

August 8, 2007

MEMORANDUM TO: Elmo Collins, Director
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

THRU: Roger Pedersen, Acting Team Leader */RA/*
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SUBJECT: LWR OCCUPATIONAL DOSE DATA FOR 2006 AND THREE-YEAR
ROLLING AVERAGE COLLECTIVE DOSE DATA AND QUARTILE
DATA FOR 2004-2006

Enclosed for your information is a compilation of the 2006 occupational collective doses as well as the three-year rolling average collective doses for operating U.S. nuclear power plant facilities. This data, which was derived from individual worker dose reports submitted to the Commission in accordance with 10 CFR 20.2206, is provided for each of the 103 operating commercial nuclear plants (69 PWRs and 34 BWRs) in the U.S. as well as for Brown's Ferry 1 (a BWR which has resumed operation in 2007 after being shutdown since 1985).

The average collective dose in 2006 for LWRs was 106 person-cSv (person-rem) per reactor. This average collective dose is 4 percent lower than the average collective dose for LWRs in 2005, and is tied for the fourth lowest average annual dose per reactor ever recorded for U.S. LWRs. This average dose is two-thirds of the average LWR dose recorded ten years ago (in 1996) and is nearly one eighth of the maximum LWR average dose of 790 person-cSv (person-rem) per reactor recorded in 1980. This low average collective dose reflects industries' continuing commitment to the lowering of plant doses by implementing effective exposure reduction initiatives.

Also in this report is a listing of the nuclear plants ranked by quartile, as determined by their three-year rolling average collective doses. The baseline inspection procedures for the Occupational Radiation Safety cornerstone utilize the plant's quartile ranking to help in determining inspection resources and the minimum inspection requirement sample size. A plant's three-year rolling average collective dose is also used as one of the metrics in the Occupational Radiation Safety SDP.

E. Collins

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This report was compiled by Jessie Quichocho, NRR, and Charles Hinson, NRO, NRC. The collective doses for 2006 were compiled by our contractor, ORAU. Any questions concerning the content of this report should be directed to Jessie Quichocho at (301) 415-1225.

Enclosure:
As stated

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LWR OCCUPATIONAL DOSE DATA FOR 2006
AND THREE-YEAR ROLLING AVERAGE COLLECTIVE DOSE DATA
AND QUARTILE DATA FOR 2004-2006

This report contains a compilation of the 2006 occupational collective doses for U.S. nuclear power plant facilities, the three-year rolling average collective dose data for 2004-2006, and a listing of the three-year rolling average collective dose rankings for 2004-2006 by quartile for PWRs and BWRs.

2006 Collective doses

The occupational collective dose information was derived from individual worker dose reports submitted to the Commission in accordance with 10 CFR 20.2206. The number of operating reactors in the U.S. in 2006 remained the same as in the year 2005, at 103 reactors. Brown's Ferry, Unit 1, which resumed power operations in 2007 (after being shutdown since 1985), has been included in this analysis, increasing the total number of reactors analyzed for this report to 104 LWRs. The total collective dose for these 104 LWRs in 2006 was 11,021 person-cSv (person-rem), a 4% decrease from last year's total of 11,457 person-cSv (person-rem). The resulting average collective dose of 106 person-cSv (person-rem) per reactor for LWRs for 2006 is tied for the fourth lowest average collective dose ever recorded for U.S. LWRs (lower LWR average collective doses per reactor were recorded in 2001, 2004, and 2005).

In 2006, the total collective dose for PWRs was 6,031 person-cSv (person-rem) for 69 reactors. The resulting average collective dose per reactor for PWRs in 2006 was 87 person-cSv (person-rem) per reactor. Although this average represents a 10 percent increase from the 2005 value of 79 person-cSv (person-rem) per reactor, it is the third lowest average dose recorded to date for US PWRs (after the average dose recorded for PWRs in 2005 and 2004). This is the eighth year that the average annual PWR dose has been less than 100 person-cSv (person-rem) per reactor. The collective dose information for PWRs is shown in Table 1.

The total collective dose for BWRs in 2006 was 4,990 person-cSv (person-rem) for 35 reactors. The resulting average collective dose for BWRs in 2006 was 143 person-cSv (person-rem) per reactor and is a 19 percent decrease in the average collective dose from 2005. The BWR average collective dose for 2006 is the second lowest recorded average dose per unit for BWRs (the lowest average BWR dose of 138 person-cSv (person-rem) per unit was recorded in 2001). The collective dose information for BWRs is shown in Table 2.

The average collective doses decreased slightly in 2006 from those recorded in 2005. The continued low average collective doses reflect industries' continuing commitment to the lowering of plant doses by implementing effective exposure reduction initiatives such as source term reduction programs, efficient outages, online chemistry control, and effective ALARA programs. One of the noted differences between the collective doses recorded in 2005 and those recorded in 2006 were the number of plants having collective doses equal to or less than 10 person-cSv (person-rem) for the year. In 2005, two LWRs had collective doses equal to or less than 10 person-cSv (person-rem) for the year, while in 2006, five LWRs had annual collective doses in this range. An annual collective dose in this range usually indicates that the plant operated the entire year without any outages. Most of a plant's collective dose is usually incurred when the plant is shut down for a refueling/maintenance outage, when more work is

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performed in the portions of the plant which have higher radiation levels. Therefore, the overall collective dose for LWRs will usually be lower in a year when more plants have been operational for a full year than in a year when more plants have been shut down for part of the year for outage work.

Rolling three-year average collective dose

Since refueling outage cycles vary among U.S. plants, this results in alternating high and low collective dose years for some plants and more evenly distributed collective doses for others. Therefore, the use of the three-year rolling average collective dose (TYRA) has been a better indicator of a plant's average collective dose than the plant's annual collective dose. The TYRA, which has units of person-cSv (person-rem)/unit, is incorporated into the SDP (Significance Determination Process) for the Occupational Radiation Safety Cornerstone (Appendix C of MC 0609). Each licensee's current TYRA is compared against the TYRA criteria contained in the Occupational Radiation Safety SDP (135 person-cSv (person-rem)/unit for PWRs and 240 person-cSv (person-rem)/unit for BWRs) to help evaluate the significance of inspection findings in terms of the licensee's overall ALARA performance.

Tables 1 and 2 provide the three-year rolling average collective doses for 2004-2006 (under the column entitled "3 Yr Avg") for each of the operating reactors. (The last column shows the previous TYRA (for 2003-2005)). These tables also show the collective doses by reactor for each of the years 2004 through 2006.

For PWRs, the TYRA for 2004-2006 decreased at 22 reactor sites and increased at 18 sites from the previous year's values (the TYRA for 2 sites did not change). The PWR site with the lowest TYRA for 2004-2006 was Three Mile Island with a TYRA of 25 person-cSv (person-rem). The PWR site with the highest TYRA for 2004-2006 was Palisades with a TYRA of 207 person-cSv (person-rem). The high source term at Palisades contributed to the collective dose accrued during several forced outages and one extended refueling outage performed in 2006.

Davis-Besse, Cook 1,2, Beaver Valley 1,2, Watts Bar 1, and Palisades all showed significant increases in collective dose in 2006 compared to the previous few years. Jobs which contributed to the increase in collective doses at these PWRs included reactor coolant pump motor replacements, reactor vessel head replacements, steam dryer replacements, and steam generator replacements.

For the 2004-2006 three-year period, only four PWRs exceeded the SDP criterion of 135 person-rem/unit for PWRs. These four PWRs were Palisades - 207 person-cSv (person-rem), Ft. Calhoun - 195 person-cSv (person-rem), Indian Point 2 - 165 person-cSv (person-rem), and Watts Bar 1 - 158 person-cSv (person-rem). With the exception of one three-year period (2002-2004) for Ft. Calhoun and two three-year periods (2001-2003 and 2003-2005) for Indian Point 2, the TYRAs for Palisades, Ft. Calhoun, and Indian Point 2 have exceeded the 135 person-rem/unit criterion for each of the past seven three-year periods (see Table 4). The TYRA for Watts Bar has increased for each of the last three-year periods (88 person-rem for 2002-2004, 105 person-rem for 2003-2005, and 158 person-rem for 2004-2006).

For BWRs, the TYRA for 2004-2006 decreased at 13 reactor sites and increased at 11 sites from last year's values. The BWR site with the lowest TYRA for 2004-2006 was Duane Arnold with a TYRA of 63 person-cSv (person-rem). Quad Cities was the BWR site with the highest

TYRA with a TYRA of 339 person-cSv (person-rem). Quad Cities continues to have high source terms after shutdown since implementation of noble metals treatment. This high source term, six outages to support the power uprate (steam dryer replacement), and one refueling outage contributed to the increase in collective dose for Quad Cities in 2006.

Fermi 2, Hope Creek 1, Oyster Creek, Fitzpatrick, and River Bend 1 all showed significant increases in collective dose in 2006 compared to the previous few years. Jobs which contributed to the increase in collective doses at these BWRs included recirc pump seal, pump, and motor replacements, RWCU system repair, condenser tube plugging, recirc pump discharge valve repair, and repair work in the drywell.

For the 2004-2006 three-year period only Quad Cities 1,2, with 339 person-cSv (person-rem), exceeded the SDP criterion of 240 person-rem/unit for BWRs. Quad Cities 1,2 also exceeded this criterion for the previous four 3-year periods (2000-2002, 2001-2003, 2002-2004, and 2003-2005).

It should be noted that when the SDP TYRA criteria of 135 person-cSv (person-rem)/unit for PWRs and 240 person-cSv (person-rem)/unit for BWRs was established in the late 1990s it represented the median points for the 1995-1997 TYRA for PWRs and BWRs, respectively (i.e., the TYRA for 50 percent of the PWRs and 50 percent of the BWRs exceeded these values). For the current three-year period (2004-2006) only 10 percent of the PWR sites and 4 percent of the BWR sites exceed these criteria (see Table 3). This is a good indication of how the industry has worked to lower the overall collective doses at US LWRs over the past several years.

Plants ranked by TYRA quartile

The baseline inspection procedures for ALARA Planning and Controls, IP 71121.02 (under the Occupational Radiation Safety cornerstone) utilize the plant's quartile ranking (based on the three-year rolling average collective doses) to help in determining plant inspection resources (see Section 04, "Resource Estimate", of IP 71121.02) and the minimum inspection requirement sample size (see Section 05, "Completion Status", of IP 71121.02).

The plant rankings by quartile listed below are based on the TYRA for 2004-2006. These rankings should remain in effect until the new TYRA for the years 2005-2007 are available. Note that the 2003-2005 TYRA rankings for each site are shown in parentheses ("(-)" indicates no change in the quartile rankings from the previous year). Tables 4 and 5 show a history of the TYRA and plant quartile information for the past seven three-year periods (1997-1999 through 2004-2006). It should be noted that plant quartile information was first officially calculated for the 2000-2002 three-year period, when this data was calculated for input into the ROP.

PWRs

Top Quartile (lowest TYRA)	2nd Quartile	3rd Quartile	Bottom Quartile (highest TYRA)
THREE MILE ISLAND 1 (-)	KEWAUNEE (-)	COMANCHE PEAK 1, 2 (2)	COOK 1, 2 (2)
INDIAN POINT 3 (-)	VOGTLE 1, 2 (1)	SURRY 1, 2 (-)	BEAVER VALLEY 1, 2 (3)
FARLEY 1, 2 (-)	PRAIRIE ISLAND 1, 2 (1)	DIABLO CANYON 1, 2 (-)	ST. LUCIE 1, 2 (-)
GINNA (-)	PALO VERDE 1, 2, 3 (-)	MCGUIRE 1, 2 (2)	CALLAWAY 1 (-)
CRYSTAL RIVER 3 (3)	ROBINSON 2 (-)	SALEM 1, 2 (-)	ARKANSAS 1, 2 (-)
SEABROOK (2)	TURKEY POINT 3, 4 (3)	OCONEE 1, 2, 3 (-)	SAN ONOFRE 2, 3 (-)
NORTH ANNA 1, 2 (2)	BRAIDWOOD 1, 2 (-)	WATERFORD 3 (-)	WATTS BAR 1 (-)
POINT BEACH 1, 2 (2)	WOLF CREEK 1 (-)	MILLSTONE 2, 3 (4)	INDIAN POINT 2 (2)
SUMMER 1 (-)	CATAWBA 1, 2 (-)	CALVERT CLIFFS 1,2 (4)	FT CALHOUN (-)
HARRIS (-)	SEQUOYAH 1, 2 (4)	SOUTH TEXAS 1, 2 (-)	PALISADES (-)
	BYRON 1, 2 (-)	DAVIS-BESSE (-)	

BWRs

Top Quartile (lowest TYRA)	2nd Quartile	3rd Quartile	Bottom Quartile (highest TYRA)
DUANE ARNOLD (-)	GRAND GULF (-)	COLUMBIA GENERATING (4)	NINE MILE POINT 1, 2 (-)
MONTICELLO (2)	FERMI 2 (-)	VERMONT YANKEE (-)	PERRY (-)
LIMERICK 1, 2 (-)	PEACH BOTTOM 2, 3 (3)	DRESDEN 2, 3 (-)	COOPER STATION (3)
PILGRIM (3)	BRUNSWICK 1, 2 (-)	LASALLE 1, 2 (4)	CLINTON (2)
SUSQUEHANNA 1, 2 (-)	HOPE CREEK 1 (-)	FITZPATRICK (1)	BROWNS FERRY 1, 2, 3 * (-)
HATCH 1, 2 (-)	OYSTER CREEK (1)	RIVER BEND 1 (-)	QUAD CITIES 1, 2 (-)

(* Note: Even though Brown's Ferry, Unit 1 has been shut down since 1985 and restart of the plant is ongoing, the dose being expended at Unit 1 in this restart effort continues to be counted as a three-unit site for purposes of calculating the TYRA.)

The collective doses for the year 2006 that appear in this paper are based on a compilation of the individual doses that the licensees submitted to the NRC in accordance with 10 CFR 20.2206. A listing of the 2006 doses and 2004-2006 TYRA, along with breakdowns of individual plant doses and dose trends will be contained in Volume 28 of NUREG-0713, Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities 2006, which is scheduled to be published in the Fall of 2007.

This paper was compiled by Jessie Quichocho, NRR, NRC. The collective doses for 2006 were compiled by our contractor, ORAU. Any questions concerning the content of this report should be directed to Jessie Quichocho at (301) 415-1225.

Table 1-PWR Collective Doses (per site) and TYRA (per unit)

PWR	2004	2005	2006	3 Yr Avg	(prev 3-yr)
THREE MILE ISLAND 1	4	66	5	25	75
INDIAN POINT 3	4	74	3	27	58
FARLEY 1, 2	107	68	66	40	48
GINNA	7	73	45	42	52
CRYSTAL RIVER 3	4	123	4	44	84
SEABROOK	6	52	77	45	43
NORTH ANNA 1, 2	130	59	82	45	63
POINT BEACH 1, 2	110	12	40	46	54
SUMMER 1	10	72	61	48	51
HARRIS	57	8	87	51	45
KEWAUNEE	91	4	75	57	56
VOGTLE 1, 2	81	11	116	58	53
PRAIRIE ISLAND 1, 2	144	84	137	61	48
PALO VERDE 1, 2, 3	199	200	152	61	68
ROBINSON 2	118	65	3	62	63
TURKEY POINT 3, 4	117	110	149	63	79
BRAIDWOOD 1, 2	95	88	199	64	71
WOLF CREEK 1	3	107	97	69	66
CATAWBA 1, 2	123	84	21	70	70
SEQUOYAH 1, 2	86	95	24	71	102
BYRON 1, 2	89	200	134	71	63
COMANCHE PEAK 1, 2	135	242	60	73	74
SURRY 1, 2	120	88	235	74	89
DIABLO CANYON 1, 2	254	124	82	77	86
MCGUIRE 1, 2	196	174	108	80	74
SALEM 1, 2 *	149	241	91	80	86
OCONEE 1, 2, 3	368	149	221	82	85
WATERFORD 3	3	136	110	83	78
MILLSTONE 2, 3 *	136	202	174	85	110
CALVERT CLIFFS 1,2	144	168	204	86	96
SOUTH TEXAS 1, 2	119	248	150	86	85
DAVIS-BESSE	7	51	204	87	93
COOK 1, 2	156	91	312	93	76
BEAVER VALLEY 1, 2	157	79	370	101	85
ST. LUCIE 1, 2	159	406	120	114	118
CALLAWAY 1	121	223	6	117	117
ARKANSAS 1, 2	106	476	143	121	113
SAN ONOFRE 2, 3	407	11	315	122	97
WATTS BAR 1	6	144	323	158	105
INDIAN POINT 2	196	11	287	165	73
FT CALHOUN	22	273	289	195	169
PALISADES	371	10	240	207	195
Total Dose	4917	5459	6031		
Number of Reactors	69	69	69		
Average Annual Dose	71	79	87		

* Dose calculated using RG 1.16 ratio

Table 2-BWR Collective Doses (per site) and TYRA (per unit)

BWR	2004	2005	2006	3-Yr Avg	(prev 3-yr)
DUANE ARNOLD	19	140	29	63	94
MONTICELLO	35	175	33	81	126
LIMERICK 1, 2	149	188	193	88	81
PILGRIM	41	206	44	97	166
SUSQUEHANNA 1, 2	272	181	185	106	117
HATCH 1, 2	180	207	259	108	93
GRAND GULF	158	168	60	129	119
FERMI 2	145	62	181	129	125
PEACH BOTTOM 2, 3	265	306	248	136	154
BRUNSWICK 1, 2	245	306	280	139	133
HOPE CREEK 1 *	239	67	134	147	149
OYSTER CREEK	227	28	190	148	99
COLUMBIA GENERATING	66	325	56	149	199
VERMONT YANKEE	212	198	50	153	155
DRESDEN 2, 3	381	259	289	155	166
LASALLE 1, 2	359	335	248	157	193
FITZPATRICK	186	63	234	161	100
RIVER BEND 1		236	56	214	169
NINE MILE POINT 1, 2	449	402	230	180	204
PERRY	73	417	65	185	366
COOPER STATION	47	276	270	198	153
CLINTON	28	336	296	205	125
BROWNS FERRY 1, 2, 3	673	636	641	217	212
QUAD CITIES 1, 2	511	961	559	339	318
Total Dose	5451	5998	4990		
Number of Reactors	35	35	35		
Average Annual Dose	156	171	143		

* Dose calculated using RG 1.16 ratio

Table 3-Number of Plants Exceeding the 3-Yr Average Dose Criteria

<u>3-Yr period</u>	<u>PWRs > 135 person-rem</u>		<u>BWRs > 240 person-rem</u>	
	<u>#Sites (%)</u>	<u>#Units (%)</u>	<u>#Sites (%)</u>	<u>#Units (%)</u>
1995-1997	20 (47)	33 (46)	13 (50)	19 (51)
1996-1998	14 (34)	22 (32)	10 (42)	14 (40)
1997-1999	13 (31)	20 (29)	4 (17)	6 (17)
1998-2000	5 (12)	6 (9)	3 (13)	4 (11)
1999-2001	6 (14)	7 (10)	1 (4)	1 (3)
2000-2002	4 (10)	4 (6)	2 (8)	3 (9)
2001-2003	3 (7)	3 (4)	2 (8)	3 (9)
2002-2004	3 (7)	3 (4)	2 (8)	3 (9)
2003-2005	2 (5)	2 (3)	2 (8)	3 (9)
2004-2006	4 (10)	4 (6)	1 (4)	2 (6)

Table 4 - Seven Year History of TYRA and Plant Quartile Data for PWRs

PWR	1997- 1999	1998- 2000	1999- 2001	2000- 2002	2001- 2003	2002- 2004	2003- 2005	2004- 2006
Arkansas 1,2	78	99	89	102 (3)	78 (2)	78 (3)	113 (4)	121 (4)
Beaver Valley 1,2	77	83	104	102 (3)	92 (3)	87 (3)	85 (3)	101 (4)
Braidwood 1,2	121	100	73	64 (1)	73 (2)	72 (2)	71 (2)	64 (2)
Byron 1,2	126	118	82	75 (2)	57 (1)	62 (2)	63 (2)	71 (2)
Callaway 1	178	179	148	73 (2)	70 (2)	75 (3)	117 (4)	117 (4)
Calvert Cliffs 1,2	101	86	82	91 (3)	113 (4)	109 (4)	96 (4)	86 (3)
Catawba 1,2	91	75	70	64 (1)	68 (1)	69 (2)	70 (2)	70 (2)
Comanche Peak 1,2	105	93	74	70 (1)	68 (1)	71 (2)	74 (2)	73 (3)
Cook 1,2	138	102	89	107 (4)	86 (2)	107 (4)	76 (2)	93 (4)
Crystal River 3	150	95	138	56 (1)	93 (3)	45 (1)	84 (3)	44 (1)
Davis Besse 1	64	117	67	192 (4)	209 (4)	210 (4)	93 (3)	87 (3)
Diablo Canyon 1,2	140	134	125	75 (2)	67 (1)	90 (3)	86 (3)	77 (3)
Farley 1,2	150	164	145	129 (4)	88 (3)	52 (1)	48 (1)	40 (1)
Fort Calhoun	141	139	140	142 (4)	201 (4)	133 (4)	169 (4)	195 (4)
Ginna	90	89	87	56 (1)	55 (1)	54 (1)	52 (1)	42 (1)
Harris	99	83	123	120 (4)	109 (3)	44 (1)	45 (1)	51 (1)
Indian Pt 2	233	299	210	279 (4)	94 (3)	152 (4)	73 (2)	165 (4)
Indian Pt 3	122	47	81	45 (1)	74 (2)	36 (1)	58 (1)	27 (1)
Kewaunee	50	64	102	102 (3)	93 (3)	56 (1)	56 (1)	57 (2)
McGuire 1,2	148	89	88	75 (2)	65 (1)	75 (3)	74 (2)	80 (3)
Millstone 2,3	103	85	95	102 (3)	132 (4)	125 (4)	110 (4)	85 (3)
North Anna 1,2	77	71	78	86 (3)	107 (3)	77 (3)	63 (2)	45 (1)
Oconee 1,2,3	88	93	117	120 (4)	117 (4)	93 (3)	85 (3)	82 (3)
Palisades	161	154	202	138 (4)	197 (4)	199 (4)	195 (4)	207 (4)
Palo Verde1,2,3	65	55	54	53 (1)	59 (1)	61 (2)	68 (2)	61 (2)
Pt Beach 1,2	76	84	78	75 (2)	66 (1)	63 (2)	54 (1)	46 (1)
Prairie Island 1,2	61	49	51	60 (1)	52 (1)	55 (1)	48 (1)	61 (2)
Robinson 2	102	101	86	81 (2)	80 (2)	78 (3)	63 (2)	62 (2)
Salem 1,2	89	93	111	107 (4)	95 (3)	94 (3)	86 (3)	80 (3)
San Onofre 2,3	148	111	100	64 (1)	72 (2)	118 (4)	97 (4)	122 (4)
Seabrook	104	65	61	48 (1)	49 (1)	48 (1)	43 (1)	45 (1)
Sequoyah 1,2	142	131	111	102 (3)	114 (4)	104 (4)	102 (4)	71 (2)
South Texas 1,2	119	113	122	133 (4)	118 (4)	99 (4)	85 (3)	86 (3)
St. Lucie 1,2	159	68	84	80 (2)	88 (3)	76 (3)	118 (4)	114 (4)
Summer 1	99	100	119	99 (3)	67 (1)	47 (1)	51 (1)	48 (1)
Surry 1,2	108	87	110	102 (3)	124 (4)	89 (3)	89 (3)	74 (3)
TMI 1	125	60	120	71 (1)	119 (4)	55 (1)	75 (2)	25 (1)
Turkey Pt 3,4	116	84	75	66 (1)	70 (2)	73 (2)	79 (3)	63 (2)
Vogtle 1,2	91	85	80	82 (2)	76 (2)	68 (2)	53 (1)	58 (2)
Waterford 3	98	93	87	82 (2)	70 (2)	69 (2)	78 (3)	83 (3)
Watts Bar 1	72	75	76	74 (2)	88 (3)	88 (3)	105 (4)	158 (4)
Wolf Creek 1	141	101	99	83 (2)	65 (1)	64 (2)	66 (2)	69 (2)

Note: Plant quartile information (plant quartile ranking by TYRA shown in parentheses) was first officially calculated for ROP purposes for the 2000-2002 three-year period

Table 5 - Seven Year History of TYRA and Plant Quartile Data for BWRs

BWR	1997-1999	1998-2000	1999-2001	2000-2002	2001-2003	2002-2004	2003-2005	2004-2006
Brown's Ferry 1,2,3	149	128	119	109 (1)	139 (3)	181 (4)	212 (4)	217 (4)
Brunswick 1,2	204	189	174	150 (3)	138 (3)	128 (2)	133 (2)	139 (2)
Clinton	134	162	125	165 (3)	100 (1)	183 (4)	125 (2)	205 (4)
Columbia (WNP2)	231	165	145	109 (1)	160 (3)	106 (1)	199 (4)	149 (3)
Cooper	135	143	139	136 (2)	114 (2)	74 (1)	153 (3)	198 (4)
Dresden 2,3	248	213	209	170 (4)	185 (4)	182 (4)	166 (3)	155 (3)
Duane Arnold	167	161	128	72 (1)	99 (1)	59 (1)	94 (1)	63 (1)
Fermi 2	98	130	117	118 (2)	125 (2)	117 (2)	125 (2)	129 (2)
Fitzpatrick	172	242	144	198 (4)	115 (2)	156 (3)	100 (1)	161 (3)
Grand Gulf	212	188	149	132 (2)	131 (2)	122 (2)	119 (2)	129 (2)
Hatch 1,2	228	175	160	141 (3)	102 (1)	94 (1)	93 (1)	108 (1)
Hope Creek 1	228	174	208	123 (2)	107 (1)	135 (2)	149 (2)	147 (2)
LaSalle 1,2	219	210	153	132 (2)	166 (4)	212 (4)	193 (4)	157 (3)
Limerick 1,2	144	148	124	105 (1)	86 (1)	76 (1)	81(1)	88 (1)
Monticello	128	165	169	159 (3)	143 (3)	81 (1)	126 (2)	81 (1)
Nine Mile Pt 1,2	209	185	179	190 (4)	206 (4)	223 (4)	204 (4)	180 (4)
Oyster Creek	133	321	234	309 (4)	118 (2)	179 (3)	99 (1)	148 (2)
Peach Bottom 2,3	196	169	166	168 (4)	172 (4)	159 (3)	154 (3)	136 (2)
Perry	213	141	213	128 (2)	312 (4)	250 (4)	366 (4)	185 (4)
Pilgrim	334	155	192	90 (1)	156 (3)	110 (2)	166 (3)	97 (1)
Quad Cities 1,2	269	309	206	471 (4)	395 (4)	456 (4)	318 (4)	339 (4)
River Bend 1	250	206	256	153 (3)	153 (3)	163 (3)	170 (3)	169 (3)
Susquehanna 1,2	204	187	175	147 (3)	133 (2)	130 (2)	117 (1)	106 (1)
Vermont Yankee	144	138	119	110 (1)	116 (2)	139 (3)	155 (3)	153 (3)

Note: Plant quartile information (plant quartile ranking by TYRA shown in parentheses) was first officially calculated for ROP purposes for the 2000-2002 three-year period