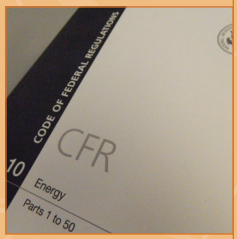
NRC



Appendices

This edition of the Digest provides a snapshot of data; for the most current information and data collection, please visit the NRC Web site Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

Abbreviations

ABWR	advanced boiling-water reactor
AC	Allis Chalmers
ACRS	Advisory Committee on Reactor Safeguards
ADAMS	Agencywide Documents Access and Management System
ADR	Alternative Dispute Resolution
AEC	Atomic Energy Commission (U.S.)
AEP	American Electric Power Company
AGN	solid homogeneous core (Aerojet-General Nucleonics)
ASLB	Atomic Safety and Licensing Board
B&R	Burns & Roe
B&W	Babcock & Wilcox
BALD	Baldwin Associates
BECH	Bechtel
BRRT	Brown & Root
BWR	boiling-water reactor
CE	Combustion Engineering
CFR	*Code of Federal Regulations*
CO	Commission order
Co	company
COL	combined license
Comm. Op.	date of commercial operation
Con Type	containment type
DRYAMB	dry, ambient pressure
DRYSUB	dry, subatmospheric
ICECND	wet, ice condenser
MARK 1	*wet, Mark I*
MARK 2	*wet, Mark II*
MARK 3	*wet, Mark III*
CP	civil penalty
CP Issued	date of construction permit issuance
CRGR	Committee To Review Generic Requirements
CVP	civil penalties
CVTR	Carolinas-Virginia Tube Reactor
CWE	Commonwealth Edison Company
DANI	Daniel International
DBDB	Duke & Bechtel
DBT	design-basis threat
DC	design certification
DHS	Department of Homeland Security (U.S.)
DOE	Department of Energy (U.S.)
DOT	Department of Transportation (U.S.)
DUKE	Duke Power Company
EBSO	Ebasco
EIA	Energy Information Administration (DOE)
EIS	environmental impact statement
EPA	Environmental Protection Agency (U.S.)
EPR	Evolutionary Power Reactor
EPZ	emergency planning zone
ERO	emergency response organization
ESBWR	Economic Simplified Boiling-Water Reactor
ESP	early site permit
EVESR	ESADA (Empire States Atomic Development Associates) Vallecitos Experimental Superheat Reactor
Exp. Date	expiration date of operating license
FBR	fast breeder reactor
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FLUR	Fluor Pioneer
FOIA	Freedom of Information Act
FTE	full-time equivalent
FW	Foster Wheeler
FY	fiscal year
G&H	Gibbs & Hill
GA	General Atomic
GCR	gas-cooled reactor
GE	General Electric
GEH	General Electric-Hitachi Nuclear Energy
GEIS	generic environmental impact statement
GETR	General Electric Test Reactor
GHDR	Gibbs & Hill & Durham & Richardson
GIL	Gilbert Associates
GL	general license
GPC	Georgia Power Company
GW	gigawatt
GWh	gigawatts hours
HTG	high-temperature gas (reactor)
HWR	heavy-water reactor
IAEA	International Atomic Energy Agency
INES	International Nuclear Event Scale
ISFSI	independent spent fuel storage installation
ISR	in situ recovery
KAIS	Kaiser Engineers
KI	potassium iodide
kW	kilowatt(s)
LLP	B&W lowered loop
LLW	low-level radioactive waste
LMFB	liquid metal fast breeder (reactor)
LR Issued	license renewal issued
LWGR	light-water-cooled graphite-moderated reactor
MOX	mixed-oxide
MW	megawatt(s)
MWe	megawatt(s) electric
MWh	megawatt-hour(s)
MWt	megawatt(s) thermal
NIAG	Niagara Mohawk Power Corporation

NEA	Nuclear Energy Agency
NMMSS	Nuclear Material Management and Safeguards System
NOV	notice(s) of violation
NOVF	notice(s) of violation associated with inspection findings
NOVSL	notice(s) of violation for severity level
NRC	Nuclear Regulatory Commission (U.S.)
NSP	Northern States Power Company
NSSS	nuclear steam system supplier and design type
GE 2	*GE Type 2*
GE 3	*GE Type 3*
GE 4	*GE Type 4*
GE 5	*GE Type 5*
GE 6	*GE Type 6*
WEST 2LP	*Westinghouse Two-Loop*
WEST 3LP	*Westinghouse Three-Loop*
WEST 4LP	*Westinghouse Four-Loop*
NSTS	National Source Tracking System
OECD	Organisation for Economic Co-operation and Development
OL	operating license
OL Issued	date of latest full power operating license
PG&E	Pacific Gas & Electric Company
PRA	probabilistic risk assessment
PRIS	Power Reactor Information System
PSEG	Public Service Electric and Gas Company
PHWR	pressurized heavy water reactor
PWR	pressurized-water reactor
RIC	Regulatory Information Conference
RLP	B&W raised loop
ROP	Reactor Oversight Process
RTR	research and test reactor
S&L	Sargent & Lundy
S&W	Stone & Webster
SAMG	Severe Accident Management Guidance
SCF	sodium-cooled fast (reactor)
SDP	significance determination process
SGEC	architect for Vogtle
SHINE	SHINE Medical Technologies, Inc.
SI	système internationale (d'unités) (International System of Units)
SL	severity level
SOARCA	State-of-the-Art Reactor Consequence Analysis
SSI	Southern Services Incorporated
STARS	Strategic Teaming and Resource Sharing Group
STP	South Texas Project
TMI-2	Three Mile Island Unit 2
Sv	sievert
TRIGA	Training Reactor and Isotopes Production, General Atomics
TVA	Tennessee Valley Authority
UE&C	United Engineers & Constructors
USEC	U.S. Enrichment Corporation
US-APWR	United States [version of] Advanced Pressurized-Water Reactor
VBWR	Vallecitos Boiling-Water Reactor
WDCO	Westinghouse Development Corporation
WEST	Westinghouse Electric
WNA	World Nuclear Association

Alabama	AL	Kentucky	KY	Ohio	OH
Alaska	AK	Louisiana	LA	Oklahoma	OK
Arizona	AZ	Maine	ME	Oregon	OR
Arkansas	AR	Maryland	MD	Pennsylvania	PA
California	CA	Massachusetts	MA	Puerto Rico	PR
Colorado	CO	Michigan	MI	Rhode Island	RI
Connecticut	CT	Minnesota	MN	South Carolina	SC
Delaware	DE	Mississippi	MS	South Dakota	SD
District of Columbia	DC	Missouri	MO	Tennessee	TN
Florida	FL	Montana	MT	Texas	TX
Georgia	GA	Nebraska	NE	Utah	UT
Guam	GU	Nevada	NV	Vermont	VT
Hawaii	HI	New Hampshire	NH	Virgin Islands	VI
Idaho	ID	New Jersey	NJ	Virginia	VA
Illinois	IL	New Mexico	NM	Washington	WA
Indiana	IN	New York	NY	West Virginia	WV
Iowa	IA	North Carolina	NC	Wisconsin	WI
Kansas	KS	North Dakota	ND	Wyoming	WY

QUICK-REFERENCE METRIC CONVERSION TABLES

SPACE AND TIME

Quantity	From Inch-Pound Units	To Metric Units	Multiply by
Length	mi (statute)	km	1.609347
	yd	m	*0.9144
	ft (int)	m	*0.3048
	in	cm	*2.54
Area	mi^2	km^2	2.589998
	acre	m^2	4,046.873
	yd^2	m^2	0.8361274
	ft^2	m^2	*0.09290304
	in^2	cm^2	*6.4516
Volume	acre foot	m^3	1,233.489
	yd^3	m^3	0.7645549
	ft^3	m^3	0.02831685
	ft^3	L	28.31685
	gal	L	3.785412
	fl oz	mL	29.57353
	in^3	cm^3	16.38706
Velocity	mi/h	km/h	1.609347
	ft/s	m/s	*0.3048
Acceleration	ft/s^2	m/s^2	*0.3048

NUCLEAR REACTION AND IONIZING RADIATION

Quantity	From Inch-Pound Units	To Metric Units	Multiply by
Activity (of a radionuclide)	curie (Ci)	MBq	*37,000.0
	dpm	becquerel (Bq)	0.016667
Absorbed dose	rad	gray (Gy)	*0.01
	rad	cGy (centigray)	*1.0
Dose equivalent	rem	sievert (Sv)	*0.01
	rem	mSv	*10.0
	mrem	mSv	*0.01
	mrem	μSv (microsivert)	*10.0
Exposure (X-rays and gamma rays)	roentgen (R)	C/kg (coulomb)	0.000258

HEAT

Quantity	From Inch-Pound Units	To Metric Units	Multiply by
Thermodynamic temperature	°F	K	*K = (°F + 459.67)/1.8
Celsius temperature	°F	°C	*°C = (°F–32)/1.8
Linear expansion coefficient	1/°F	1/K or 1/°C	*1.8
Thermal conductivity	(Btu • in)/(ft^2 • h • °F)	W/(m • °C)	0.1442279
Coefficient of heat transfer	Btu / (ft^2 • h • °F)	W/(m^2 • °C)	5.678263
Heat capacity	Btu/°F	kJ/°C	1.899108
Specific heat capacity	Btu/(lb • °F)	kJ/(kg • °C)	*4.1868

QUICK-REFERENCE METRIC CONVERSION TABLES

HEAT (continued)

Entropy	Btu/°F	kJ/°C	1.899108
Specific entropy	Btu/(lb • °F)	kJ/(kg • °C)	*4.1868
Specific internal energy	Btu/lb	kJ/kg	*2.326

MECHANICS

Quantity	From Inch-Pound Units	To Metric Units	Multiply by
Mass (weight)	ton (short)	t (metric ton)	*0.90718474
	lb (avdp)	kg	*0.45359237
Moment of mass	lb • ft	kg • m	0.138255
Density	ton (short)/yd^3	t/m^3	1.186553
	lb/ft^3	g/m^3	16.01846
Concentration (mass)	lb/gal	g/L	119.8264
Momentum	lb • ft/s	kg • m/s	0.138255
Angular momentum	lb • ft^2/s	kg • m^2/s	0.04214011
Moment of inertia	lb • ft^2	kg • m^2	0.04214011
Force	kip (kilopound)	kN (kilonewton)	4.448222
	lbf	N (newton)	4.448222
Moment of force, torque	lbf • ft	N • m	1.355818
	lbf • in	N • m	0.1229848
Pressure	atm (std)	kPa (kilopascal)	*101.325
	bar	kPa	*100.0
	lbf/in^2 (formerly psi)	kPa	6.894757
	inHg (32 °F)	kPa	3.38638
	ftH_2O (39.2 °F)	kPa	2.98898
	inH_2O (60 °F)	kPa	0.24884
	mmHg (0 °C)	kPa	0.133322
Stress	kip/in^2 (formerly ksi)	MPa	6.894757
	lbf/in^2 (formerly psi)	MPa	0.006894757
	lbf/in^2 (formerly psi)	kPa	6.894757
	lbf/ft2	kPa	0.04788026
Energy, work	kWh	MJ	*3.6
	calth	J (joule)	*4.184
	Btu	kJ	1.055056
	ft • lbf	J	1.355818
	therm (US)	MJ	105.4804
Power	Btu/s	kW	1.055056
	hp (electric)	kW	*0.746
	Btu/h	W	0.2930711

* Exact conversion factors

Note: The information contained in this table is intended to familiarize readers with commonly used International System of Units (SI) units and provide a quick reference to aid understanding of documents containing SI units. The conversion factors listed here have not been approved as NRC guidelines for the development of licensing actions, regulations, or policy.

To convert from metric units to inch-pound units, divide the metric unit by the conversion factor.

Sources: Federal Standard 376B, “Preferred Metric Units for General Use by the Federal Government,” and International Commission on Radiation Units and Measurements, ICRU Report 33, “Radiation Quantities and Units," issued 1980.

APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Arkansas Nuclear One, Unit 1 Entergy Operations, Inc. London, AR (6 miles NW of Russellville, AR) 05000313 www.nrc.gov/info-finder/reactors/ano1.html	IV	PWR-DRYAMB B&W LLP BECH BECH	2,568	12/06/1968 05/21/1974 12/19/1974 06/20/2001 05/20/2034	99 90 87 102 56 98
Arkansas Nuclear One, Unit 2 Entergy Operations, Inc. London, AR (6 miles NW of Russellville, AR) 05000368 www.nrc.gov/info-finder/reactors/ano2.html	IV	PWR-DRYAMB CE BECH BECH	3,026	12/06/1972 09/01/1978 03/26/1980 06/30/2005 07/17/2038	90 97 90 93 91 85
Beaver Valley Power Station, Unit 1 FirstEnergy Nuclear Operating Co. Shippingport, PA (17 miles W of McCandless, PA) 05000334 www.nrc.gov/info-finder/reactors/bv1.html	I	PWR-DRYAMB WEST 3LP S&W S&W	2,900	06/26/1970 07/02/1976 10/01/1976 11/05/2009 01/29/2036	92 91 101 92 86 86
Beaver Valley Power Station, Unit 2 FirstEnergy Nuclear Operating Co. Shippingport, PA (17 miles W of McCandless, PA) 05000412 www.nrc.gov/info-finder/reactors/bv2.html	I	PWR-DRYAMB WEST 3LP S&W S&W	2,900	05/03/1974 08/14/1987 11/17/1987 11/05/2009 05/27/2047	87 84 102 91 97 98
Braidwood Station, Unit 1 Exelon Generation Co., LLC Braceville, IL (20 miles SW of Joliet, IL) 05000456 www.nrc.gov/info-finder/reactors/brai1.html	III	PWR-DRYAMB WEST 4LP S&L CWE	3,645	12/31/1975 07/02/1987 07/29/1988 N/A 10/17/2026	95 89 101 91 95 103
Braidwood Station, Unit 2 Exelon Generation Co., LLC Braceville, IL (20 miles SW of Joliet, IL) 05000457 www.nrc.gov/info-finder/reactors/brai2.html	III	PWR-DRYAMB WEST 4LP S&L CWE	3,645	12/31/1975 05/20/1988 10/17/1988 N/A 12/18/2027	93 99 93 93 98 96
Browns Ferry Nuclear Plant, Unit 1 Tennessee Valley Authority Athens (Limestone County), AL (32 miles W of Huntsville, AL) 05000259 www.nrc.gov/info-finder/reactors/bf1.html	II	BWR-MARK 1 GE 4 TVA TVA	3,458	05/10/1967 12/20/1973 08/01/1974 05/04/2006 12/20/2033	94 86 91 88 94 90

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APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Browns Ferry Nuclear Plant, Unit 2	II	BWR-MARK 1	3,458	05/10/1967	94
Tennessee Valley Authority		GE 4		06/28/1974	91
Athens (Limestone County), AL		TVA		03/01/1975	80
(32 miles W of Huntsville, AL)		TVA		05/04/2006	99
05000260				06/28/2034	79
www.nrc.gov/info-finder/reactors/bf2.html					98
Browns Ferry Nuclear Plant, Unit 3	II	BWR-MARK 1	3,458	07/31/1968	95
Tennessee Valley Authority		GE 4		07/02/1976	81
Athens (Limestone County), AL		TVA		03/01/1977	87
(32 miles W of Huntsville, AL)		TVA		05/04/2006	83
05000296				07/02/2036	89
www.nrc.gov/info-finder/reactors/bf3.html					88
Brunswick Steam Electric Plant, Unit 1	II	BWR-MARK 1	2,923	02/07/1970	98
Duke Energy Progress, Inc.		GE 4		09/08/1976	83
Southport, NC		UE&C		03/18/1977	100
(30 miles S of Wilmington, NC)		BRRT		06/26/2006	77
05000325				09/08/2036	92
www.nrc.gov/info-finder/reactors/bru1.html					89
Brunswick Steam Electric Plant, Unit 2	II	BWR-MARK 1	2,923	02/07/1970	80
Duke Energy Progress, Inc.		GE 4		12/27/1974	99
Southport, NC		UE&C		11/03/1975	79
(30 miles S of Wilmington, NC)		BRRT		06/26/2006	98
05000324				12/27/2034	73
www.nrc.gov/info-finder/reactors/bru2.html					98
Byron Station, Unit 1	III	PWR-DRYAMB	3,645	12/31/1975	94
Exelon Generation Co., LLC		WEST 4LP		02/14/1985	101
Byron, IL		S&L		09/16/1985	88
(17 miles SW of Rockford, IL)		CWE		N/A	88
05000454				10/31/2024	96
www.nrc.gov/info-finder/reactors/byro1.html					97
Byron Station, Unit 2	III	PWR-DRYAMB	3,645	12/31/1975	102
Exelon Generation Co., LLC		WEST 4LP		01/30/1987	96
Byron, IL		S&L		08/02/1987	93
(17 miles SW of Rockford, IL)		CWE		N/A	94
05000455				11/06/2026	86
www.nrc.gov/info-finder/reactors/byro2.html					94
Callaway Plant	IV	PWR-DRYAMB	3,565	04/16/1976	98
Union Electric Co.		WEST 4LP		10/18/1984	86
Fulton, MO		BECH		12/19/1984	90
(25 miles NE of Jefferson City, MO)		DANI		03/06/2015	103
05000483				10/18/2044	77
www.nrc.gov/info-finder/reactors/call.html					89

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APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Calvert Cliffs Nuclear Power Plant, Unit 1 Calvert Cliffs Nuclear Power Plant, LLC Exelon Generation Co., LLC Lusby, MD (40 miles S of Annapolis, MD) 05000317 www.nrc.gov/info-finder/reactors/calv1.html	I	PWR-DRYAMB CE BECH BECH	2,737	07/07/1969 07/31/1974 05/08/1975 03/23/2000 07/31/2034	98 90 101 81 97 91
Calvert Cliffs Nuclear Power Plant, Unit 2 Calvert Cliffs Nuclear Power Plant, LLC Exelon Generation Co., LLC Lusby, MD (40 miles S of Annapolis, MD) 05000318 www.nrc.gov/info-finder/reactors/calv2.html	I	PWR-DRYAMB CE BECH BECH	2,737	07/07/1969 08/13/1976 04/01/1977 03/23/2000 08/13/2036	93 97 92 101 81 100
Catawba Nuclear Station, Unit 1 Duke Energy Carolinas, LLC York, SC (18 miles S of Charlotte, NC) 05000413 www.nrc.gov/info-finder/reactors/cat1.html	II	PWR-ICECND WEST 4LP DUKE DUKE	3,411	08/07/1975 01/17/1985 06/29/1985 12/05/2003 12/05/2043	91 100 89 89 96 86
Catawba Nuclear Station, Unit 2 Duke Energy Carolinas, LLC York, SC (18 miles S of Charlotte, NC) 05000414 www.nrc.gov/info-finder/reactors/cat2.html	II	PWR-ICECND WEST 4LP DUKE DUKE	3,411	08/07/1975 05/15/1986 08/19/1986 12/05/2003 12/05/2043	90 92 101 92 86 100
Clinton Power Station, Unit 1 Exelon Generation Co., LLC Clinton, IL (23 miles SSE of Bloomington, IL) 05000461 www.nrc.gov/info-finder/reactors/clin.html	III	BWR-MARK 3 GE 6 S&L BALD	3,473	02/24/1976 04/17/1987 11/24/1987 N/A 09/29/2026	97 92 93 100 82 97
Columbia Generating Station Energy Northwest Benton County, WA (12 miles NW of Richland, WA) 05000397 www.nrc.gov/info-finder/reactors/wash2.html	IV	BWR-MARK 2 GE 5 B&R BECH	3,486	03/19/1973 04/13/1984 12/13/1984 05/22/2012 12/20/2043	67 95 50 97 80 98
Comanche Peak Nuclear Power Plant, Unit 1 Luminant Generation Co., LLC Glen Rose, TX (40 miles SW of Fort Worth, TX) 05000445 www.nrc.gov/info-finder/reactors/cp1.html	IV	PWR-DRYAMB WEST 4LP G&H BRRT	3,612	12/19/1974 04/17/1990 08/13/1990 N/A 02/08/2030	100 91 91 98 94 85

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APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Comanche Peak Nuclear Power Plant, Unit 2	IV	PWR-DRYAMB	3,612	12/19/1974	94
Luminant Generation Company, LLC		WEST 4LP		04/06/1993	104
Glen Rose, TX		BECH		08/03/1993	92
(40 miles SW of Fort Worth, TX)		BRRT		N/A	91
05000446				02/02/2033	99
www.nrc.gov/info-finder/reactors/cp2.html					93
Cooper Nuclear Station	IV	BWR-MARK 1	2,419	06/04/1968	72
Nebraska Public Power District		GE 4		01/18/1974	100
Brownville, NE		B&R		07/01/1974	86
(23 miles S of Nebraska City, NE)		B&R		11/29/2010	87
05000298				01/18/2034	97
www.nrc.gov/info-finder/reactors/cns.html					88
Davis-Besse Nuclear Power Station, Unit 1	III	PWR-DRYAMB	2,817	03/24/1971	99
FirstEnergy Nuclear Operating Co.		B&W RLP		04/22/1977	66
Oak Harbor, OH		BECH		07/31/1978	81
(21 miles ESE of Toledo, OH)		B&W		N/A	91
05000346				04/22/2017	95
www.nrc.gov/info-finder/reactors/davi.html					74
Diablo Canyon Nuclear Power Plant, Unit 1	IV	PWR-DRYAMB	3,411	4/23/1968	84
Pacific Gas & Electric Co.		WEST 4LP		11/02/1984	88
Avila Beach, CA		PG&E		05/07/1985	100
(12 miles SW of San Luis Obispo, CA)		PG&E		N/A	84
05000275				11/02/2024	95
www.nrc.gov/info-finder/reactors/diab1.html					87
Diablo Canyon Nuclear Power Plant, Unit 2	IV	PWR-DRYAMB	3,411	12/09/1970	84
Pacific Gas & Electric Co.		WEST 4LP		08/26/1985	100
Avila Beach, CA		PG&E		03/13/1986	89
(12 miles SW of San Luis Obispo, CA)		PG&E		N/A	97
05000323				08/26/2025	82
www.nrc.gov/info-finder/reactors/diab2.html					86
Donald C. Cook Nuclear Plant, Unit 1	III	PWR-ICECND	3,304	03/25/1969	3
Indiana Michigan Power Co.		WEST 4LP		10/25/1974	88
Bridgman, MI		AEP		08/28/1975	87
(13 miles S of Benton Harbor, MI)		AEP		08/30/2005	104
05000315				10/25/2034	78
www.nrc.gov/info-finder/reactors/cook1.html					94
Donald C. Cook Nuclear Plant, Unit 2	III	PWR-ICECND	3,468	03/25/1969	87
Indiana Michigan Power Co.		WEST 4LP		12/23/1977	84
Bridgman, MI		AEP		07/01/1978	104
(13 miles S of Benton Harbor, MI)		AEP		08/30/2005	91
05000316				12/23/2037	85
www.nrc.gov/info-finder/reactors/cook2.html					101

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APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Dresden Nuclear Power Station, Unit 2	III	BWR-MARK 1	2,957	01/10/1966	91
Exelon Generation Co., LLC		GE 3		02/20/1991[A]	102
Morris, IL		S&L		06/09/1970	95
(25 miles SW of Joliet, IL)		UE&C		10/28/2004	104
05000237				12/22/2029	85
www.nrc.gov/info-finder/reactors/dres2.html					98
Dresden Nuclear Power Station, Unit 3	III	BWR-MARK 1	2,957	10/14/1966	97
Exelon Generation Co., LLC		GE 3		01/12/1971	90
Morris, IL		S&L		11/16/1971	99
(25 miles SW of Joliet, IL)		UE&C		10/28/2004	91
05000249				01/12/2031	89
www.nrc.gov/info-finder/reactors/dres3.html					95
Duane Arnold Energy Center	III	BWR-MARK 1	1,912	06/22/1970	92
NextEra Energy Duane Arnold, LLC		GE 4		02/22/1974	89
Palo, IA		BECH		02/01/1975	99
(8 miles NW of Cedar Rapids, IA)		BECH		12/16/2010	83
05000331				02/21/2034	89
www.nrc.gov/info-finder/reactors/duan.html					79
Edwin I. Hatch Nuclear Plant, Unit 1	II	BWR-MARK 1	2,804	09/30/1969	94
Southern Nuclear Operating Co.		GE 4		10/13/1974	85
Baxley, GA		BECH		12/31/1975	98
(20 miles S of Vidalia, GA)		GPC		01/15/2002	89
05000321				08/06/2034	94
www.nrc.gov/info-finder/reactors/hat1.html					89
Edwin I. Hatch Nuclear Plant, Unit 2	II	BWR-MARK 1	2,804	12/27/1972	67
Southern Nuclear Operating Co., Inc.		GE 4		06/13/1978	96
Baxley, GA		BECH		09/05/1979	78
(20 miles S of Vidalia, GA)		GPC		01/15/2002	98
05000366				06/13/2038	89
www.nrc.gov/info-finder/reactors/hat2.html					99
Fermi, Unit 2	III	BWR-MARK 1	3,486	09/26/1972	75
DTE Electric Company		GE 4		07/15/1985	80
Newport, MI		S&L		01/23/1988	94
(25 miles NE of Toledo, OH)		DANI		N/A	54
05000341				03/20/2025	62
www.nrc.gov/info-finder/reactors/ferm2.html					82
Fort Calhoun Station, Unit 1	IV	PWR-DRYAMB	1,500	06/07/1968	100
Omaha Public Power District		CE		08/09/1973	102
Ft. Calhoun, NE		GHDR		09/26/1973	28
(19 miles N of Omaha, NE)		GHDR		11/04/2003	0
05000285				08/09/2033	1
www.nrc.gov/info-finder/reactors/fcs.html					100

A: The Atomic Energy Commission (AEC) issued a provisional Operating License (OL) on 12/22/1969, allowing commercial operation. The NRC issued a full-term OL on 02/20/1991.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Grand Gulf Nuclear Station, Unit 1	IV	BWR-MARK 3	4,408	09/04/1974	100
Entergy Operations, Inc.		GE 6		11/01/1984	88
Port Gibson, MS		BECH		07/01/1985	94
(20 miles S of Vicksburg, MS)		BECH		N/A	70
05000416				11/01/2024	86
www.nrc.gov/info-finder/reactors/gg1.html					82
H.B. Robinson Steam Electric Plant, Unit 2	II	PWR-DRYAMB	2,339	04/13/1967	104
Duke Energy Progress, Inc.		WEST 3LP		07/31/1970	57
Hartsville, SC		EBSO		03/07/1971	100
(26 miles NW of Florence, SC)		EBSO		04/19/2004	85
05000261				07/31/2030	85
www.nrc.gov/info-finder/reactors/rob2.html					86
Hope Creek Generating Station, Unit 1	I	BWR-MARK 1	3,840	11/04/1974	95
PSEG Nuclear, LLC		GE 4		07/25/1986	93
Hancocks Bridge, NJ		BECH		12/20/1986	103
(18 miles SE of Wilmington, DE)		BECH		07/20/2011	93
05000354				04/11/2046	80
www.nrc.gov/info-finder/reactors/hope.html					102
Indian Point Nuclear Generating, Unit 2	I	PWR-DRYAMB	3,216	10/14/1966	98
Entergy Nuclear Indian Point 2, LLC		WEST 4LP		09/28/1973	82
Buchanan, NY		UE&C		08/01/1974	98
(24 miles N of New York, NY)		WDCO		N/A	90
05000247				09/28/2013	77
www.nrc.gov/info-finder/reactors/ip2.html					93
Indian Point Nuclear Generating, Unit 3	I	PWR-DRYAMB	3,216	08/13/1969	85
Entergy Nuclear Indian Point 3, LLC		WEST 4LP		12/12/1975	99
Buchanan, NY		UE&C		08/30/1976	90
(24 miles N of New York, NY)		WDCO		N/A	100
05000286				12/12/2015	94
www.nrc.gov/info-finder/reactors/ip3.html					98
James A. FitzPatrick Nuclear Power Plant	I	BWR-MARK 1	2,536	05/20/1970	99
Entergy Nuclear FitzPatrick, LLC		GE 4		10/17/1974	85
Scriba, NY		S&W		07/28/1975	97
(6 miles NE of Oswego, NY)		S&W		09/08/2008	84
05000333				10/17/2034	89
www.nrc.gov/info-finder/reactors/fitz.html					79
Joseph M. Farley Nuclear Plant, Unit 1	II	PWR-DRYAMB	2,775	08/16/1972	90
Southern Nuclear Operating Co.		WEST 3LP		06/25/1977	88
Columbia, AL		SSI		12/01/1977	101
(18 miles E of Dothan, AL)		DANI		05/12/2005	91
05000348				06/25/2037	90
www.nrc.gov/info-finder/reactors/far1.html					102

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APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Joseph M. Farley Nuclear Plant, Unit 2	II	PWR-DRYAMB	2,775	08/16/1972	96
Southern Nuclear Operating Co.		WEST 3LP		03/31/1981	88
Columbia, AL		SSI		07/30/1981	89
(18 miles E of Dothan, AL)		BECH		05/12/2005	104
05000364				03/31/2041	91
www.nrc.gov/info-finder/reactors/far2.html					89
LaSalle County Station, Unit 1	III	BWR-MARK 2	3,546	09/10/1973	99
Exelon Generation Co., LLC		GE 5		04/17/1982	94
Marseilles, IL		S&L		01/01/1984	101
(11 miles SE of Ottawa, IL)		CWE		N/A	97
05000373				04/17/2022	95
www.nrc.gov/info-finder/reactors/lasa1.html					93
LaSalle County Station, Unit 2	III	BWR-MARK 2	3,546	09/10/1973	93
Exelon Generation Co., LLC		GE 5		12/16/1983	101
Marseilles, IL		S&L		10/19/1984	96
(11 miles SE of Ottawa, IL)		CWE		N/A	103
05000374				12/16/2023	88
www.nrc.gov/info-finder/reactors/lasa2.html					95
Limerick Generating Station, Unit 1	I	BWR-MARK 2	3,515	06/19/1974	101
Exelon Generation Co., LLC		GE 4		08/08/1985	91
Limerick, PA		BECH		02/01/1986	96
(21 miles NW of Philadelphia, PA)		BECH		N/A	85
05000352				10/26/2024	101
www.nrc.gov/info-finder/reactors/lim1.html					91
Limerick Generating Station, Unit 2	I	BWR-MARK 2	3,515	06/19/1974	94
Exelon Generation Co., LLC		GE 4		08/25/1989	99
Limerick, PA		BECH		01/08/1990	90
(21 miles NW of Philadelphia, PA)		BECH		N/A	95
05000353				06/22/2029	94
www.nrc.gov/info-finder/reactors/lim2.html					99
McGuire Nuclear Station, Unit 1	II	PWR-ICECND	3,411	02/23/1973	104
Duke Energy Carolinas, LLC		WEST 4LP		07/08/1981	92
Huntersville, NC		DUKE		12/01/1981	94
(17 miles N of Charlotte, NC)		DUKE		12/05/2003	105
05000369				06/12/2041	82
www.nrc.gov/info-finder/reactors/mcg1.html					82
McGuire Nuclear Station, Unit 2	II	PWR-ICECND	3,411	02/23/1973	94
Duke Energy Carolinas, LLC		WEST 4LP		05/27/1983	104
Huntersville, NC		DUKE		03/01/1984	91
(17 miles N of Charlotte, NC)		DUKE		12/05/2003	82
05000370				03/03/2043	95
www.nrc.gov/info-finder/reactors/mcg2.html					94

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APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Millstone Power Station, Unit 2	I	PWR-DRYAMB	2,700	12/11/1970	81
Dominion Nuclear Connecticut, Inc.		CE		09/26/1975	97
Waterford, CT		BECH		12/26/1975	87
(3.2 miles SW of New London, CT)		BECH		11/28/2005	83
05000336				07/31/2035	95
www.nrc.gov/info-finder/reactors/mill2.html					85
Millstone Power Station, Unit 3	I	PWR-DRYSUB	3,650	08/09/1974	105
Dominion Nuclear Connecticut, Inc.		WEST 4LP		01/31/1986	86
Waterford, CT		S&W		04/23/1986	87
(3.2 miles SW of New London, CT)		S&W		11/28/2005	100
05000423				11/25/2045	87
www.nrc.gov/info-finder/reactors/mill3.html					87
Monticello Nuclear Generating Plant, Unit 1	III	BWR-MARK 1	2,004	06/19/1967	83
Northern States Power Company-Minnesota		GE 3		01/09/1981[B]	94
Monticello, MN		BECH		06/30/1971	69
(30 miles NW of Minneapolis, MN)		BECH		11/08/2006	101
05000263				09/08/2030	50
www.nrc.gov/info-finder/reactors/mont.html					78
Nine Mile Point Nuclear Station, Unit 1	I	BWR-MARK 1	1,850	04/12/1965	92
Nine Mile Point Nuclear Station, LLC		GE 2		12/26/1974[C]	97
Scriba, NY		NIAG		12/01/1969	84
(6 miles NE of Oswego, NY)		S&W		10/31/2006	87
05000220				08/22/2029	88
www.nrc.gov/info-finder/reactors/nmp1.html					98
Nine Mile Point Nuclear Station, Unit 2	I	BWR-MARK 2	3,988	06/24/1974	99
Nine Mile Point Nuclear Station, LLC		GE 5		07/02/1987	89
Scriba, NY		S&W		03/11/1988	95
(6 miles NE of Oswego, NY)		S&W		10/31/2006	83
05000410				10/31/2046	99
www.nrc.gov/info-finder/reactors/nmp2.html					87
North Anna Power Station, Unit 1	II	PWR-DRYSUB	2,940	02/19/1971	92
Virginia Electric & Power Co.		WEST 3LP		04/01/1978	86
Mineral (Louisa County), VA		S&W		06/06/1978	78
(40 miles NW of Richmond, VA)		S&W		03/20/2003	89
05000338				04/01/2038	89
www.nrc.gov/info-finder/reactors/na1.html					100

B: The AEC issued a provisional OL on 09/08/1970, allowing commercial operation. The NRC issued a full-term OL on 01/09/1981.

C: The AEC issued a provisional OL on 08/22/1969, allowing commercial operation. The NRC issued a full-term OL on 12/26/1974.

APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
North Anna Power Station, Unit 2	II	PWR-DRYSUB	2,940	02/19/1971	100
Virginia Electric & Power Co.		WEST 3LP		08/21/1980	100
Mineral (Louisa County), VA		S&W		12/14/1980	76
(40 miles NW of Richmond, VA)		S&W		03/20/2003	99
05000339				08/21/2040	85
www.nrc.gov/info-finder/reactors/na2.html					92
Oconee Nuclear Station, Unit 1	II	PWR-DRYAMB	2,568	11/06/1967	85
Duke Energy Carolinas, LLC		B&W LLP		02/06/1973	100
Seneca, SC		DBDB		07/15/1973	79
(30 miles W of Greenville, SC)		DUKE		05/23/2000	90
05000269				02/06/2033	91
www.nrc.gov/info-finder/reactors/oco1.html					91
Oconee Nuclear Station, Unit 2	II	PWR-DRYAMB	2,568	11/06/1967	103
Duke Energy Carolinas, LLC		B&W LLP		10/06/1973	91
Seneca, SC		DBDB		09/09/1974	93
(30 miles W of Greenville, SC)		DUKE		05/23/2000	102
05000270				10/06/2033	82
www.nrc.gov/info-finder/reactors/oco2.html					101
Oconee Nuclear Station, Unit 3	II	PWR-DRYAMB	2,568	11/06/1967	94
Duke Energy Carolinas, LLC		B&W LLP		07/19/1974	91
Seneca, SC		DBDB		12/16/1974	103
(30 miles W of Greenville, SC)		DUKE		05/23/2000	86
05000287				07/19/2034	97
www.nrc.gov/info-finder/reactors/oco3.html					92
Oyster Creek Nuclear Generating Station	I	BWR-MARK 1	1,930	12/15/1964	92
Exelon Generation Co., LLC		GE 2		07/02/1991[D]	85
Forked River, NJ		B&R		12/23/1969	98
(9 miles S of Toms River, NJ)		B&R		04/08/2009	88
05000219				04/09/2029	106
www.nrc.gov/info-finder/reactors/oc.html					90
Palisades Nuclear Plant	III	PWR-DRYAMB	2,565.4	03/14/1967	90
Entergy Nuclear Operations, Inc.		CE		02/21/1991[E]	92
Covert, MI		BECH		12/31/1971	96
(5 miles S of South Haven, MI)		BECH		01/17/2007	74
05000255				03/24/2031	85
www.nrc.gov/info-finder/reactors/pali.html					86
Palo Verde Nuclear Generating Station, Unit 1	IV	PWR-DRYAMB	3,990	05/25/1976	101
Arizona Public Service Company		CE 80-2L		06/01/1985	81
Wintersburg, AZ		BECH		01/28/1986	83
(50 miles W of Phoenix, AZ)		BECH		04/21/2011	100
05000528				06/01/2045	85
www.nrc.gov/info-finder/reactors/palo1.html					90

D: The AEC issued a provisional OL on 04/09/1969, allowing commercial operation. The NRC issued a full-term OL on 07/02/1991.

E: The AEC issued a provisional OL on 03/24/1971, allowing commercial operation. The NRC issued a full-term OL on 02/21/1991.

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APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Palo Verde Nuclear Generating Station, Unit 2 Arizona Public Service Company Wintersburg, AZ (50 miles W of Phoenix, AZ) 05000529 www.nrc.gov/info-finder/reactors/palo2.html	IV	PWR-DRYAMB CE80-2L BECH BECH	3,990	05/25/1976 04/24/1986 09/19/1986 04/21/2011 04/24/2046	83 101 91 90 91 90
Palo Verde Nuclear Generating Station, Unit 3 Arizona Public Service Company Wintersburg, AZ (50 miles W of Phoenix, AZ) 05000530 www.nrc.gov/info-finder/reactors/palo3.html	IV	PWR-DRYAMB CE80-2L BECH BECH	3,990	05/25/1976 11/25/1987 01/08/1988 04/21/2011 11/25/2047	83 89 97 88 79 101
Peach Bottom Atomic Power Station, Unit 2 Exelon Generation Co., LLC Delta, PA (17.9 miles S of Lancaster, PA) 05000277 www.nrc.gov/info-finder/reactors/pb2.html	I	BWR-MARK 1 GE 4 BECH BECH	3,514	01/31/1968 10/25/1973 07/05/1974 05/07/2003 08/08/2033	102 92 101 88 100 88
Peach Bottom Atomic Power Station, Unit 3 Exelon Generation Co., LLC Delta, PA (17.9 miles S of Lancaster, PA) 05000278 www.nrc.gov/info-finder/reactors/pb3.html	I	BWR-MARK 1 GE 4 BECH BECH	3,514	01/31/1968 07/02/1974 12/23/1974 05/07/2003 07/02/2034	89 100 90 103 85 103
Perry Nuclear Power Plant, Unit 1 FirstEnergy Nuclear Operating Co. Perry, OH (35 miles NE of Cleveland, OH) 05000440 www.nrc.gov/info-finder/reactors/perr1.html	III	BWR-MARK 3 GE 6 GIL KAIS	3,758	05/03/1977 11/13/1986 11/18/1987 N/A 03/18/2026	67 98 79 92 73 96
Pilgrim Nuclear Power Station Entergy Nuclear Operations, Inc. Plymouth, MA (38 miles SE of Boston, MA) 05000293 www.nrc.gov/info-finder/reactors/pilg.html	I	BWR-MARK 1 GE 3 BECH BECH	2,028	08/26/1968 06/08/1972 12/01/1972 05/29/2012 06/08/2032	90 99 85 98 74 97
Point Beach Nuclear Plant, Unit 1 NextEra Energy Point Beach, LLC Two Rivers, WI (13 miles NW of Manitowoc, WI) 05000266 www.nrc.gov/info-finder/reactors/poin1.html	III	PWR-DRYAMB WEST 2LP BECH BECH	1,800	07/19/1967 10/05/1970 12/21/1970 12/22/2005 10/05/2030	98 88 79 100 84 90

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Point Beach Nuclear Plant, Unit 2	III	PWR-DRYAMB	1,800	07/25/1968	84
NextEra Energy Point Beach, LLC		WEST 2LP		03/08/1973[F]	96
Two Rivers, WI		BECH		10/01/1972	67
(13 miles NW of Manitowoc, WI)		BECH		12/22/2005	89
05000301				03/08/2033	93
www.nrc.gov/info-finder/reactors/poin2.html					90
Prairie Island Nuclear Generating Plant, Unit 1	III	PWR-DRYAMB	1,677	06/25/1968	97
Northern States Power Co.—Minnesota		WEST 2LP		04/05/1974[G]	96
Welch, MN		FLUR		12/16/1973	91
(28 miles SE of Minneapolis, MN)		NSP		06/27/2011	81
05000282				08/09/2033	90
www.nrc.gov/info-finder/reactors/prai1.html					84
Prairie Island Nuclear Generating Plant, Unit 2	III	PWR-DRYAMB	1,677	06/25/1968	75
Northern States Power Co.—Minnesota		WEST 2LP		10/29/1974	86
Welch, MN		FLUR		12/21/1974	99
(28 miles SE of Minneapolis, MN)		NSP		06/27/2011	74
05000306				10/29/2034	59
www.nrc.gov/info-finder/reactors/prai2.html					101
Quad Cities Nuclear Power Station, Unit 1	III	BWR-MARK 1	2,957	02/15/1967	82
Exelon Generation Co., LLC		GE 3		12/14/1972	99
Cordova, IL		S&L		02/18/1973	92
(20 miles NE of Moline, IL)		UE&C		10/28/2004	102
05000254				12/14/2032	85
www.nrc.gov/info-finder/reactors/quad1.html					103
Quad Cities Nuclear Power Station, Unit 2	III	BWR-MARK 1	2,957	02/15/1967	91
Exelon Generation Co., LLC		GE 3		12/14/1972	92
Cordova, IL		S&L		03/10/1973	104
(20 miles NE of Moline, IL)		UE&C		10/28/2004	92
05000265				12/14/2032	91
www.nrc.gov/info-finder/reactors/quad2.html					90
River Bend Station, Unit 1	IV	BWR-MARK 3	3,091	03/25/1977	113
Entergy Nuclear Operations, Inc.		GE 6		11/20/1985	98
St. Francisville, LA		S&W		06/16/1986	90
(24 miles NW of Baton Rouge, LA)		S&W		N/A	91
05000458				08/29/2025	84
www.nrc.gov/info-finder/reactors/rbs1.html					96

F: AEC issued a provisional OL on 11/18/1971. The NRC issued a full-term OL on 03/08/1973.

G: AEC issued a provisional OL on 08/09/1973. The NRC issued a full-term OL on 04/05/1974.

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APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
R.E. Ginna Nuclear Power Plant	I	PWR-DRYAMB	1,775	04/25/1966	91
R.E. Ginna Nuclear Power Plant, LLC		WEST 2LP		09/19/1969	97
Ontario, NY		GIL		07/01/1970	84
(20 miles NE of Rochester, NY)		BECH		05/19/2004	90
05000244				09/18/2029	93
www.nrc.gov/info-finder/reactors/ginn.html					91
St. Lucie Plant, Unit 1	II	PWR-DRYAMB	3,020	07/01/1970	100
Florida Power & Light Co.		CE		03/01/1976	72
Jensen Beach, FL		EBSO		12/21/1976	85
(10 miles SE of Ft. Pierce, FL)		EBSO		10/02/2003	72
05000335				03/01/2036	74
www.nrc.gov/info-finder/reactors/stl1.html					101
St. Lucie Plant, Unit 2	II	PWR-DRYAMB	3,020	05/02/1977	80
Florida Power & Light Co.		CE		06/10/1983	100
Jensen Beach, FL		EBSO		08/08/1983	66
(10 miles SE of Ft. Pierce, FL)		EBSO		10/02/2003	68
05000389				04/06/2043	91
www.nrc.gov/info-finder/reactors/stl2.html					82
Salem Nuclear Generating Station, Unit 1	I	PWR-DRYAMB	3,459	09/25/1968	99
PSE&G Nuclear, LLC		WEST 4LP		12/01/1976	85
Hancocks Bridge, NJ		PSEG		06/30/1977	86
(18 miles SE of Wilmington, DE)		UE&C		06/30/2011	97
05000272				08/13/2036	88
www.nrc.gov/info-finder/reactors/salm1.html					86
Salem Nuclear Generating Station, Unit 2	I	PWR-DRYAMB	3,459	09/25/1968	93
PSE&G Nuclear, LLC		WEST 4LP		05/20/1981	98
Hancocks Bridge, NJ		PSEG		10/13/1981	89
(18 miles SE of Wilmington, DE)		UE&C		06/30/2011	88
05000311				04/18/2040	100
www.nrc.gov/info-finder/reactors/salm2.html					73
Seabrook Station, Unit 1	I	PWR-DRYAMB	3,648	07/07/1976	81
NextEra Energy Seabrook, LLC		WEST 4LP		03/15/1990	100
Seabrook, NH		UE&C		08/19/1990	77
(13 miles S of Portsmouth, NH)		UE&C		N/A	75
05000443				03/15/2030	100
www.nrc.gov/info-finder/reactors/seab1.html					93
Sequoyah Nuclear Plant, Unit 1	II	PWR-ICECND	3,455	05/27/1970	89
Tennessee Valley Authority		WEST 4LP		09/17/1980	84
Soddy-Daisy, TN		TVA		07/01/1981	98
(16 miles NE of Chattanooga, TN)		TVA		N/A	89
05000327				09/17/2020	83
www.nrc.gov/info-finder/reactors/seq1.html					100

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APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Sequoyah Nuclear Plant, Unit 2	II	PWR-ICECND	3,455	05/27/1970	89
Tennessee Valley Authority		WEST 4LP		09/15/1981	97
Soddy-Daisy, TN		TVA		06/01/1982	89
(16 miles NE of Chattanooga, TN)		TVA		N/A	77
05000328				09/15/2021	90
www.nrc.gov/info-finder/reactors/seq2.html					90
Shearon Harris Nuclear Power Plant, Unit 1	II	PWR-DRYAMB	2,900	01/27/1978	94
Duke Energy Progress, Inc.		WEST 3LP		10/24/1986	90
New Hill, NC		EBSO		05/02/1987	103
(20 miles SW of Raleigh, NC)		DANI		12/17/2008	90
05000400				10/24/2046	83
www.nrc.gov/info-finder/reactors/har1.html					99
South Texas Project, Unit 1	IV	PWR-DRYAMB	3,853	12/22/1975	90
STP Nuclear Operating Co.		WEST 4LP		03/22/1988	101
Bay City, TX		BECH		08/25/1988	94
(90 miles SW of Houston, TX)		EBSO		N/A	93
05000498				08/20/2027	91
www.nrc.gov/info-finder/reactors/stp1.html					81
South Texas Project, Unit 2	IV	PWR-DRYAMB	3,853	12/22/1975	101
STP Nuclear Operating Co.		WEST 4LP		03/28/1989	88
Bay City, TX		BECH		06/19/1989	88
(90 miles SW of Houston, TX)		EBSO		N/A	72
05000499				12/15/2028	59
www.nrc.gov/info-finder/reactors/stp2.html					103
Surry Power Station, Unit 1	II	PWR-DRYSUB	2,587	06/25/1968	94
Virginia Electric and Power Co.		WEST 3LP		05/25/1972	89
Surry, VA		S&W		12/22/1972	101
(17 miles NW of Newport News, VA)		S&W		03/20/2003	92
05000280				05/25/2032	91
www.nrc.gov/info-finder/reactors/sur1.html					99
Surry Power Station, Unit 2	II	PWR-DRYSUB	2,587	06/25/1968	92
Virginia Electric and Power Co.		WEST 3LP		01/29/1973	100
Surry, VA		S&W		05/01/1973	76
(17 miles NW of Newport News, VA)		S&W		03/20/2003	91
05000281				01/29/2033	101
www.nrc.gov/info-finder/reactors/sur2.html					95
Susquehanna Steam Electric Station, Unit 1	I	BWR-MARK 2	3,952	11/03/1973	101
Susquehanna Nuclear, LLC		GE 4		07/17/1982	80
Berwick, PA		BECH		06/08/1983	86
(70 miles NE of Harrisburg, PA)		BECH		11/24/2009	70
05000387				07/17/2042	87
www.nrc.gov/info-finder/reactors/susq1.html					83

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Susquehanna Steam Electric Station, Unit 2	I	BWR-MARK 2	3,952	11/03/1973	90
PPL Susquehanna, LLC		GE 4		03/23/1984	96
Berwick, PA		BECH		02/12/1985	72
(70 miles NE of Harrisburg, PA)		BECH		11/24/2009	83
05000388				03/23/2044	80
www.nrc.gov/info-finder/reactors/susq2.html					88
Three Mile Island Nuclear Station, Unit 1	I	PWR-DRYAMB	2,568	05/18/1968	86
Exelon Generation Co., LLC		B&W LLP		04/19/1974	94
Middletown, PA		GIL		09/02/1974	92
(10 miles SE of Harrisburg, PA)		UE&C		10/22/2009	100
05000289				04/19/2034	78
www.nrc.gov/info-finder/reactors/tmi1.html					104
Turkey Point Nuclear Generating, Unit 3	II	PWR-DRYAMB	2,644	04/27/1967	86
Florida Power & Light Co.		WEST 3LP		07/19/1972	88
Homestead, FL		BECH		12/14/1972	96
(20 miles S of Miami, FL)		BECH		06/06/2002	40
05000250				07/19/2032	81
www.nrc.gov/info-finder/reactors/tp3.html					84
Turkey Point Nuclear Generating, Unit 4	II	PWR-DRYAMB	2,644	04/27/1967	99
Florida Power & Light Co.		WEST 3LP		04/10/1973	98
Homestead, FL		BECH		09/07/1973	84
(20 miles S of Miami, FL)		BECH		06/06/2002	85
05000251				04/10/2033	70
www.nrc.gov/info-finder/reactors/tp4.html					88
Virgil C. Summer Nuclear Station, Unit 1	II	PWR-DRYAMB	2,900	03/21/1973	81
South Carolina Electric & Gas Co.		WEST 3LP		11/12/1982	100
Jenkinsville, SC		GIL		01/01/1984	88
(26 miles NW of Columbia, SC)		DANI		04/23/2004	86
05000395				08/06/2042	93
www.nrc.gov/info-finder/reactors/sum.html					81
Vogtle Electric Generating Plant, Unit 1	II	PWR-DRYAMB	3,625.6	06/28/1974	91
Southern Nuclear Operating Co., Inc.		WEST 4LP		03/16/1987	102
Waynesboro, GA		SBEC		06/01/1987	92
(26 miles SE of Augusta, GA)		GPC		06/03/2009	91
05000424				01/16/2047	101
www.nrc.gov/info-finder/reactors/vog1.html					87
Vogtle Electric Generating Plant, Unit 2	II	PWR-DRYAMB	3,625.6	06/28/1974	101
Southern Nuclear Operating Co., Inc.		WEST 4LP		03/31/1989	93
Waynesboro, GA		SBEC		05/20/1989	94
(26 miles SE of Augusta, GA)		GPC		06/03/2009	102
05000425				02/09/2049	87
www.nrc.gov/info-finder/reactors/vog2.html					92

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors (continued)

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued OL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Waterford Steam Electric Station, Unit 3	IV	PWR-DRYAMB	3,716	11/14/1974	87
Entergy Operations, Inc.		COMB CE		03/16/1985	100
Killona, LA		EBSO		09/24/1985	82
(25 miles W of New Orleans, LA)		EBSO		N/A	77
05000382				12/18/2024	89
www.nrc.gov/info-finder/reactors/wat3.html					90
Watts Bar Nuclear Plant, Unit 1	II	PWR-ICECND	3,459	01/23/1973	94
Tennessee Valley Authority		WEST 4LP		02/07/1996	99
Spring City, TN		TVA		05/27/1996	84
(60 miles SW of Knoxville, TN)		TVA		N/A	87
05000390				11/09/2035	90
www.nrc.gov/info-finder/reactors/wb1.html					89
Wolf Creek Generating Station, Unit 1	IV	PWR-DRYAMB	3,565	05/17/1977	86
Wolf Creek Nuclear Operating Corp.		WEST 4LP		06/04/1985[H]	86
Burlington (Coffey County), KS		BECH		09/03/1985	72
(28 miles SE of Emporia, KS)		DANI		11/20/2008	80
05000482				03/11/2045	65
www.nrc.gov/info-finder/reactors/wc.html					83

H: The original OL (NPF-32) was issued on 03/11/1985. The license was superseded by OL (NPF-42), issued on 06/04/1985.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX A

Commercial Nuclear Power Reactors

Operating Reactors Under Active Construction or Deferred Policy

Plant Name, Unit Number Licensee Location Docket Number NRC Web Page Address	NRC Region	Con Type NSSS Architect Engineer Constructor	Licensed MWt	CP Issued COL Issued Comm. Op. LR Issued Exp. Date	2009–2014* Capacity Factor (Percent)
Bellefonte Nuclear Power Station, Unit 1** Tennessee Valley Authority (6 miles NE of Scottsboro, AL) 05000438	II	PWR-DRYAMB B&W 205 TVA TVA	3,763	12/24/1974	N/A
Bellefonte Nuclear Power Station, Unit 2** Tennessee Valley Authority (6 miles NE of Scottsboro, AL) 05000439	II	PWR-DRYAMB B&W 205 TVA TVA	3,763	12/24/1974	N/A
Watts Bar Nuclear Plant, Unit 2*** Tennessee Valley Authority Spring City, TN (60 miles SW of Knoxville, TN) 05000391 www.nrc.gov/info-finder/reactors/wb/watts-bar.html	II	PWR-ICECND WEST 4LP TVA TVA	3,411	01/23/1973	N/A
Virgil C. Summer Nuclear Station, Unit 2 South Carolina Electric & Gas Co. South Carolina Public Service Auth. Jenkinsville (Fairfield County), SC (26 miles NW of Columbia, SC) 0500027	II	PWR AP1000 WEST SHAW	3,400	03/30/2012	N/A
Virgil C. Summer Nuclear Station, Unit 3 South Carolina Electric & Gas Co. South Carolina Public Service Auth. Jenkinsville (Fairfield County), SC (26 miles NW of Columbia, SC) 05200028	II	PWR AP1000 WEST SHAW	3,400	03/30/2012	N/A
Vogtle Electric Generating Plant, Unit 3 Southern Nuclear Operating Co., Inc. Waynesboro (Burke County), GA (26 miles SE of Augusta, GA) 05200025	II	PWR AP1000 WEST SHAW	3,400	02/10/2012	N/A
Vogtle Electric Generating Plant, Unit 4 Southern Nuclear Operating Co., Inc. Waynesboro, (Burke County), GA (26 miles SE of Augusta, GA) 05200026	II	PWR AP1000 WEST SHAW	3,400	02/10/2012	N/A
Fermi, Unit 3 DTE Electric Company Newport, MI (25 miles NE of Toledo, OH) 05200033	III	ESBWR GEH	4,500	05/01/2015	N/A

* Average capacity factor is listed in year order starting with 2009.
** Bellefonte Units 1 and 2 are under the Commission Policy Statement on Deferred Plants (52 FR 38077; October 14, 1987).
*** Watts Bar Unit 2 is currently performing startup testing, anticipated to begin commercial operation Fall 2016.
Note: Plant names and data are as identified on the license as of August 2015, and the next printed update will be August 2017.
Source: NRC, with some data compiled from EIA/DOE.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX B

New Nuclear Power Plant Licensing Applications

Applicant	Docket Number	Type	Submittal Date	Design	Site	State	Existing Plant?	Date Accepted	Status
Combined Operating License									
Nuclear Innovation North America, LLC (NINA)	05200012 & 05200013	COL	9/20/07	ABWR	South Texas Project, Units 3 and 4	TX	Yes	11/29/07	Scheduled
Tennessee Valley Authority (TVA)	05200014 & 05200015	COL	10/30/07	AP1000	Bellefonte, Units 3 and 4	AL	No	1/18/08	Suspended–09/29/2010
Dominion Virginia Power	05200017	COL	11/27/07	ESBWR	North Anna, Unit 3	VA	Yes	01/28//08	Scheduled
Duke Energy Carolinas	05200018 & 05200019	COL	12/13/07	AP1000	Lee Nuclear Station, Units 3 and 4	SC	No	2/25/08	Scheduled
Progressive Energy	05200022 & 05200023	COL	2/19/08	AP1000	Shearon Harris, Units 2 and 3	NC	Yes	4/17/08	Suspended–05/02/2013
Southern Nuclear Operating Co.	05200025 & 05200026	COL	3/31/08	AP1000	Vogtle, Units 3 and 4	GA	Yes	5/30/08	COL Issued 02/10/2012
South Carolina Electric and Gas	05200027 & 05200028	COL	3/31/08	AP1000	V.C. Summer, Units 2 and 3	SC	Yes	7/31/08	COL Issued 03/30/2012
AmerenUE	05200037	COL	7/24/08	U.S. EPR	Callaway, Unit 2	MO	Yes	12/12/08	Suspended
Duke Energy Florida	05200029 & 05200030	COL	7/30/08	AP1000	Levy County, Units 1 and 2	FL	No	10/6/08	Scheduled
DTE Electric Company	05200033	COL	9/18/08	ESBWR	Fermi, Unit 3	MI	Yes	11/25/08	COL Issued 05/01/2015
Luminant Generation Co.	05200034 & '05200035	COL	9/19/08	US-APWR	Comanche Peak, Units 3 and 4	TX	Yes	12/2/08	Suspended–03/31/2014
Entergy	05200036	COL	9/25/08	ESBWR	River Bend, Unit 3	LA	Yes	12/4/08	Suspended–01/09/2009
PPL Bell Bend	05200039	COL	10/10/08	U.S. EPR	Bell Bend (1 Unit)	PA	Yes	12/19/08	Safety Review On Hold; Environmental Review Scheduled
Florida Power and Light	05200040 & 05200041	COL	6/30/09	AP1000	Turkey Point, Units 6 and 7	FL	Yes	9/4/09	Scheduled
Design Certification									
AREVA NP	05200020	DC	12/11/07	U.S. EPR	N/A	N/A	N/A	2/25/08	Suspended – 03/27/2015
Mitsubishi Heavy Industries	05200021	DC	12/31/07	US-APWR	N/A	N/A	N/A	2/29/08	Applicant Delayed –Not Scheduled
Korea Electric Power Company and Korea Hydro and Nuclear Power	05200046	DC	12/23/14	APR 1400	N/A	N/A	N/A	3/4/15	Scheduled
Toshiba Corporation	05200044	DC	10/27/10	ABWR	N/A	N/A	N/A	12/14/10	Applicant Delayed –Not Scheduled
GE-Hitachi Nuclear Energy	05200045	DC	12/7/10	ABWR	N/A	N/A	N/A	2/14/11	Applicant Delayed –Not Scheduled
Early Site Permit									
PSEG Site	05200043	ESP	5/25/10	Not yet announced	PSEG Site	NJ	Yes	8/4/10	Scheduled

Note: Data as of July 2015, and the next printed update will be August 2017.

Withdrawal was requested for Calvert Cliffs, Grand Gulf, Nine Mile Point, Victoria County, and Callaway (COL and ESP). NRC-abbreviated reactor names listed.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX C

Commercial Nuclear Power Reactors Undergoing Decommissioning and Permanently Shut Down Formerly Licensed To Operate

Unit Location Docket Number	Reactor Type MWt	NSSS Vendor	OL Issued Shut Down OL Terminated Closure Date Est.	Decommissioning Alternative Selected Current License Status
Big Rock Point Charlevoix, MI 05000155	BWR 240	GE	05/01/1964 08/29/1997 01/08/2007	DECON DECON Completed
Crystal River 3 Crystal River, FL 05000302	PWR 2,609	B&W LLP	12/03/1976 02/20/2013 2074	SAFSTOR SAFSTOR in Progress
Dresden 1 Morris, IL 05000010	BWR 700	GE	09/28/1959 10/31/1978 2036	SAFSTOR SAFSTOR
GE EVESR Sunol, CA 05000183	Experimental Superheat Reactor 12.5	GE	11/12/1963 2/1/1967 4/15/1970 1/1/2019	SAFSTOR Possession-only License Expires 1/2016
GE VBWR (Vallecitos) Sunol, CA 05000018	BWR 50	GE	08/31/1957 12/09/1963 2019	SAFSTOR SAFSTOR
Fermi 1 Newport, MI 05000016	SCF 200	CE	05/10/1963 09/22/1972 2032	SAFSTOR DECON
Fort St. Vrain Platteville, CO 05000267	HTG 842	GA	12/21/1973 08/18/1989 08/08/1997	DECON DECON Completed
Haddam Neck Meriden, CT 05000213	PWR 1,825	WEST	12/27/1974 12/05/1996 11/26/2007	DECON DECON Completed
Humboldt Bay 3 Eureka, CA 05000133	BWR 200	GE	08/28/1962 07/02/1976 2015	DECON DECON in Progress
Indian Point 1 Buchanan, NY 05000003	PWR 615	B&W	03/26/1962 10/31/1974 2026	SAFSTOR SAFSTOR

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX C

Commercial Nuclear Power Reactors Undergoing Decommissioning and Permanently Shut Down Formerly Licensed To Operate (continued)

Unit Location Docket Number	Reactor Type MWt	NSSS Vendor	OL Issued Shut Down OL Terminated Closure Date Est.	Decommissioning Alternative Selected Current License Status
Kewaunee Carlton, WI 05000305	PWR 1,772	WEST 2LP	12/21/1973 05/07/2013 2073	SAFSTOR SAFSTOR
La Crosse Genoa, WI 05000409	BWR 165	AC	07/03/1967 04/30/1987 TBD	DECON DECON in Progress
Maine Yankee Wiscasset, ME 05000309	PWR 2,700	CE	06/29/1973 12/06/1996 09/30/2005	DECON DECON Completed
Millstone 1 Waterford, CT 05000245	BWR 2,011	GE	10/31/1970 07/21/1998 12/31/2056	SAFSTOR SAFSTOR
Pathfinder Sioux Falls, SD 05000130	BWR 190	AC	03/12/1964 09/16/1967 07/27/2007	DECON DECON Completed
Peach Bottom 1 Delta, PA 05000171	HTG 115	GA	01/24/1966 10/31/1974 12/31/2034	SAFSTOR SAFSTOR
Rancho Seco Herald, CA 05000312	PWR 2,772	B&W	08/16/1974 06/07/1989 09/25/2009	DECON DECON Completed
San Onofre 1* San Clemente, CA 05000206	PWR 1,347	WEST	03/27/1967 11/30/1992 12/30/2030	DECON SAFSTOR
San Onofre 2* San Clemente, CA 05000361	PWR CE 3,438	CE	02/16/1982 06/12/2013 2030	DECON DECON in Progress
San Onofre 3 San Clemente, CA 05000362	PWR CE 3,438	CE	11/15/1982 06/12/2013 2030	DECON DECON in Progress

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX C

Commercial Nuclear Power Reactors Undergoing Decommissioning and Permanently Shut Down Formerly Licensed To Operate (continued)

Unit Location Docket Number	Reactor Type MWt	NSSS Vendor	OL Issued Shut Down OL Terminated Closure Date Est.	Decommissioning Alternative Selected Current License Status
Savannah, N.S. Baltimore, MD 05000238	PWR 74	B&W	08/1965 11/1970 12/01/2031	SAFSTOR SAFSTOR
Saxton Saxton, PA 05000146	PWR 23.5	WEST	11/15/1961 05/01/1972 11/07/2005	DECON DECON Completed
Shoreham Wading River, NY 05000322	BWR 2,436	GE	04/21/1989 06/28/1989 04/11/1995	DECON DECON Completed
Three Mile Island 2 Middletown, PA 05000320	PWR 2,770	B&W	02/08/1978 03/28/1979 12/31/2036	(1)
Trojan Rainier, OR 05000344	PWR 3,411	WEST	11/21/1975 11/09/1992 05/23/2005	DECON DECON Completed
Yankee-Rowe Rowe, MA 05000029	PWR 600	WEST	12/24/1963 10/01/1991 08/10/2007	DECON DECON Completed
Vermont Yankee Vernon, VT 05000271	BWR-Mark 1 1,912	GE 4	03/21/1972 12/29/2014 2073	SAFSTOR SAFSTOR in Progress
Zion 1 Zion, IL 05000295	PWR 3,250	WEST	10/19/1973 02/21/1997	DECON DECON in Progress
Zion 2 Zion, IL 05000304	PWR 3,250	WEST	11/14/1973 09/19/1996 2020	DECON DECON in Progress

* Site has been dismantled and decontaminated with the exception of the reactor vessel in long-term storage.

Notes: GE Bonus, Hallam, and Piqua decommissioned reactor sites are part of the DOE nuclear legacy. For more information, visit DOE's Legacy Management Web site at http://energy.gov/lm/sites/lm-sites. CVTR, Elk River, and Shippingport decommissioned reactor sites were either decommissioned prior to the formation of the NRC or were not licensed by the NRC.
See the Glossary for definitions of decommissioning alternatives (DECON, SAFSTOR).

(1) Three Mile Island Unit 2 has been placed in a postdefueling monitored storage mode until Unit 1 permanently ceases operation, at which time both units are planned to be decommissioned.

Source: DOE "Integrated Database for 1990, U.S. Spent Fuel and Radioactive Waste, Inventories, Projections, and Characteristics" (DOE/RW-0006, Rev. 6), and NRC, "Nuclear Power Plants in the World," Edition 6.

Data as of July 2015. Next publish release date August 2017.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX D

Canceled Commercial Nuclear Power Reactors

Part 50—Domestic Licensing of Production and Utilization Facilities

Unit Utility Location	Con Type MWe per Unit	Canceled Date Status Docket Number
Allens Creek 1 Houston Lighting & Power Company 4 miles NW of Wallis, TX	BWR 1,150	1982 Under CP Review 05000466
Allens Creek 2 Houston Lighting & Power Company 4 miles NW of Wallis, TX	BWR 1,150	1976 Under CP Review 05000467
Atlantic 1 & 2 Public Service Electric & Gas Company Floating plants off the coast of NJ	PWR 1,150	1978 Under CP Review 05000477 & 478
Bailly 1 Northern Indiana Public Service Company 12 miles NNE of Gary, IN	BWR 645	1981 With CP 05000367
Barton 1 & 2 Alabama Power & Light 15 miles SE of Clanton, AL	BWR 1,159	1977 Under CP Review 05000524 & 525
Barton 3 & 4 Alabama Power & Light 15 miles SE of Clanton, AL	BWR 1,159	1975 Under CP Review 05000526 & 527
Black Fox 1 & 2 Public Service Company of Oklahoma 3.5 miles S of Inola, OK	BWR 1,150	1982 Under CP Review 05000556 & 557
Blue Hills 1 & 2 Gulf States Utilities Company SW tip of Toledo Bend Reservoir, TX	PWR 918	1978 Under CP Review 05000510 & 511
Callaway 2 Union Electric Company 25 miles ENE of Jefferson City, MO	PWR 1,150	1981 With CP 05000486
Cherokee 1 Duke Power Company 6 miles SSW of Blacksburg, SC	PWR 1,280	1983 With CP 05000491
Cherokee 2 & 3 Duke Power Company 6 miles SSW of Blacksburg, SC	PWR 1,280	1982 With CP 05000492 & 493
Clinch River Project Management Corp., DOE, TVA 23 miles W of Knoxville, in Oak Ridge, TN	LMFB 350	1983 Under CP Review 05000537
Clinton 2 Illinois Power Company 6 miles E of Clinton, IL	BWR 933	1983 With CP 05000462

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX D

Canceled Commercial Nuclear Power Reactors

Part 50—Domestic Licensing of Production and Utilization Facilities (continued)

Unit Utility Location	Con Type MWe per Unit	Canceled Date Status Docket Number
Davis-Besse 2 & 3 Toledo Edison Company 21 miles ESE of Toledo, OH	PWR 906	1981 Under CP Review 05000500 & 501
Douglas Point 1 & 2 Potomac Electric Power Company Charles County, MD	BWR 1,146	1977 Under CP Review 05000448 & 449
Erie 1 & 2 Ohio Edison Company Berlin, OH	PWR 1,260	1980 Under CP Review 05000580 & 581
Forked River 1 Jersey Central Power & Light Company 2 miles S of Forked River, NJ	PWR 1,070	1980 With CP 05000363
Fort Calhoun 2 Omaha Public Power District 19 miles N of Omaha, NE	PWR 1,136	1977 Under CP Review 05000548
Fulton 1 & 2 Philadelphia Electric Company 17 miles S of Lancaster, PA	HTG 1,160	1975 Under CP Review 05000463 & 464
Grand Gulf 2 Entergy Nuclear Operations, Inc. 20 miles SW of Vicksburg, MS	BWR 1,250	1990 With CP 05000417
Greene County Power Authority of the State of NY 20 miles N of Kingston, NY	PWR 1,191	1980 Under CP Review 05000549
Greenwood 2 & 3 Detroit Edison Company Greenwood Township, MI	PWR 1,200	1980 Under CP Review 05000452 & 453
Hartsville A1 & A2 Tennessee Valley Authority 5 miles SE of Hartsville, TN	BWR 1,233	1984 With CP 05000518 & 519
Hartsville B1 & B2 Tennessee Valley Authority 5 miles SE of Hartsville, TN	BWR 1,233	1982 With CP 05000520 & 521
Haven 1 (formerly Koshkonong) Wisconsin Electric Power Company 4.2 miles SSW of Fort Atkinson, WI	PWR 900	1980 Under CP Review 05000502
Haven 2 (formerly Koshkonong) Wisconsin Electric Power Company 4.2 miles SSW of Fort Atkinson, WI	PWR 900	1978 Under CP Review 05000503

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX D

Canceled Commercial Nuclear Power Reactors

Part 50—Domestic Licensing of Production and Utilization Facilities (continued)

Unit Utility Location	Con Type MWe per Unit	Canceled Date Status Docket Number
Hope Creek 2 Public Service Electric & Gas Company 18 miles SE of Wilmington, DE	BWR 1,067	1981 With CP 05000355
Jamesport 1 & 2 Long Island Lighting Company 65 miles E of New York City, NY	PWR 1,150	1980 With CP 05000516 & 517
Marble Hill 1 & 2 Public Service of Indiana 6 miles NE of New Washington, IN	PWR 1,130	1985 With CP 05000546 & 547
Midland 1 Consumers Power Company S of City of Midland, MI	PWR 492	1986 With CP 05000329
Midland 2 Consumers Power Company S of City of Midland, MI	PWR 818	1986 With CP 05000330
Montague 1 & 2 Northeast Nuclear Energy Company 1.2 miles SSE of Turners Falls, MA	BWR 1,150	1980 Under CP Review 05000496 & 497
New England 1 & 2 New England Power Company 8.5 miles E of Westerly, RI	PWR 1,194	1979 Under CP Review 05000568 & 569
New Haven 1 & 2 New York State Electric & Gas Corporation 3 miles NW of New Haven, NY	PWR 1,250	1980 Under CP Review 05000596 & 597
North Anna 3 Virginia Electric & Power Company 40 miles NW of Richmond, VA	PWR 907	1982 With CP 05000404
North Anna 4 Virginia Electric & Power Company 40 miles NW of Richmond, VA	PWR 907	1980 With CP 05000405
North Coast 1 Puerto Rico Water Resources Authority 4.7 miles ESE of Salinas, PR	PWR 583	1978 Under CP Review 05000376
Palo Verde 4 & 5 Arizona Public Service Company 36 miles W of Phoenix, AZ	PWR 1,270	1979 Under CP Review 05000592 & 593
Pebble Springs 1 & 2 Portland General Electric Company 55 miles WSW of Tri-Cities (Kenewick-Pasco-Richland, WA), OR	PWR 1,260	1982 Under CP Review 05000514 & 515

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX D

Canceled Commercial Nuclear Power Reactors

Part 50—Domestic Licensing of Production and Utilization Facilities (continued)

Unit Utility Location	Con Type MWe per Unit	Canceled Date Status Docket Number
Perkins 1, 2, & 3 Duke Power Company 10 miles N of Salisbury, NC	PWR 1,280	1982 Under CP Review 05000488 & 489 & 490
Perry 2 Cleveland Electric Illuminating Co. 35 miles NE of Cleveland, OH	BWR 1,205	1994 Under CP Review 05000441
Phipps Bend 1 & 2 Tennessee Valley Authority 15 miles SW of Kingsport, TN	BWR 1,220	1982 With CP 05000553 & 554
Pilgrim 2 Boston Edison Company 4 miles SE of Plymouth, MA	PWR 1,180	1981 Under CP Review 05000471
Pilgrim 3 Boston Edison Company 4 miles SE of Plymouth, MA	PWR 1,180	1974 Under CP Review 05000472
Quanicassee 1 & 2 Consumers Power Company 6 miles E of Essexville, MI	PWR 1,150	1974 Under CP Review 05000475 & 476
River Bend 2 Gulf States Utilities Company 24 miles NNW of Baton Rouge, LA	BWR 934	1984 With CP 05000459
Seabrook 2 Public Service Co. of New Hampshire 13 miles S of Portsmouth, NH	PWR 1,198	1988 With CP 05000444
Shearon Harris 2 Carolina Power & Light Company 20 miles SW of Raleigh, NC	PWR 900	1983 With CP 05000401
Shearon Harris 3 & 4 Carolina Power & Light Company 20 miles SW of Raleigh, NC	PWR 900	1981 With CP 05000402 & 403
Skagit/Hanford 1 & 2 Puget Sound Power & Light Company 23 miles SE of Bellingham, WA	PWR 1,277	1983 Under CP Review 05000522 & 523
Sterling Rochester Gas & Electric Corporation 50 miles E of Rochester, NY	PWR 1,150	1980 With CP 05000485
Summit 1 & 2 Delmarva Power & Light Company 15 miles SSW of Wilmington, DE	HTG 1,200	1975 Under CP Review 05000450 & 451

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX D

Canceled Commercial Nuclear Power Reactors

Part 50—Domestic Licensing of Production and Utilization Facilities (continued)

Unit Utility Location	Con Type MWe per Unit	Canceled Date Status Docket Number
Sundesert 1 & 2 San Diego Gas & Electric Company 16 miles SW of Blythe, CA	PWR 974	1978 Under CP Review 05000582 & 583
Surry 3 & 4 Virginia Electric & Power Company 17 miles NW of Newport News, VA	PWR 882	1977 With CP 05000434 & 435
Tyrone 1 Northern States Power Company 8 miles NE of Durond, WI	PWR 1,150	1981 Under CP Review 05000484
Tyrone 2 Northern States Power Company 8 miles NE of Durond, WI	PWR 1,150	1974 With CP 05000487
Vogtle 3 & 4 Georgia Power Company 26 miles SE of Augusta, GA	PWR 1,113	1974 With CP 050000426 & 427
Washington Nuclear 1 (WPPSS) Energy Northwest 10 miles E of Aberdeen, WA	PWR 1,266	1995 With CP 05000460
Washington Nuclear 3 (WPPSS) Energy Northwest 16 miles E of Aberdeen, WA	PWR 1,242	1995 With CP 05000508
Washington Nuclear 4 (WPPSS) Energy Northwest 10 miles E of Aberdeen, WA	PWR 1,218	1982 With CP 05000513
Washington Nuclear 5 (WPPSS) Energy Northwest 16 miles E of Aberdeen, WA	PWR 1,242	1982 With CP 05000509
Yellow Creek 1 & 2 Tennessee Valley Authority 15 miles E of Corinth, MS	BWR 1,285	1984 With CP 05000566 & 567
Zimmer 1 Cincinnati Gas & Electric Company 25 miles SE of Cincinnati, OH	BWR 810	1984 With CP 05000358

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX D

Canceled Commercial Nuclear Power Reactors

Part 50—Domestic Licensing of Production and Utilization Facilities (continued)

Unit Utility Location	Con Type MWe per Unit	Canceled Date Status Docket Number
Calvert Cliffs, Unit 3 LLC and UniStar Nuclear Operating Services, LLC Near Lusby in Calvert County, Maryland	U.S. EPR 4,500	July 17, 2015 Withdrawn during COL Review 05200016
Victoria County Station, Units 1 and 2 Exelon Nuclear Texas Holdings, LLC near Victoria City in Victoria County, Texas	ESBWR 4,500	June 11, 2010 Withdrawn during COL Review 05200031 & 05200032
Grand Gulf, Unit 3 Entergy Operations, Inc. (EOI) near Port Gibson in Claiborne County, Mississippi	ESBWR 4,500	January 9, 2009 Withdrawn during COL Review 05200024
Nine Mile Point, Unit 3 LLC and UniStar Nuclear Operating Services, LLC 25 miles SE of Cincinnati, OH	ESBWR 4,500	January 9, 2009 Withdrawn during COL Review 05000358

Notes:

Cancelation is defined as public announcement of cancellation or written notification to the NRC. Only NRC-docketed applications are included. "Status" is the status of the application at the time of cancellation.

Data as of July 2015, and the next printed update will be August 2017.

Withdrawal was requested for Calvert Cliffs, Grand Gulf, Nine Mile Point, Victoria County, and Callaway (COL and ESP). NRC-abbreviated reactor names listed.

Source: DOE/EIA Commercial Nuclear Power 1991 (DOE/EIA-0438), Appendix E (page 105), and the NRC.

APPENDIX E

Commercial Nuclear Power Reactors by Parent Company

Utility	NRC-Abbreviated Reactor Unit Name
AmerenUE www.ameren.com	Callaway*
Arizona Public Service Company www.aps.com	Palo Verde 1, 2, & 3*
DTE Electric Company www.dteenergy.com	Fermi 2
Dominion Generation www.dom.com	Millstone 2 & 3 North Anna 1 & 2 Surry 1 & 2
Duke Energy www.duke-energy.com	Brunswick 1 & 2 Catawba 1 & 2 Harris 1 McGuire 1 & 2 Oconee 1, 2, & 3 Robinson 2
Energy Northwest www.energy-northwest.com	Columbia
Entergy Nuclear Operations, Inc. www.entergy-nuclear.com	Arkansas Nuclear One 1 & 2 FitzPatrick Grand Gulf 1 Indian Point 2 & 3 Palisades Pilgrim 1 River Bend 1 Waterford 3
Exelon Corporation, LLC www.exeloncorp.com	Braidwood 1 & 2 Byron 1 & 2 Calvert Cliffs 1 & 2 Clinton Dresden 2 & 3 Ginna LaSalle 1 & 2 Limerick 1 & 2 Nine Mile Point 1 & 2 Oyster Creek Peach Bottom 2 & 3 Quad Cities 1 & 2 Three Mile Island 1
First Energy Nuclear Operating Company www.firstenergycorp.com	Beaver Valley 1 & 2 Davis-Besse Perry 1

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX E

Commercial Nuclear Power Reactors by Parent Company (continued)

Utility	NRC-Abbreviated Reactor Unit Name
NextEra Energy, Inc. with principal subsidiaries Florida Power & Light Co. and NextEra Energy Resources, LLC www.fplgroup.com	Duane Arnold Point Beach 1 & 2 Seabrook 1 St. Lucie 1 & 2 Turkey Point 3 & 4
Indiana Michigan Power Company www.indianamichiganpower.com	Cook 1 & 2
Luminant Generation Company, LLC www.luminant.com	Comanche Peak 1 & 2*
Nebraska Public Power District www.nppd.com	Cooper
Northern States Power Company Minnesota doing business as Xcel Energy www.xcelenergy.com	Monticello Prairie Island 1 & 2
Omaha Public Power District www.oppd.com	Fort Calhoun
Pacific Gas & Electric Company www.pge.com	Diablo Canyon 1 & 2*
Talen Energy Corp. www.talenenergy.com	Susquehanna 1 & 2
PSEG Nuclear, LLC www.pseg.com	Hope Creek 1 Salem 1 & 2
South Carolina Electric & Gas Company www.sceg.com	Summer
Southern Nuclear Operating Company www.southerncompany.com	Hatch 1 & 2 Farley 1 & 2 Vogtle 1 & 2
STP Nuclear Operating Company www.stpegs.com	South Texas Project 1 & 2*
Tennessee Valley Authority www.tva.gov	Browns Ferry 1, 2, & 3 Sequoyah 1 & 2 Watts Bar 1
Wolf Creek Nuclear Operating Corporation www.wcnoc.com	Wolf Creek 1*

* These plants have a joint program called the Strategic Teaming and Resource Sharing group. They share resources for refueling outages and develop some shared licensing applications.

Note: Data as of July 2015, and the next printed update will be August 2017.

APPENDIX F

Commercial Nuclear Power Reactor Operating Licenses—Issued by Year

1969 Dresden 2
Ginna
Nine Mile Point 1
Oyster Creek

1970 Point Beach 1
Robinson 2

1971 Dresden 3
Monticello

1972 Palisades
Pilgrim
Quad Cities 1
Quad Cities 2
Surry 1
Turkey Point 3

1973 Browns Ferry 1
Fort Calhoun
Indian Point 2
Oconee 1
Oconee 2
Peach Bottom 2
Point Beach 2
Surry 2
Turkey Point 4

1974 Arkansas Nuclear 1
Browns Ferry 2
Brunswick 2
Calvert Cliffs 1
Cooper
Cook 1
Duane Arnold
FitzPatrick
Hatch 1
Oconee 3
Peach Bottom 3
Prairie Island 1
Prairie Island 2
Three Mile Island 1

1975 Millstone 2

1976 Beaver Valley 1
Browns Ferry 3
Brunswick 1
Calvert Cliffs 2
Indian Point 3
Salem 1
St. Lucie 1

1977 Davis-Besse
D.C. Cook 2
Farley 1

1978 Arkansas Nuclear 2
Hatch 2
North Anna 1

1980 North Anna 2
Sequoyah 1

1981 Farley 2
McGuire 1
Salem 2
Sequoyah 2

1982 LaSalle 1
Summer
Susquehanna 1

1983 McGuire 2
St. Lucie 2

1984 Callaway
Columbia
Diablo Canyon 1
Grand Gulf 1
LaSalle 2
Susquehanna 2

1985 Byron 1
Catawba 1
Diablo Canyon 2
Fermi 2
Limerick 1
Palo Verde 1
River Bend 1
Waterford 3
Wolf Creek 1

1986 Catawba 2
Hope Creek 1
Millstone 3
Palo Verde 2
Perry 1

1987 Beaver Valley 2
Braidwood 1
Byron 2
Clinton
Harris 1
Nine Mile Point 2
Palo Verde 3
Vogtle 1

1988 Braidwood 2
South Texas Project 1

1989 Limerick 2
South Texas Project 2
Vogtle 2

1990 Comanche Peak 1
Seabrook 1

1993 Comanche Peak 2

1996 Watts Bar 1

Note: This list is limited to reactors licensed to operate. Year is based on the date the initial full-power operating license was issued. NRC-abbreviated reactor names are listed. Data as of July 2015, and the next printed update will be August 2017.

APPENDIX G

Commercial Nuclear Power Reactor Operating Licenses—Expiration by Year, 2013–2049

2013 Indian Point 2

2015 Indian Point 3

2017 Davis-Besse

2020 Sequoyah 1

2021 Sequoyah 2

2022 LaSalle 1

2023 LaSalle 2

2024 Byron 1
Diablo Canyon 1
Grand Gulf 1
Limerick 1
Waterford 3

2025 Diablo Canyon 2
Fermi 2
River Bend 1

2026 Braidwood 1
Byron 2
Clinton
Perry

2027 Braidwood 2
South Texas Project 1

2028 South Texas Project 2

2029 Dresden 2
Ginna
Limerick 2
Nine Mile Point 1
Oyster Creek

2030 Comanche Peak 1
Monticello
Point Beach 1
Robinson 2
Seabrook

2031 Dresden 3
Palisades

2032 Pilgrim
Quad Cities 1
Quad Cities 2
Surry 1
Turkey Point 3

2033 Browns Ferry 1
Comanche Peak 2
Fort Calhoun
Oconee 1
Oconee 2
Peach Bottom 2
Point Beach 2
Prairie Island 1
Surry 2
Turkey Point 4

2034 Arkansas Nuclear 1
Browns Ferry 2
Brunswick 2
Calvert Cliffs 1
Cook 1
Cooper
Duane Arnold
Hatch 1
FitzPatrick
Oconee 3
Peach Bottom 3
Prairie Island 2
Three Mile Island 1

2035 Millstone 2
Watts Bar 1

2036 Beaver Valley 1
Browns Ferry 3
Brunswick 1
Calvert Cliffs 2
St. Lucie 1
Salem 1

2037 Cook 2
Farley 1

2038 Arkansas Nuclear 2
Hatch 2
North Anna 1

2040 North Anna 2
Salem 2

2041 Farley 2
McGuire 1

2042 Summer
Susquehanna 1

2043 Catawba 1
Catawba 2
Columbia
McGuire 2
St. Lucie 2

2044 Susquehanna 2
Callaway

2045 Millstone 3
Palo Verde 1
Wolf Creek 1

2046 Nine Mile Point 2
Harris 1
Hope Creek
Palo Verde 2

2047 Beaver Valley 2
Palo Verde 3
Vogtle 1

2049 Vogtle 2

Note: This list includes Indian Point 2, which entered timely renewal on Sept. 29, 2013. Limited to reactors licensed to operate. NRC-abbreviated reactor names listed. Data as of July 2015, and the next printed update will be August 2017.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

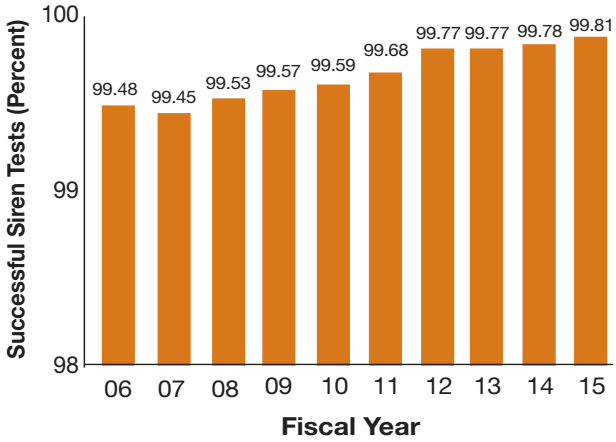
APPENDIX H

Industry Performance Indicators: Industry Averages, FYs 2006–2015

Indicator	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Alert and Notification	99.48	99.45	99.53	99.57	99.59	99.68	99.77	99.77	99.78	99.81
Automatic Scrams	0.32	0.48	0.29	0.36	0.44	0.45	0.30	0.38	0.39	0.38
Collective Radiation Exposure	93	109	96	87	91	90	72	77	70	68
Drill/Exercise Performance	96.06	96.19	96.22	97.06	96.89	97.30	97.51	97.47	97.86	98.21
Equipment-Forced Outage Rate	0.10	0.11	0.08	0.09	0.10	0.09	0.09	0.08	0.10	0.08
ERO Drill Participation	97.89	97.55	98.16	98.65	98.77	99.43	99.33	99.46	99.71	99.84
Forced Outage Rate	1.47	1.41	1.34	2.21	1.74	1.80	2.77	2.98	1.27	1.1
Safety System Actuations	0.22	0.25	0.14	0.23	0.18	0.19	0.17	0.29	0.20	0.15
Safety System Failures	0.60	0.66	0.71	0.71	0.88	0.90	0.85	0.93	0.85	0.92
Significant Events	0.03	0.02	0.03	0.02	0.10	0.13	0.10	0.07	0.03	0.01

Note: Data as of July 2015, and the next printed update will be August 2017.

Alert and Notification System (ANS) Reliability



This figure shows the percentage of ANS sirens that successfully operated during periodic tests in the previous year. The result is an indicator of the reliability of the ANS to alert the public in an emergency.

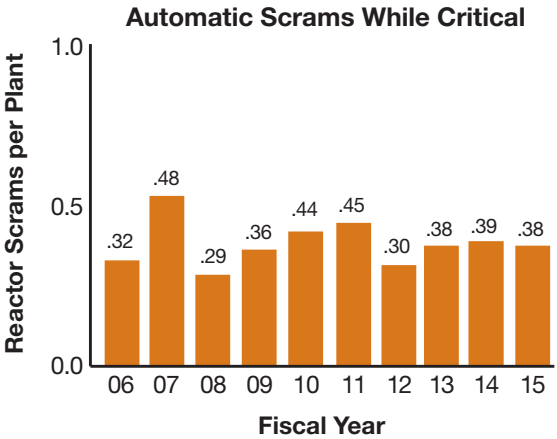
Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX H

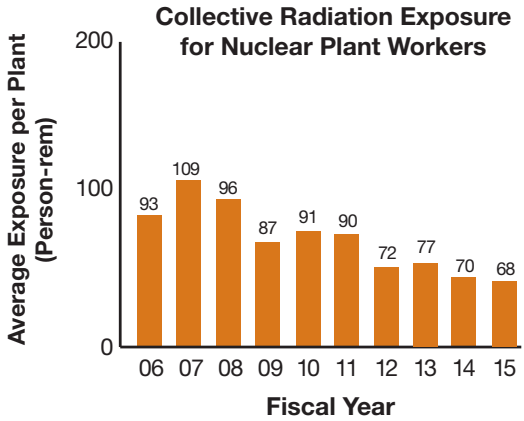
Industry Performance Indicators: Industry Averages, FYs 2006–2015 (continued)



A reactor is considered "critical" when it achieves a self-sustaining nuclear chain reaction, such as when the reactor is operating. The sudden shutting down of a nuclear reactor by the rapid insertion of control rods, either automatically or manually by the reactor operator, is referred to as a "scram." This indicator measures the number of unplanned automatic scrams that occurred while the reactor was critical.

Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC



This indicator monitors the total radiation dose accumulated by plant personnel.

Further Explanation:
In 2015, those workers receiving a measurable dose of radiation received an average of about 0.1 rem. For comparison purposes, the average U.S. citizen receives 0.3 rem of radiation each year from natural sources (i.e., the everyday environment). See the definition of "exposure" in the Glossary.

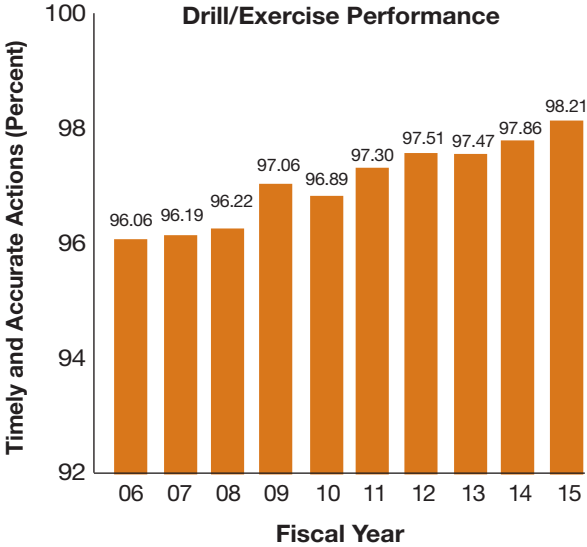
Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX H

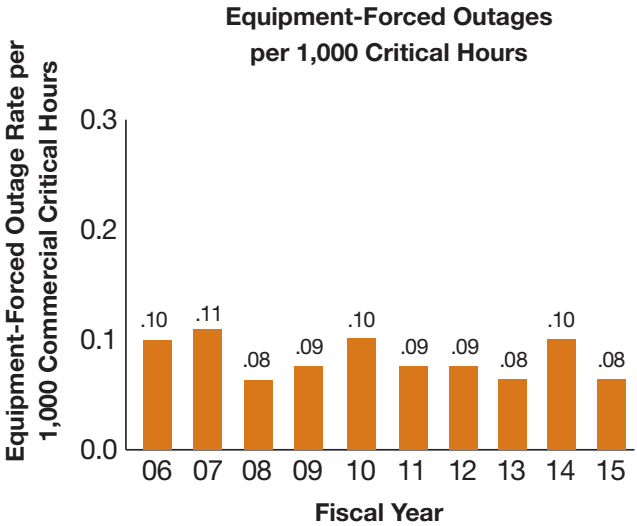
Industry Performance Indicators: Industry Averages, FYs 2006–2015 (continued)



This indicator is the percentage of timely and accurate actions taken by plant personnel (emergency classifications, protective action recommendations, and notification to offsite authorities) in drills and actual events during the previous 2 years.

Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC



This indicator is the number of times the plant is forced to shut down because of equipment failures for every 1,000 hours that the plant is in operation and transmitting electricity.

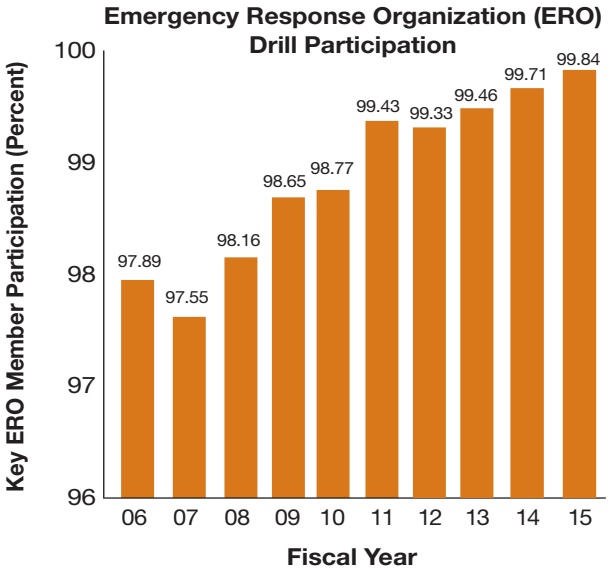
Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX H

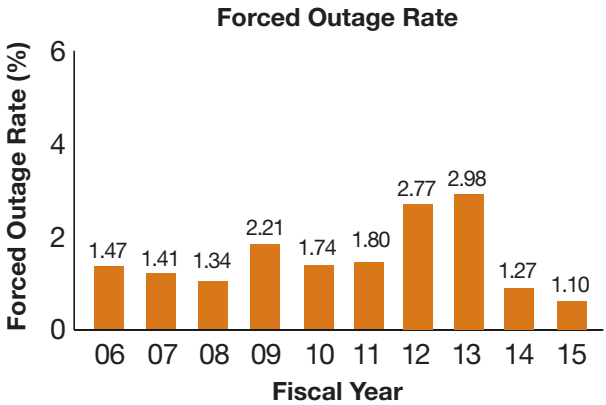
Industry Performance Indicators: Industry Averages, FYs 2006–2015 (continued)



This indicator is the percentage of participation by key plant personnel in drills or actual events in the previous 2 years, indicating proficiency and readiness to respond to emergencies.

Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC



The forced outage rate is the number of hours that the plant is unable to operate (forced outage hours) divided by the sum of the hours that the plant is generating and transmitting electricity (unit service hours) and the hours that the plant is unable to operate (forced outage hours).

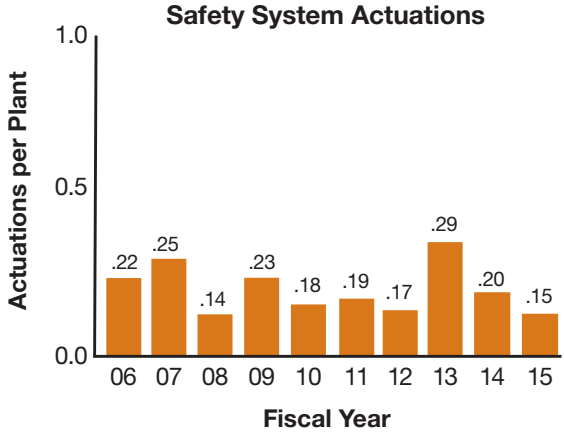
Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX H

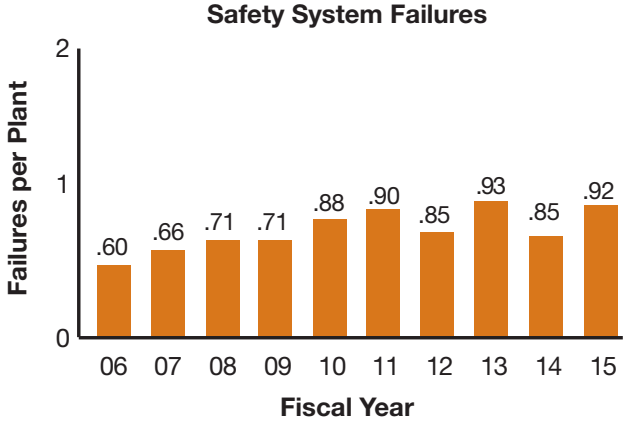
Industry Performance Indicators: Industry Averages, FYs 2006–2015 (continued)



Safety system actuations are certain manual or automatic actions taken to start emergency core cooling systems or emergency power systems. These systems are specifically designed to either remove heat from the reactor fuel rods if the normal core cooling system fails or to provide emergency electrical power if the normal electrical systems fail.

Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC



Safety system failures are any actual failures, events, or conditions that could prevent a system from performing its required safety function.

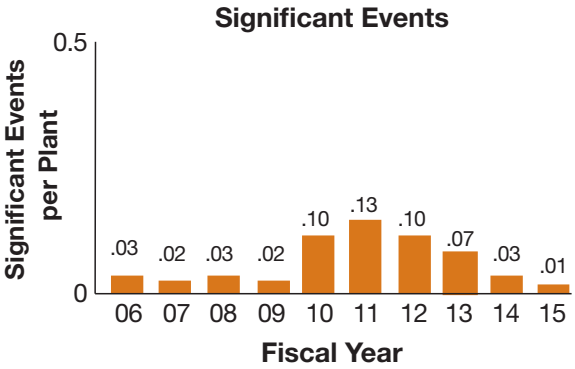
Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX H

Industry Performance Indicators: Industry Averages, FYs 2006–2015 (continued)



Significant events are events that meet specific NRC criteria—for example, degradation of safety equipment, a sudden reactor shutdown with complications, or an unexpected response to a sudden degradation of fuel or pressure boundaries. The NRC staff identifies significant events through detailed screening and evaluation of operating experience.

Note: Data represents annual industry averages for operating reactors. The data is continuously updated to incorporate recent information and any subsequent changes in the analysis.

Source: Licensee data as compiled by the NRC

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX I

Operating Nuclear Research and Test Reactors Regulated by the NRC

Licensee Location	Reactor Type OL Issued	Power Level (kW)	Licensee Number Docket Number
Aerotest* San Ramon, CA	TRIGA (Indus) 07/02/1965	250	R-98 05000228
Armed Forces Radiobiology Research Institute Bethesda, MD	TRIGA 06/26/1962	1,100	R-84 05000170
Dow Chemical Company Midland, MI	TRIGA 07/03/1967	300	R-108 05000264
GE-Hitachi Sunol, CA	Tank 10/31/1957	100	R-33 05000073
Idaho State University Pocatello, ID	AGN-201 #103 10/11/1967	0.005	R-110 05000284
Kansas State University Manhattan, KS	TRIGA 10/16/1962	250	R-88 05000188
Massachusetts Institute of Technology Cambridge, MA	HWR Reflected 06/09/1958	6,000	R-37 05000020
Missouri University of Science and Technology Rolla, MO	Pool 11/21/1961	200	R-79 05000123
National Institute of Standards & Technology Gaithersburg, MD	Nuclear Test 05/21/1970	20,000	TR-5 05000184
North Carolina State University Raleigh, NC	Pulstar 08/25/1972	1,000	R-120 05000297
Ohio State University Columbus, OH	Pool 02/24/1961	500	R-75 05000150
Oregon State University Corvallis, OR	TRIGA Mark II 03/07/1967	1,100	R-106 05000243
Pennsylvania State University State College, PA	TRIGA 07/08/1955	1,100	R-2 05000005
Purdue University West Lafayette, IN	Lockheed 08/16/1962	1	R-87 05000182
Reed College Portland, OR	TRIGA Mark I 07/02/1968	250	R-112 05000288

* Permanent shutdown ordered July 24, 2013.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX I

Operating Nuclear Research and Test Reactors Regulated by the NRC (continued)

Licensee Location	Reactor Type OL Issued	Power Level (kW)	Licensee Number Docket Number
Rensselaer Polytechnic Institute Troy, NY	Critical Assembly 07/03/1964	0.1	CX-22 05000225
Rhode Island Atomic Energy Commission Narragansett, RI	GE Pool 07/23/1964	2,000	R-95 05000193
Texas A&M University College Station, TX	AGN-201M #106 08/26/1957	0.005	R-23 05000059
Texas A&M University College Station, TX	TRIGA 12/07/1961	1,000	R-83 05000128
U.S. Geological Survey Denver, CO	TRIGA Mark I 02/24/1969	1,000	R-113 05000274
University of California/Davis Sacramento, CA	TRIGA 08/13/1998	2,300	R-130 05000607
University of California/Irvine Irvine, CA	TRIGA Mark I 11/24/1969	250	R-116 05000326
University of Florida Gainesville, FL	Argonaut 05/21/1959	100	R-56 05000083
University of Maryland College Park, MD	TRIGA 10/14/1960	250	R-70 05000166
University of Massachusetts/Lowell Lowell, MA	GE Pool 12/24/1974	1,000	R-125 05000223
University of Missouri/Columbia Columbia, MO	Tank 10/11/1966	10,000	R-103 05000186
University of New Mexico Albuquerque, NM	AGN-201M #112 09/17/1966	0.005	R-102 05000252
University of Texas Austin, TX	TRIGA Mark II 01/17/1992	1,100	R-129 05000602
University of Utah Salt Lake City, UT	TRIGA Mark I 09/30/1975	100	R-126 05000407
University of Wisconsin Madison, WI	TRIGA 11/23/1960	1,000	R-74 05000156
Washington State University Pullman, WA	TRIGA 03/06/1961	1,000	R-76 05000027

Note: Data as of July 2015, and the next printed update will be August 2017.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX J

Nuclear Research and Test Reactors under Decommissioning Regulated by the NRC

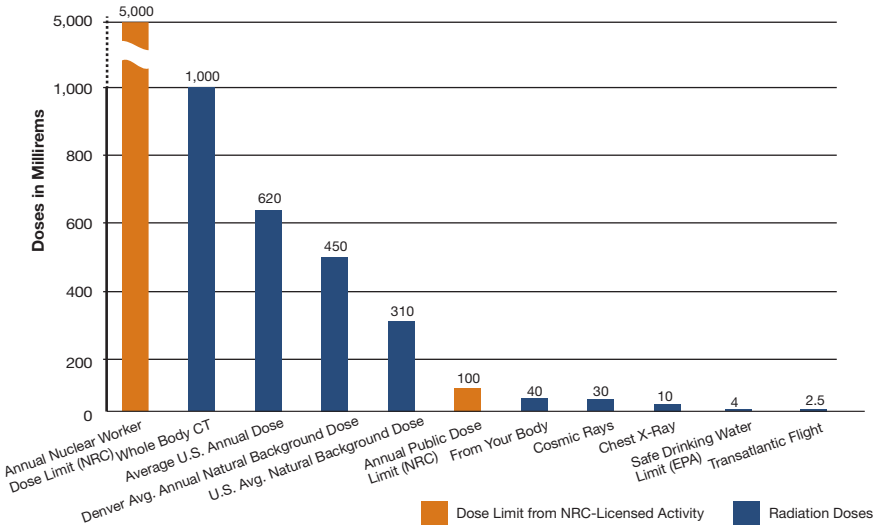
Licensee Location	Reactor Type Power Level (kW)	OL Issued Shutdown
General Atomics San Diego, CA	TRIGA Mark F 1,500	07/01/60 09/07/94
General Atomics San Diego, CA	TRIGA Mark I 250	05/03/58 12/17/96
General Electric Company Sunol, CA	GETR (Tank) 50,000	01/07/59 06/26/85
University of Buffalo Buffalo, NY	Pulstar 2,000	03/24/61 07/23/96
Veterans Administration* Omaha, NE	TRIGA 20	06/26/59 11/05/01

* License terminated as of August 1, 2016.

Note: Data as of July 2015, and the next printed update will be August 2017.

APPENDIX K

Radiation Doses and Regulatory Limits



For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX L

Materials Licenses by State

State	Number of Licenses NRC	Number of Licenses Agreement States
Alabama	16	425
Alaska	69	0
Arizona	10	358
Arkansas	9	192
California	72	1,789
Colorado	17	335
Connecticut	157	0
Delaware	49	0
District of Columbia	37	0
Florida	25	1,648
Georgia	24	465
Hawaii	55	0
Idaho	71	0
Illinois	31	647
Indiana	252	0
Iowa	2	162
Kansas	15	280
Kentucky	12	388
Louisiana	11	509
Maine	3	111
Maryland	85	539
Massachusetts	35	444
Michigan	466	0
Minnesota	15	166
Mississippi	9	307
Missouri	256	0
Montana	86	0
Nebraska	10	145
Nevada	2	244
New Hampshire	8	80
New Jersey	37	637
New Mexico	11	202
New York	28	1,341
North Carolina	24	615
North Dakota	6	102
Ohio	44	610
Oklahoma	19	224
Oregon	6	396
Pennsylvania	50	665
Rhode Island	1	43
South Carolina	15	396
South Dakota	39	0
Tennessee	25	553
Texas	49	1,571
Utah	10	185
Vermont	33	0
Virginia	61	401
Washington	17	357
West Virginia	172	0
Wisconsin	11	305
Wyoming	88	0
Puerto Rico	131	0
Virgin Islands	9	0
Guam	5	0

Total number of materials licenses in Agreement State jurisdiction	17,837
Total number of materials licenses in NRC jurisdiction	2,800
Total number of materials licenses in the United States	20,637

Agreement State Letter of intent

Note: The NRC and Agreement State data is as of November 2014. These totals represent an estimate because the number of specific radioactive materials licenses per State may change on a daily basis. Data as of July 2015. Next publish release date August 2017.

The NRC licenses Federal agencies in Agreement States.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX M

Major U.S. Fuel Cycle Facility Sites

Licensee	Location	Status	Docket #
Uranium Hexafluoride Conversion Facility			
Honeywell International, Inc.	Metropolis, IL	active	04003392
Uranium Fuel Fabrication Facilities			
Global Nuclear Fuel-Americas, LLC	Wilmington, NC	active	07001139
Westinghouse Electric Company, LLC Columbia Fuel Fabrication Facility	Columbia, SC	active	07109239
Nuclear Fuel Services, Inc.	Erwin, TN	active	07000143
Babcock & Wilcox Nuclear Operations Group	Lynchburg, VA	active	07000027
AREVA, Inc.	Richland, WA	active	07001257
Mixed Oxide Fuel Fabrication Facility			
Shaw AREVA MOX Services, LLC	Aiken, SC	under construction (operating license under review)	07003098
Gaseous Diffusion Uranium Enrichment Facilities			
USEC, United States Enrichment Corp. Paducah Gaseous Diffusion Plant	Paducah, KY	shut down, certificate termination pending	07007001
Gas Centrifuge Uranium Enrichment Facilities			
USEC, American Centrifuge Operating, LLC Lead Cascade: Test and Demonstration Facility	Piketon, OH	active	07007003
USEC, American Centrifuge Operating, LLC American Centrifuge Plant	Piketon, OH	license issued, construction halted	07007004
Louisiana Energy Services (URENCO-USA)	Eunice, NM	active*	07003103
AREVA Enrichment Services, LLC Eagle Rock Enrichment Facilities	Idaho Falls, ID	license issued, construction not started	07007015
Laser Separation Enrichment Facility			
GE-Hitachi	Wilmington, NC	license issued, construction not started	07007016
Uranium Hexafluoride Deconversion Facility			
International Isotopes	Hobbs, NM (Lea County)	license issued, construction not started	04009086

* Operating and producing enriched uranium while undergoing further phases of construction.

Note: Data as of July 2015, and the next printed update will be August 2017.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX N

Dry Spent Fuel Storage Designs: NRC-Approved for Use by General Licensees

Vendor	Docket #	Storage Design Model
General Nuclear Systems, Inc.	07201000	CASTOR V/21 CASTOR X/33
NAC International, Inc.	07201002 07201003 07201015 07201025 07201031 07201013	NAC S/T NAC-C28 S/T NAC-UMS NAC-MPC Magnastor NAC-STC
Holtec International	07201008 07201014 07201032 07201040	HI-STAR 100 HI-STORM 100 HI-STORM FW HI-STORM UMAX
EnergySolutions, Inc.	07201007 07201026	VSC-24 Fuel Solutions™ (WSNF-220, -221, -223) W-150 Storage Cask W-100 Transfer Cask W-21, W-74 Canisters
Transnuclear, Inc.	07201005 07201027 07201021 07201004 07201029 07201030 07201022	TN-24 TN-68 TN-32, 32A, 32B Standardized NUHOMS®-24P, -24PHB, -24PTH, -32PT, -32PTH1, -37PTH, -52B, -61BT, -61BTH, -69BTH Standardized Advanced NUHOMS®-24PT1, -24PT4 NUHOMS® HD-32PTH NUHOMS®-7P

Note: Data as of July 2015, and the next printed update will be August 2017.

(See latest list on the NRC Web site at www.nrc.gov/waste/spent-fuel-storage/designs.html.)

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX O

Dry Cask Spent Fuel Storage Licensees

Name Licensee	License Type	Vendor	Storage Model	Docket Number
Arkansas Nuclear Entergy Nuclear Operations, Inc.	GL	Energy Solutions, Inc. Holtec International	VSC-24 HI-STORM 100	07200013
Beaver Valley	GL	Transnuclear, Inc	NUHOMS®-37PTH	07201043
Big Rock Point Entergy Nuclear Operations, Inc.	GL	Energy Solutions, Inc.	Fuel Solutions™	07200043 W74
Braidwood Exelon Generation Co., LLC	GL	Holtec International	HI-STORM 100	07200073
Browns Ferry Tennessee Valley Authority	GL	Holtec International	HI-STORM 100S	07200052
Brunswick Carolina Power Co.	GL	Transnuclear, Inc.	NUHOMS®-HD-61BTH	07200006
Byron Exelon Generation Co., LLC	GL	Holtec International	HI-STORM 100	07200068
Callaway	GL	Holtec International	HI-STORM UMAX	07201045
Calvert Cliffs Calvert Cliffs Nuclear Power Plant, Inc.	SL	Transnuclear, Inc.	NUHOMS®-24P NUHOMS®-32P	07200008
Catawba Duke Energy Carolinas, LLC	GL	NAC International, Inc.	NAC-UMS	07200045
Columbia Generating Station Energy Northwest	GL	Holtec International	HI-STORM 100	07200035
Comanche Peak Luminant Generation Company, LLC	GL	Holtec International	HI-STORM 100	07200074
Cook Indiana/Michigan Power	GL	Holtec International	HI-STORM	07200072
Cooper Nuclear Station Nebraska Public Power District	GL	Transnuclear, Inc.	NUHOMS®-61BT	07200066
Davis-Besse FirstEnergy Nuclear Operating Company	GL	Transnuclear, Inc.	NUHOMS®-24P	07200014
Diablo Canyon Pacific Gas & Electric Co.	SL	Holtec International	HI-STORM 100	07200026
Dresden Exelon Generation Company, LLC	GL	Holtec International	HI-STAR 100 HI-STORM 100	07200037
Duane Arnold Next Era Energy Duane Arnold, LLC.	GL	Transnuclear, Inc.	NUHOMS®-61BT	07200032
Fermi	GL	Holtec International	HI-STORM 100	07200071

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX O

Dry Cask Spent Fuel Storage Licensees (continued)

Name Licensee	License Type	Vendor	Storage Model	Docket Number
Fort Calhoun Omaha Public Power District	GL	Transnuclear, Inc.	NUHOMS®-32PT	07200054
Fort St. Vrain* U.S. Department of Energy	SL	FW Energy Applications, Inc.	Modular Vault Dry Store	07200009
Ginna Constellation Energy	GL	Transnuclear, Inc.	NUHOMS®-32PT	07200067
Grand Gulf Entergy Nuclear Operations, Inc.	GL	Holtec International	HI-STORM 100S	07200050
H.B. Robinson Carolina Power & Light Company	SL GL	Transnuclear, Inc. Transnuclear, Inc.	NUHOMS®-7P NUHOMS®-24P	07200003 07200060
Haddam Neck CT Yankee Atomic Power	GL	NAC International, Inc.	NAC-MPC	07200039
Hatch Southern Nuclear Operating, Inc.	GL	Holtec International	HI-STAR 100 HI-STAR 100	07200036
Hope Creek/Salem PSEG Nuclear, LLC	GL	Holtec International	HI-STORM 100	07200048
Humboldt Bay Pacific Gas & Electric Co.	SL	Holtec International	HI-STORM 100HB	07200027
Idaho National Lab TMI-2 Fuel Debris, U.S. Department of Energy	SL	Transnuclear, Inc.	NUHOMS®-12T	07200020
Idaho Spent Fuel Facility Environmental Corp.	SL	Foster Wheeler	Concrete Vault	07200025
Indian Point Entergy Nuclear Operations, Inc.	GL	Holtec International	HI-STORM 100	07200051
James A. FitzPatrick Entergy Nuclear Operations, Inc.	GL	Holtec International	HI-STORM 100	07200012
Joseph M. Farley Southern Nuclear Operating Co.	GL	Transnuclear, Inc.	NUHOMS®-32PT	07200042
Kewaunee Northern States Power Co., Minnesota	GL	Transnuclear, Inc.	NUHOMS®-39PT	07200064
La Salle Exelon Generation Co., LLC	GL	Holtec International	HI-STORM100	07200070
Lacrosse Dairyland Power	GL	NAC International, Inc.	NAC-MPC	07200046
Limerick Exelon Generation Co., LLC	GL	Transnuclear, Inc.	NUHOMS®-61BT	07200065

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX O

Dry Cask Spent Fuel Storage Licensees (continued)

Name Licensee	License Type	Vendor	Storage Model	Docket Number
Maine Yankee Maine Yankee Atomic Power Company	GL	NAC International, Inc.	NAC-UMS	07200030
McGuire Duke Energy, LLC	GL	Transnuclear, Inc.	TN-32	07200038
Millstone Dominion Generation	GL	Transnuclear, Inc.	NUHOMS®-32PT	07200047
Monticello Northern States Power Co., Minnesota	GL	Transnuclear, Inc.	NUHOMS®-61BT NUHOMS®-61BTH	07200058
Nine Mile Point Constellation Energy	GL	Transnuclear, Inc	NUHOMS®-61BT	07201036
North Anna Virginia Electric & Power Company (Dominion Gen.)	SL GL	Transnuclear, Inc. Transnuclear, Inc.	TN-32 NUHOMS®HD32PTH	07200016 07200056
Oconee Duke Energy Company	SL GL	Transnuclear, Inc. Transnuclear, Inc.	NUHOMS®-24P NUHOMS®-24P	07200004 07200040
Oyster Creek AmerGen Energy Company, LLC.	GL	Transnuclear, Inc.	NUHOMS®-61BT	07200015
Palisades Entergy Nuclear Operations, Inc.	GL	EnergySolutions, Inc.	VSC-24 NUHOMS®-32PT	07200007
Palo Verde Arizona Public Service Co.	GL	NAC International, Inc.	NAC-UMS	07200044
Peach Bottom Exelon Generation Company, LLC	GL	Transnuclear, Inc.	TN-68	07200029
Perry FirstEnergy	GL	Holtec International	HI-STORM	07200069
Pilgrim	GL	Holtec International	HI-STORM 100	07201044
Point Beach FLP Energy Point Beach, LLC	GL	EnergySolutions, Inc.	VSC-24 NUHOMS®-32PT	07200005
Prairie Island Northern States Power Co., Minnesota	SL	Transnuclear, Inc.	TN-40 HT TN-40	07200010
Private Fuel Storage Facility	SL	Holtec International	HI-STORM 100	07200022
Quad Cities Exelon Generation Company, LLC	GL	Holtec International	HI-STORM 100S	07200053
Rancho Seco Sacramento Municipal Utility District	SL	Transnuclear, Inc.	NUHOMS®-24P	07200011

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX O

Dry Cask Spent Fuel Storage Licensees (continued)

Name Licensee	License Type	Vendor	Storage Model	Docket Number
River Bend Entergy Nuclear Operations, Inc.	GL	Holtec International	HI-STORM 100S	07200049
Salem PSEG Nuclear	GL	Holtec International	HI-STORM	07200048
San Onofre Southern California Edison Company	GL	Transnuclear, Inc.	NUHOMS®-24PT	07200041
Seabrook FPL Energy	GL	Transnuclear, Inc.	NUHOMS®-HD-32PTH	07200061
Sequoyah Tennessee Valley Authority	GL	Holtec International	HI-STORM 100	07200034
St. Lucie Florida Power and Light Company	GL	Transnuclear, Inc.	NUHOMS®-HD-32PTH	07200061
Surry Virginia Electric & Power Company (Dominion Gen.)	SL GL	General Nuclear Systems, Inc. Transnuclear, Inc. General Nuclear Westinghouse, Inc. Transnuclear, Inc.	CASTOR V/21 TN-32 NAC-128 CASTOR X/33 MC-10 NUHOMS®HD32PTH	07200002 07200055
Susquehanna Susquehanna Nuclear, LLC	GL	Transnuclear, Inc.	NUHOMS®-52B NUHOMS®-61BT NUHOMS®-61BTH	07200028
Trojan Portland General Electric Corp.	SL	Holtec International	HI-STORM 100	07200017
Turkey Point ISFSI Florida Power and Light Company	GL	Transnuclear, Inc.	NUHOMS®-HD-32PTH	07200062
Vermont Yankee Entergy Nuclear Operations, Inc.	GL	Holtec International	HI-STORM100	07200059
Vogtle Southern Company	GL	Holtec International	HI-STORM 100S	07201039
Waterford Steam Electric Station Entergy Nuclear Operations, Inc.	GL	Holtec International	HI-STORM 100	07200075
Yankee Rowe Yankee Atomic Electric	GL	NAC International, Inc.	NAC-MPC	07200031
Zion Zion Solutions, LLC	GL	NAC International, Inc.	Magnastor	07201037

* Fort St. Vrain is undergoing decommissioning and was transferred to DOE on June 4, 1999.
Note: NRC-abbreviated unit names. Data as of July 2015, and the next printed update will be August 2017.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX P

U.S. Low-Level Radioactive Waste Disposal Compact Membership

Appalachian Compact

Delaware
Maryland
Pennsylvania
West Virginia

Atlantic Compact

Connecticut
New Jersey
South Carolina*

Central Compact

Arkansas
Kansas
Louisiana
Oklahoma

Central Midwest Compact

Illinois
Kentucky

Midwest Compact

Indiana
Iowa
Minnesota
Missouri
Ohio
Wisconsin

Northwest Compact

Alaska
Hawaii
Idaho
Montana
Oregon
Utah*
Washington*
Wyoming

Rocky Mountain Compact

Colorado
Nevada
New Mexico
(Northwest accepts Rocky Mountain waste as agreed between compacts.)

Southeast Compact

Alabama
Florida
Georgia
Mississippi
Tennessee
Virginia

Southwestern Compact

Arizona
California
North Dakota
South Dakota

Texas Compact

Texas*
Vermont

Unaffiliated

District of Columbia
Maine
Massachusetts
Michigan
Nebraska
New Hampshire
New York
North Carolina
Puerto Rico
Rhode Island

Closed Low-Level Radioactive Waste Disposal Facility Sites Licensed by the NRC or Agreement States

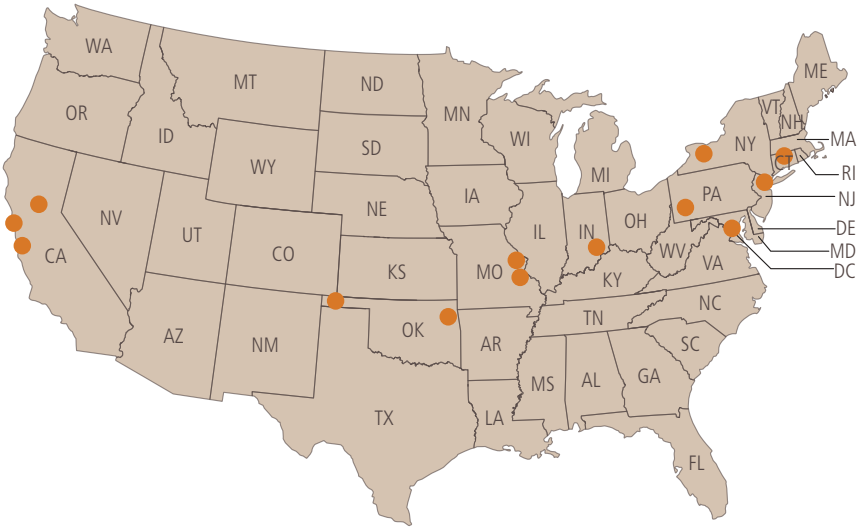
Beatty, NV, closed 1993
Sheffield, IL, closed 1978
Maxey Flats, KY, closed 1977
West Valley, NY, closed 1975

* Site of an active low-level waste disposal facility.
Note: Data as of July 2015, and the next printed update will be August 2017.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX Q

NRC-Regulated Complex Material Sites Undergoing Decommissioning, 2015



● NRC-regulated complex material sites (13)

Company	Location
Alameda Naval Air Station	Alameda, CA
Babcock & Wilcox SLDA	Vandergrift, PA
Beltsville Agricultural Research Center	Beltsville, MD
Cimarron Environmental Trust	Cimarron, OK
Department of Army, Jefferson Proving Ground	Madison, IN
Department of Army, Picatinny Arsenal (ARDEC)	Picatinny, NJ
FMRI, Inc. (Fansteel)	Muskogee, OK
Hunter's Point Naval Shipyard	San Francisco, CA
McClellan Air Force Base	Sacramento, CA
Sigma Aldrich	Maryland Heights, MO
UNC Naval Products	New Haven, CT
West Valley Demonstration Project	West Valley, NY
Westinghouse Electric Corporation—Hematite	Festus, MO

Note: Data as of July 2016. Next publish release date August 2017

Picatinny Arsenal in New Jersey is managed by Region I.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX R

Nuclear Power Units by Nation

Country	Nuclear Power Production GWh*	In Operation: Number of Units	In Operation: Capacity Net MWe	Under Construction or on Order: Number of Units	Under Construction or on Order: Capacity Net MWe	Shutdown
Argentina	5,257	3	1,625	1	25	0
Armenia	2,266	1	376	0	0	1[P]
Belarus	0	0	0	2	2,218	0
Belgium	33,093	7	5,927	0	0	1[P]
Brazil	15,385	2	1,884	1	1,245	0
Bulgaria	15,014	2	1,926	0	0	4[P]
Canada	100,921	19	13,500	0	0	6[P]
China	130,580	27	23,025	24	23,738	0
Czech Republic	28,636	6	3,904	0	0	0
Finland	22,654	4	2,752	1	1,600	0
France	415,900	58	63,130	1	1,600	12[P]
Germany	91,783	9	12,074	0	0	27[P]
Hungary	14,778	4	1,889	0	0	0
India	33,231	21	5,308	6	3,990	0
Iran	4,140	1	915	0	0	0
Italy	0	0	0	0	0	4[P]
Japan	0	43	40,290	2	2,650	11[P] &1[L]
Kazakhstan	0	0	0	0	0	1[P]
Rep. Korea	149,165	24	21,667	4	5,420	0
Lithuania	0	0	0	0	0	2[P]
Mexico	9,312	2	1,330	0	0	0
Netherlands	3,874	1	482	0	0	1[P]
Pakistan	4,610	3	690	2	630	0
Romania	10,754	2	1,300	0	0	0
Russia	169,049	34	24,654	9	7,371	5[P]
Slovakia	14,420	4	1,814	2	880	3[P]
Slovenia	6,061	1	688	0	0	0
South Africa	14,749	2	1,860	0	0	0
Spain	54,832	7	7,121	0	0	1[L]
Sweden	62,270	10	9,470	0	0	3[P]

APPENDIX R
Nuclear Power Units by Nation (continued)

Country	Nuclear Power Production GWh*	In Operation: Number of Units	In Operation: Capacity Net MWe	Under Construction or on Order: Number of Units	Under Construction or on Order: Capacity Net MWe	Shutdown
Switzerland	26,370	5	3,333	0	0	1[P]
Ukraine	83,123	15	13,107	2	1,900	4[P]
United Arab Emirates	0	0	0	3	4,035	0[P]
United Kingdom	57,918	16	9,373	0	0	29[P]
United States	797,067	99	98,639	5	5,633	33[P]
Total	**2,410,373***	**438**	**379,261**	**67**	**65,482**	**150[P] & 2[L]**

* Annual electrical power production for 2014. Total includes information on Taiwan.

P = Permanent Shutdown
L = Long-Term Shutdown

Note: Totals include reactors that are operable, under construction, or on order; country's short-form name used; rounded to the nearest whole number.

Sources: IAEA Power Reactor Information System Database; analysis compiled by the NRC. Data as of July 2015, and the next printed update will be August 2017.

APPENDIX S
Nuclear Power Units by Reactor Type, Worldwide

Reactor Type	In Operation: Number of Units	In Operation: Net MWe
Pressurized light-water reactors (PWR)	279	261,052
Boiling light-water reactors (BWR)	78	74,686
Heavy-water reactors, all types (HWR, PHWR)	49	24,549
Light-water-cooled graphite-moderated reactor (LWGR)	15	10,219
Gas-cooled reactors, all types (GCR)	15	8,175
Liquid-metal-cooled fast breeder reactors (FBR)	2	580
Total	**438**	**379,261**

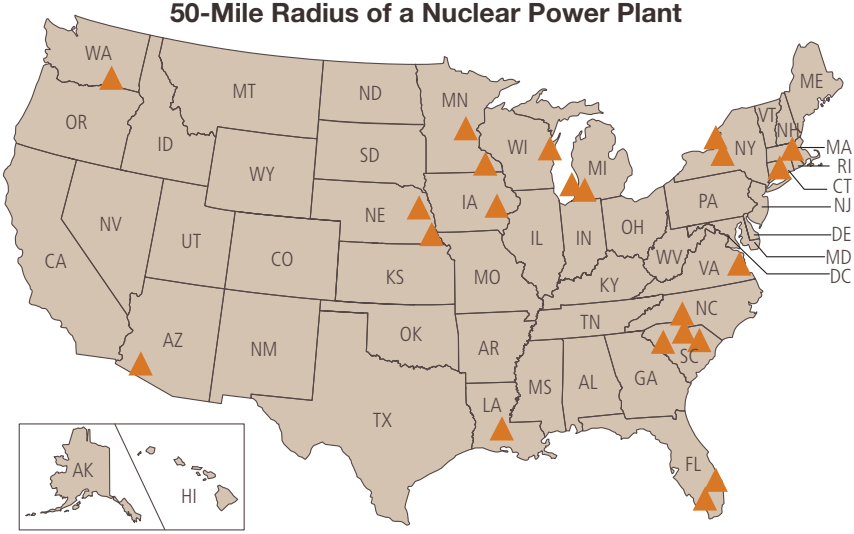
Note: MWe values rounded to the nearest whole number.

Source: IAEA Power Reactor Information System Database, www.iaea.org

Compiled by the NRC from data as of April 2015. Next publish release date August 2017.

APPENDIX T

Native American Reservations and Trust Lands within a 50-Mile Radius of a Nuclear Power Plant



ARIZONA
Palo Verde
Ak-Chin Indian Community
Tohono O'odham Trust Land
Gila River Reservation

CONNECTICUT
Millstone
Mohegan Reservation
Mashantucket Pequot Reservation
Narragansett Reservation
Shinnecock Indian Nation

FLORIDA
St. Lucie
Brighton Reservation (Seminole Tribes of Florida)
Fort Pierce Reservation

Turkey Point
Hollywood Reservation (Seminole Tribes of Florida)
Miccosukee Reservation
Miccosukee Trust Land

IOWA
Duane Arnold
Sac & Fox Trust Land
Sac & Fox Reservation

KANSAS
Iowa Reservation
Iowa Trust Land

LOUISIANA
River Bend
Tunica-Biloxi Reservation

MASSACHUSETTS
Pilgrim
Wampanoag Tribe of Gay Head (Aquinnah) Trust Land

MICHIGAN
Palisades
Pottawatomi Reservation Matchebenashshewish Band
Pokagon Reservation
Pokagon Trust Land*

DC Cook
Pokagon Reservation
Pokagon Trust Land

MINNESOTA
Monticello
Shakopee Community
Shakopee Trust Land
Mille Lacs Reservation

Prairie Island
Prairie Island Community*
Prairie Island Trust Land*
Shakopee Community
Shakopee Trust Land

NEBRASKA
Cooper
Sac & Fox Trust Land
Sac & Fox Reservation
Iowa Reservation
Iowa Trust Land
Kickapoo

Fort Calhoun
Omaha Reservation
Winnebago Reservation
Winnebago Trust Land

NEW YORK
FitzPatrick
Onondaga Reservation
Oneida Reservation

Nine Mile Point
Onondaga Reservation
Oneida Reservation

NORTH CAROLINA
McGuire
Catawba Reservation

SOUTH CAROLINA
Catawba
Catawba Reservation

Oconee
Eastern Cherokee Reservation

Summer
Catawba Reservation

Virginia
Surry
Pamunkey Reservation

WASHINGTON
Columbia
Yakama Reservation
Yakama Trust Land

WISCONSIN
Point Beach
Oneida Trust Land
Oneida Reservation

* Tribe is located within the 10-mile emergency preparedness zone of operating reactors.
Note: This table uses NRC-abbreviated reactor names and Native American Reservation and Trust land names. There are no reservations or Trust lands within 50 miles of a reactor in Alaska or Hawaii. For more information on other Tribal concerns, go to the NRC Web site at www.nrc.gov.
NRC-abbreviated reactor names listed. Data as of July 2015, and the next printed update will be August 2017.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX U

Regulatory Research Cooperative Agreements and Grants

American Nuclear Society	Support for the development and maintenance of probabilistic risk assessment (PRA)-related standards
American Society of Mechanical Engineers	Support in the following areas: Committee on Nuclear Risk Management on PRA standards, nuclear risk management, code comparison for the Multinational Design Evaluation Program, and harmonization of codes
Electric Power Research Institute	Research on irradiation-assisted stress-corrosion cracking and irradiation-assisted degradation of vessel internals materials
International Commission on Radiological Protection	Research on radiological protection standards
Kansas State University	Development of a High-Fidelity Model with Depleted Fuel for the Kansas State TRIGA Mark II Reactor
National Academy of Sciences	Support in the following areas: The Committee on Geological and Geotechnical Engineering, research to develop a consensus on the assessment of soil liquefaction potential and the related infrastructure consequences, research on porous rocks
National Council on Radiation Protection and Measurements Inc.	Radiation Protection Guidance for the United States: SC 1-23, Guidance on Radiation Dose Limits for the Lens of the Eye, and radiation protection guidance for the United States
Northwestern University	Service Lifetime Extension of Nuclear Power Plants: Prediction of Concrete Aging and Deterioration Through Accelerated Tests, Nondestructive Evaluation, and Stochastic Multiscale Computations
Ohio State University	Severe Accident Management Guidelines (SAMG) Validation within the Context of Severe Accident Uncertainties
Pennsylvania State University	Research on the minimum film boiling temperature for nuclear fuel rods with different types of fouling layers and experiments on scalability of horizontal two-phase flow in small and large diameter pipes
Purdue University	Steel Plate Composite Walls: Behavior, Analysis, and Design for Missile Impact
Texas A&M University	Research on bypass flow in prismatic reactor blocks and prolonged station blackout conditions
The Regents of the University of Colorado	Experimental and Numerical Investigation of Alkali Silica Reaction in Nuclear Reactors
University of California, Los Angeles	Methodological and Software Enhancements of Dynamic PRA Platforms for Event Assessment Applications
University of California-Berkeley	Work on ground motion prediction models for central and eastern North America and postliquefaction residual strength
University of Florida	Synergistic Effect of Thermal Aging and Low-Dose Irradiation on the Cast Stainless Steels and Stainless Steel Welds
University of Illinois	Validation of the PARCS/PATHS/SCALE for PWR Depletion Using the BEAVRS Benchmark
University of Maryland	Study of the Implications of Multi-Unit Accidents in the Context of NRC's Quantitative Health Objectives
University of Michigan	Multiscale thermal hydraulic tool for nuclear power plant safety analyses and assessment of Trace interfacial area transport equations against high-resolution experiments of two-phase vertical flows
University of Tennessee	Research on seismic hazards and associated ground motion for the East Tennessee Seismic Zone
University of Toronto, Ontario	Research to develop a tool to confirm safety margins for modular steel-concrete composite constructions under seismic loads

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX V

Significant Enforcement Actions Issued

Significant (escalated) enforcement actions include notices of violation (NOVs) for severity level (SL) I, II, or III violations; NOVs associated with inspection findings that the significance determination process (SDP) categorizes as white, yellow, or red; civil penalties (CPs); and enforcement-related orders. The NRC Enforcement Policy also allows related violations to be categorized collectively as a single problem. Escalated enforcement actions are issued to reactor, materials, and individual licensees; nonlicensees; and fuel cycle facility licensees.

Action #	Name	Type	Issue Date	Enforcement Action
EA-12-140	South Carolina Electric & Gas Co. (Summer)	Reactor	03/10/2014	Confirmatory order result of an ADR mediation
EA-13-026	University Nuclear and Diagnostics	Materials	05/13/2014	NOV SL III
EA-13-059	Centro De Medicina Nuclear CE	Materials	04/08/2014	Order imposing CP of $7,000
EA-13-076	Entergy Nuclear IP2 LLC (Indian Point)	Reactor	04/29/2014	NOV SL III
EA-13-078	Entergy Nuclear IP2 LLC (Indian Point)	Reactor	04/29/2014	NOV SL III
EA-13-105	Geisser Engineering Corporation	Materials	03/20/2014 07/31/2014	NOV/CP SL II - $11,200 (CP subsequently reduced) Order imposing CP of $8,400
EA-13-136	Geisser Engineering Corporation	Materials	03/20/2014	NOV SL II
EA-13-196	Chicago Bridge and Iron Company (Lake Charles, LA)	Reactor	09/25/2014	Confirmatory order result of an ADR mediation
EA-13-215	Valley Quarries, Inc.	Materials	02/06/2014	Problem/CP SL III - $3,500
EA-13-222	Omaha Public Power District (Fort Calhoun)	Reactor	04/25/2014	NOV White SDP finding resulting in plant inspections
EA-13-223	FPL Energy Duane Arnold, LLC (Duane Arnold)	Reactor	02/11/2014	NOV White SDP finding resulting in plant inspections
EA-13-227	Tetra Tech, Inc.	Materials	02/24/2014	NOV SL III
EA-13-233	Entergy Operations, Inc. (Waterford 3)	Reactor	03/28/2014	NOV White SDP finding resulting in plant inspections
EA-13-240	Wittnauer Worldwide, LP	Materials	10/24/2014	NOV SL III
EA-13-244	Kuehne Company	Materials	03/20/2014	NOV SL III
EA-13-247	R.E. Ginna Nuclear Power Plant, LLC	Reactor	04/17/2014	NOV White SDP finding resulting in plant inspections
EA-13-251	ATC Group Services, Inc., d/b/a Car	Materials	11/19/2014	NOV/CP SL III - $3,500
EA-14-001	City of Kirksville, MO	Materials	03/17/2014	NOV SL III
EA-14-005	Tennessee Valley Authority (Browns Ferry)	Reactor	04/30/2014 05/01/2014	NOV White SDP finding resulting in plant inspections Confirmatory order result of an ADR mediation

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX V

Significant Enforcement Actions Issued (continued)

Action #	Name	Type	Issue Date	Enforcement Action
EA-14-008	Entergy Operations, Inc. (Arkansas Nuclear One, Units 1 and 2)	Reactor	06/23/2014	2 NOV Yellow SDP findings resulting in plant inspections
EA-14-009	Entergy Operations, Inc. (River Bend)	Reactor	12/03/2014	Confirmatory order, with a CP of $70,000, result of ADR mediation
EA-14-013	Entergy Nuclear Operations, Inc. (Palisades)	Reactor	07/21/2014	Confirmatory order result of an ADR mediation
EA-14-017	Southern Nuclear Operating Co., Inc. (Farley)	Reactor	02/14/2014	NOV White SDP finding resulting in plant inspections
EA-14-024	Wolf Creek Nuclear Operating Corp. (Wolf Creek)	Reactor	07/01/2014	NOV White SDP finding resulting in plant inspections
EA-14-026	Dominion NDT Services, Inc.	Materials	04/02/2014	NOV SL III
EA-14-028	IUPUI/Indiana University Medical Center	Materials	04/03/2014	NOV SL III
EA-14-029	ECS Carolinas, LLP	Materials	04/23/2014	Problem SL III
EA-14-030	Dominion Engineering Associates, Inc.	Materials	12/18/2014	NOV/CP SL III - $3,500
EA-14-072	Metro Cardiovascular Diagnostics	Materials	09/30/2014	NOV/CP SL III - $3,500
Problem SL III	Agreement State-Illinois GeoLog Well Services, Inc.	Materials	6/11/13	NOV SL III
EA-14-075	ConAgra Foods	Materials	08/01/2014	Problem SL III
EA-14-089	Idahoan Foods	Materials	10/16/2014	Problem SL III
EA-14-091	Duke Energy Corp. (Oconee 1)	Reactor	08/12/2014	NOV White SDP finding resulting in plant inspections
EA-14-092	Dominion Nuclear Connecticut, Inc. (Millstone 3)	Reactor	10/20/2014	NOV White SDP finding resulting in plant inspections
EA-14-094	FirstEnergy Nuclear Operating Co. (Davis-Besse)	Reactor	06/30/2014	Confirmatory order
EA-14-100	Calvert Cliffs Nuclear Power Plant, Inc. (Calvert Cliffs)	Reactor	10/27/2014	NOV White SDP finding resulting in plant inspections
EA-14-106	City of St. Peters, MO	Materials	08/19/2014	NOV SL III
EA-14-108	Diagnostic Imaging Centers, PA	Materials	08/26/2014	NOV SL III
EA-14-112	Southern Nuclear Operating Co., Inc. (Vogtle)	Reactor	08/06/2014	NOV White SDP finding resulting in plant inspections
EA-14-113	Kruger Technologies Inc.	Materials	10/28/2014	Confirmatory order result of an ADR mediation

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX V

Significant Enforcement Actions Issued (continued)

Action #	Name	Type	Issue Date	Enforcement Action
EA-14-115	Truman Medical Center	Materials	10/08/2014	NOV SL III
EA-14-116	Bradley D. Bastow, D.O.	Materials	11/06/2014	Problem/CP SL III - $7,000
EA-14-167	Kim Engineering	Materials	12/23/2014	NOV SL III
EA-14-187	Omaha Public Power District (Fort Calhoun)	Reactor	11/25/2014	NOV White SDP finding resulting in plant inspections
IA-12-045	Mr. Michael P. Cooley	Reactor	03/10/2014	Prohibition order
IA-13-012	Mr. Armando N. Clavero	Materials	05/13/2014	Prohibition order
IA-13-033	Mr. George Geisser, III	Materials	07/17/2014	Prohibition order
IA-13-055	Mr. John Amburgey	Reactor	01/13/2014	NOV SL III
IA-13-059	Mr. Richard B. Smith	Reactor	05/14/2014	Prohibition order
IA-13-064	Mr. Daniel L. Wilson	Reactor	04/29/2014	Prohibition order
IA-14-002	Mr. Lane McHugh	Reactor	02/24/2014	NOV SL III
IA-14-004	Mr. Douglas D. Stouffer	Reactor	04/14/2014	NOV SL III
IA-14-007	Mr. Trey Brattin	Materials	07/24/2014	NOV SL III
IA-14-014	Mr. Donald K. Brown	Reactor	07/09/2014	NOV SL III
IA-14-021	Mr. Gary Meekins	Reactor	07/09/2014	NOV SL III
IA-14-025	Mr. James Chaisson	Materials	07/11/2014	Prohibition order

Note: Reactor facilities in a decommissioning status are listed as materials licensees. The NRC report on issued significant enforcement actions can be found on the NRC Web site at www.nrc.gov/about-nrc/regulatory/enforcement/current.html.

Note: Data as of July 2015, and the next printed update will be August 2017.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX W

Laws Governing the U.S. Nuclear Regulatory Commission

1. Atomic Energy Act of 1954, as amended (Pub. L. 83–703)
2. Energy Reorganization Act of 1974, as amended (Pub. L. 93–438)
3. Reorganization Plan No. 1 of 1980, 5 U.S.C., App 1.
4. Uranium Mill Tailings Radiation Control Act of 1978, as amended (Pub. L. 95–604)
5. Nuclear Non-Proliferation Act of 1978 (Pub. L. 95–242)
6. West Valley Demonstration Project Act of 1980 (Pub. L. 96–368)
7. Nuclear Waste Policy Act of 1982, as amended (Pub. L. 97–425)
8. Low-Level Radioactive Waste Policy Amendments Act of 1985 (Pub. L. 99–240)
9. Energy Policy Act of 1992 (Pub. L. 102–486)
10. Energy Policy Act of 2005 (Pub. L. 109–58)

Fundamental Laws Governing Civilian Uses of Radioactive Materials

Nuclear Materials and Facilities

1. Atomic Energy Act of 1954, as amended
2. Energy Reorganization Act of 1974, as amended
3. Reorganization Plan No. 1 of 1980

Radioactive Waste

1. Nuclear Waste Policy Act of 1982, as amended
2. Low-Level Radioactive Waste Policy Amendments Act of 1985
3. Uranium Mill Tailings Radiation Control Act of 1978

Nonproliferation

1. Nuclear Non-Proliferation Act of 1978

Fundamental Laws Governing the Processes of Regulatory Agencies

1. Administrative Procedure Act (5 U.S.C. Chapters 5 through 8)
2. National Environmental Policy Act

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX X

International Activities

CONVENTIONS AND TREATIES PERTAINING TO NUCLEAR SAFETY, SECURITY, AND INTERNATIONAL SAFEGAURDS*

1. Treaty on the Non-Proliferation of Nuclear Weapons, entry into force on March 5, 1970, United States (U.S.) is a party to the Treaty
2. Treaty for the Prohibition of Nuclear Weapons in Latin America (Tlatelolco Treaty), entry into force for each government individually, United States is a party to the specific protocols appended to the Treaty
3. Three to four other treaties specifying nuclear weapons-free zones in Africa, the South Pacific (Rarotonga), and Southeast Asia, including one being negotiated on the Middle East, the United States is only bound by specific protocols
4. Convention on Early Notification of a Nuclear Accident, entry into force October 27, 1986, United States is a party
5. Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, entry into force February 26, 1987, U.S. is a party
6. Convention on Nuclear Safety, entry into force October 24, 1996, U.S. is a party
7. Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, entry into force June 18, 2001, U.S. is a party
8. Convention on the Physical Protection of Nuclear Material (CPPNM), entry into force February 8, 1987, U.S. is a party
9. Amendment to the CPPNM, entry into force May 8, 2016, U.S. is a party
10. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, entry into force August 30, 1975, U.S. is a party (also to amendments in 1978 (incineration), 1978 (disputes), 1980 (list of substances), 1989 (procedures), 1993 (banning dumping into sea of low-level radioactive wastes), 1996 (protocol to replace the 1972 Convention with a more restrictive text regulating the use of the sea as a depository for waste materials)
11. Convention on Supplementary Compensation for Nuclear Damage
12. Agreement between the United States of America and the Agency for the Application of Safeguards in the United States of America (INFCIRC/288), entry into force December 9, 1980
13. Model Protocol Additional to the Agreement Between State(s) and the IAEA for the Application of Safeguards in Connection with the Treaty for the Prohibition of Nuclear Weapons in Latin America (INFCIRC/366), entry into force April 6, 1989, U.S. is a party
14. Protocol Additional to the Agreement between the United States of America and the Agency for the Application of Safeguards in the United States of America (INFCIRC/288/Add. 1), entry into force January 6, 2009

* This excludes arms control agreements.

Note: Data as of July 2015, and the next printed update will be August 2017.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX Y
International Activities

LIST OF THE NRC'S PARTICIPATION WITH MULTILATERAL ORGANIZATIONS

International Commission on Radiological Protection

International Atomic Energy Agency

- Commission on Safety Standards
  - Nuclear Safety Standards Committee
  - Radiation Safety Standards Committee
  - Transport Safety Standards Committee
  - Waste Safety Standards Committee
- Nuclear Security Guidance Committee

International Nuclear Regulators Association

Multinational Design Evaluation Program

Nuclear Energy Agency (NEA)

- NEA Steering Committee for Nuclear Energy
- Committee on Nuclear Regulatory Activities
  - Working Group on Inspection Practices
  - Working Group on Operating Experience
  - Working Group on Public Communication of Nuclear Regulatory Organisations
  - Working Group on the Regulation of New Reactors
  - Safety of Research Reactors Task Group
  - Senior-Level Task Group on Impacts of the Fukushima Accident
  - Task Group on Nonconforming, Counterfeit, Fraudulent, and Suspect Items
  - Task Group on Accident Management
- Committee on Radiation Protection and Public Health
  - Expert Group on the Implications of ICRP Recommendations
  - Expert Group on Occupational Exposure
  - Expert Group on the Public Health Perspective in Radiological Protection
  - Expert Group on the Radiological Protection Aspects of the Fukushima Accident
  - Expert Group on Radiological Protection Science
  - Working Party on Nuclear Emergency Matters

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX Y
International Activities

LIST OF THE NRC'S PARTICIPATION WITH MULTILATERAL ORGANIZATIONS (CONTINUED)

- Committee on the Safety of Nuclear Installations (CSNI)
  - CSNI Program Review Group
  - Working Group on Integrity and Ageing of Components and Structures
  - Working Group on Analysis and Management of Accidents
  - Working Group on Risk Assessment
  - Working Group on Human and Organisational Factors
  - Working Group on Fuel Safety
  - Working Group on Fuel Cycle Safety
- Radioactive Waste Management Committee
  - Forum on Stakeholder Confidence
  - Integration Group for the Safety Case of Radioactive Waste Repositories
  - Regulators' Forum
  - Working Party on Decommissioning and Dismantling

United Nations Scientific Committee on the Effects of Atomic Radiation

BILATERAL INFORMATION EXCHANGE AND COOPERATION AGREEMENTS WITH THE NRC

Agreement Country			
Argentina	Finland	Korea, Rep. of	Spain
Armenia	France	Lithuania	Sweden
Australia	Germany	Mexico	Switzerland
Belgium	Greece	Netherlands	Tecro (Taiwan)
Brazil	Hungary	Peru	Thailand
Bulgaria	India	Philippines	Turkey
Canada	Indonesia	Poland	Ukraine
China	Israel	Romania	United Arab Emirates
Croatia	Italy	Russia	United Kingdom
Czech Republic	Japan	Slovakia	Vietnam
Egypt	Jordan	Slovenia	
EURATOM	Kazakhstan	South Africa	

Note: The country's short-form name is used. NRC's technical arrangements are initiated and renewed for 5-year terms.
Data as of July 2015, and the next printed update will be August 2017.
EURATOM—The European Atomic Energy Community
Tecro (Taiwan) is the Taipei Economic and Cultural Representative Office in the United States.

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.

APPENDIX Z

International Activities

LIST OF IMPORT AND EXPORT LICENSES

List of NRC Import and Export Licenses by Applicant and Docket Number issued can now be found at the Dataset Index Web page online at: http://www.nrc.gov/reading-rm/doc-collections/datasets

For the most recent information, go to the Dataset Index Web page at http://www.nrc.gov/reading-rm/doc-collections/datasets/.