services Administration. Lockheed acquired title to the facility in March 1965.

41. This reactor was previously designated STF for SNAP Shield Test Facility.

42. The APFA-III was previously operated as the KUKLA Prompt Critical Assembly at Lawrence Radiation Laboratory at Livermore, Calif.

43. This reactor was formerly called the Latin American Demonstration Reactor and was operated initially in São Paulo, Brazil, in October 1969. It is currently in storage at Oak Ridge.

44. AGN-201-102 was operated at Oklahoma State University, Stillwater, Okla., from 1957 until transferred to Tuskegee Institute in 1972.

45. AGN-201-104 operated at the University of Akron (Ohio) from 1957 until transferred to the Georgia Institute of Technology in 1967.

46. AGN-201-112 was operated at the University of California, Berkeley, beginning in 1957. The University of New Mexico filed an application in April 1966 for transfer and reconstruction of the reactor at a site on its campus. The reactor achieved criticality at the University of New Mexico on Oct. 7, 1966.

47. The Center for Environmental and Energy Research (formerly Puerto Rico Nuclear Center).

48. The 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.

58. The MH-1A was installed in the STURGIS (formerly the Liberty Ship CHARLES H. CUGLE) at Mobile, Ala. Acceptance testing was performed at Fort Belvoir, Va., from April 1967 to June 27, 1967, when the Army accepted the plant from the Contractor. In late July 1968 the plant was deployed to Gatun Lake, Panama Canal Zone, and began producing power to the Panama Canal power grid on Oct. 5, 1968.

59. The PM-2A was shut down on July 9, 1963, and dismantled during April–June 1964. The reactor vessel was then used at INEL for NDT (nil 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 Nov. 18, 1966, 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.

60. 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.

61. The abbreviations used here are defined as follows: SSN, Submarine (Nuclear Propulsion); SSBN, Fleet Ballistic Missile Submarine (Nuclear Propulsion); DLGN, Guided Missile Frigate (Nuclear Propulsion) (all DLGNs were redesignated CGN on July 1, 1975); CGN, Guided Missile Cruiser (Nuclear Propulsion); CVAN/CVN, Aircraft Carrier (Nuclear Propulsion).

62. The USS SEAWOLF, originally commissioned with a sodium-cooled reactor in March 1957, was recommissioned with a pressurized-water reactor on Sept. 30, 1960.

63. The USS THRESHER (SSN593) was lost in the Atlantic on Apr. 10, 1963. The USS SCORPION (SSN589) was lost in the Atlantic on May 21, 1968.

64. The TORY IIC was successfully tested at full design power during May 1964. Subsequent to cancellation of the Pluto program on July 1, 1964, the reactor was placed in the Pluto disassembly building at NTS for storage. In 1974 the reactor was transferred to the NERVA disassembly area for disassembly.

65. In addition to the export power reactors listed, Westinghouse provided the design and furnished nuclear components, including fuel elements, control rods, and instrumentation for the 11.5-MW(e) Belgium BR-3 pressurized-water reactor at Mol.

66. JAERI is being rebuilt as a 90-kW(t) boiling-water research reactor (JPDR-II).

67. 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, in October 1961; in Athens, Greece, in May 1962; and in Bangkok, Thailand, in November 1962.

68. This is the 1955 Geneva Conference reactor rebuilt with increased power and now operating at Wuerenlingen, Switzerland.

69. The Thai research reactor (TRR-1), built by Curtiss-Wright and started up in 1962, originally operated at 1000 kW(t). In June 1975 the TRR-1 was shut down for conversion to TRR-1/M1, a TRIGA-Mark III system adapted for pool installation. The TRR-1/M1, with a power level of 2000 kW(t)/2000 MW pulsing, was commissioned in November 1977.

48. 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.

49. 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.

50. 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).

51. From 1955 to 1965 the Penn State reactor was operated as a 200-kW(t) pool-type reactor fueled with MTR-type elements.

52. The AGN-201P-103 was operated at San Ramon, Calif., by Aerojet-General Corporation from 1957 to 1966. In April 1967 Idaho State University applied for a license to operate the reactor at Pocatello, Idaho.

53. The core of the Michigan State University reactor operated in the University of Illinois TRIGA facility from 1960 until transferred in 1968.

54. California State Polytechnic College, San Luis Obispo, Calif., in December 1971 received a permit to relocate AGN-201-100 and operate it on CSPC's campus. The unit previously was operated starting in 1956 at the Naval Postgraduate School, Monterey, Calif.

55. This reactor was originally operated by North Carolina State University as the Raleigh Research Reactor (RRR). It was transferred in March 1966 to Mississippi State University for reactivation. The RRR was dismantled by N. C. State in 1963.

56. 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 in April 1967.

57. Reactors in the Army Power Program are identified by symbolic nomenclature 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).

70. This TRIGA reactor was operated at the 1958 International Conference in Geneva prior to shipment to the University of Lovanium. It began operating at the University of Lovanium in June 1959. It is the first reactor to be operated on the African continent.

71. This reactor was sold through Gulf Oil licensee, Gutehoffnungshutte Sterkrade A.E.

72. The Netherlands research reactor was originally operated at the Amsterdam International Exhibition in June 1957; major portions of the exhibition reactor system were used to fabricate the present reactor.

73. This reactor was operated in the International Science Section of the Brussels International Exhibition, Apr. 15 to Oct. 1, 1958, prior to transfer to the University of Basel.

74. The AGN-201-111 was operated first in the USAEC Atoms for Peace Exhibit in Rome, Italy, in July 1958 and later in the commercial exhibit of the 1958 International Conference in Geneva prior to transfer to the University of Geneva.

75. Prior to its sale to the University of Montevideo in 1966, this reactor was part of the USAEC Exhibit Program. It was in Buenos Aires, Argentina, in the fall of 1960; in Rio de Janeiro, Brazil, in the spring of 1961; in Lima, Peru, in the fall of 1961; in Mexico City in the spring of 1962; in Santiago, Chile, in the fall of 1962; in Bogotá, Colombia, in the spring of 1963; and in Montevideo, Uruguay, in the fall of 1963. The unit became operational in 1972.

76. 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 have been performed in the ZPR-7 facility: thorium, uranium, deuterium criticals (THUD), and a series of flux-trap criticals for the Argonne High Flux Research Reactor.

77. The cell has one control panel for two pots. Experiments may be operated in either pot but not in both simultaneously.

78. This reactor was operated at the Puerto Rico Nuclear Center from 1960 to October 1976; it was converted to the TRIGA-FLIP in 1972. It has been moved to the Neutron Radiography Facility at the National Engineering Laboratory in Idaho.

79. The EBR-II reactor has recently become a major irradiation facility for the LMFBR program.

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Energy and Environmental Stress in Aquatic Systems

J. H. Thorp and J. W. Gibbons, Editors

Selected Papers from a Symposium, Nov. 2-4, 1977

Augusta, Georgia

Crucial decisions now being made on energy options will affect human and environmental health, and perhaps the international balance of payments as well. We can make wise choices only if we have enough information to compare and evaluate the impact of the use of various energy sources. This symposium served as a forum for discussions of the environmental effects of energy sources, with the intent of helping to provide a proper perspective in which to make critical judgments. The 49 selected papers in this volume define the term stress from several points of view, discuss methods of modeling stress, and report the results of studies on the effects of various environmental stressors, including multiple and synergistic stressors.

The papers were divided into six core areas, and a speaker was invited to present an "overview" of each. Thus each

topic was addressed first by a general synthesis and then by a series of detailed studies.

The core areas are:

Modeling Stresses
Natural Stresses and Environmental Fluctuations
Fossil-Fuel Stresses
Heavy-Metal Stresses
Thermal Stresses
Multiple and Synergistic Stresses

The symposium was sponsored by the Savannah River Ecology Laboratory; Institute of Ecology, University of Georgia; Savannah River National Environmental Research Park; and the U. S. Department of Energy.

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NUCLEAR SAFETY

A bimonthly technical progress review which is published by the U. S. Department of Energy and the U. S. Nuclear Regulatory Commission in cooperation with the Nuclear Safety Information Center, Oak Ridge National Laboratory. This journal digests and evaluates the latest findings in its area of nuclear technology and science, with the aim of meeting the needs of industry and government for concise summaries of developments.

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