



**INFORMATION SYSTEM ON OCCUPATIONAL EXPOSURE**

**General Distribution**

**July 2012**

**ISOE Information Sheet**

**North American Technical Center  
Information System on Occupational Exposure**

**North American Boiling Water Reactor (BWR)  
2009 Occupational Dose Benchmarking Charts**

**NATC ISOE Information Sheet No. 09-5**

NATC ISOE Information Sheet No. 09-5 presents the North American Boiling Water Reactor (BWR) occupational exposure results for FY 2009. Exposure categories per unit include refueling outage duration and dose, normal operations dose, and total dose.

The 2009 BWR charts are arranged in the following format:

**Table 1a-d: Outage Duration Quartiles**

**Table 2a-d : Outage Dose Quartiles**

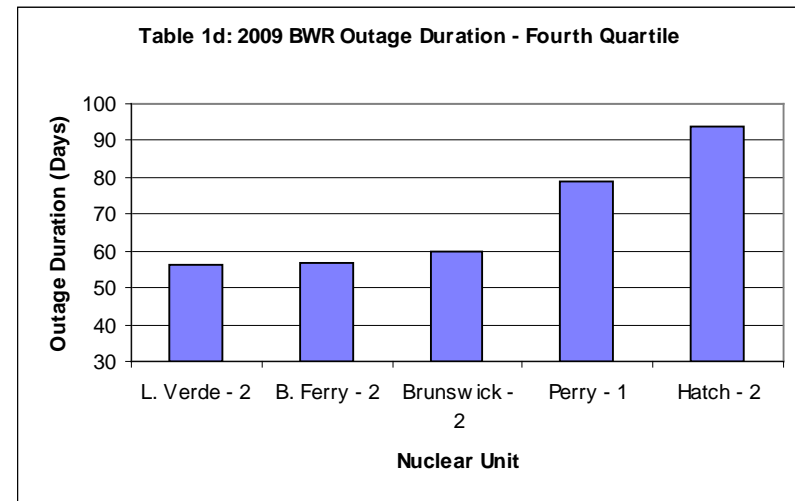
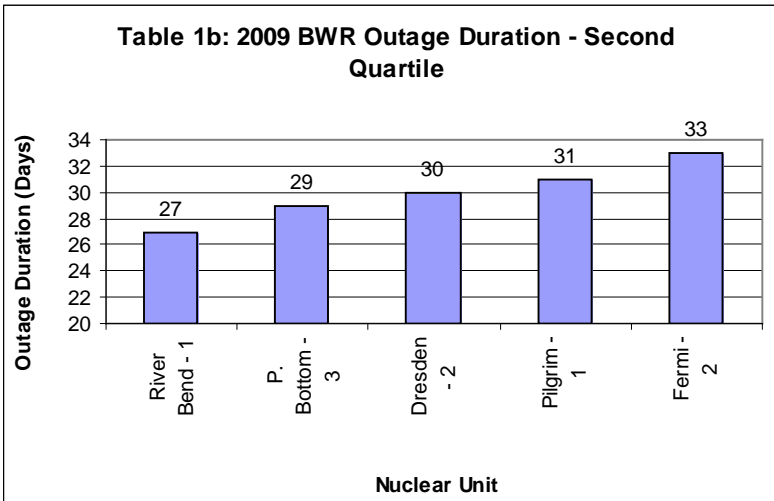
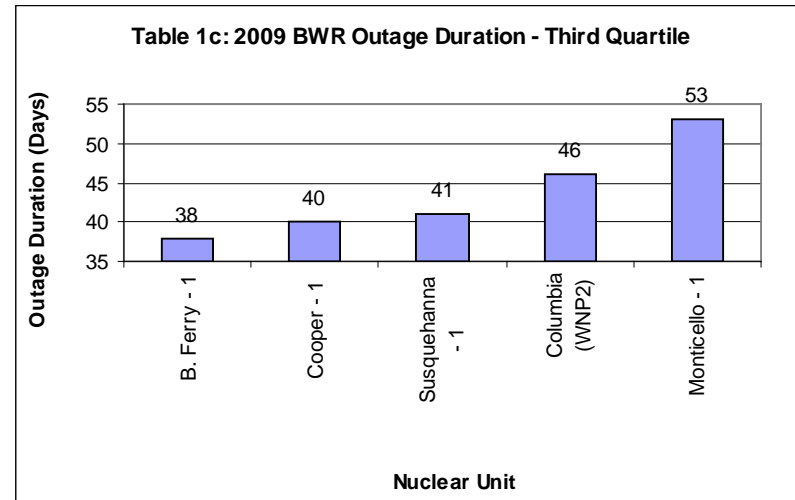
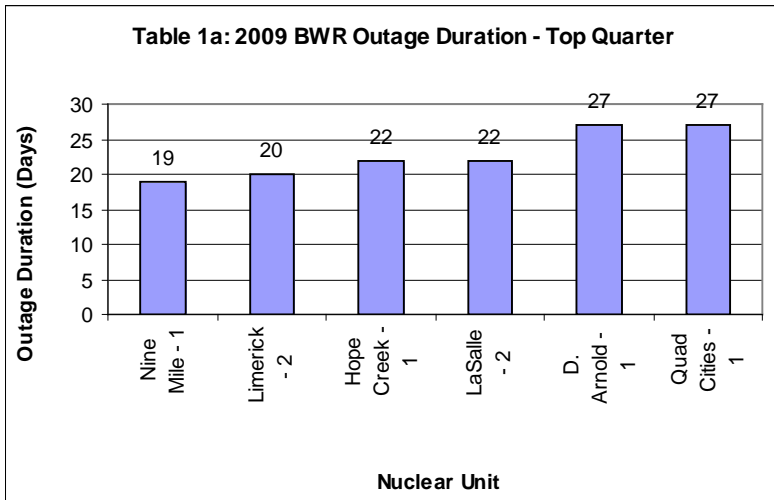
**Table 3a-d : Normal Operation Dose Quartiles**

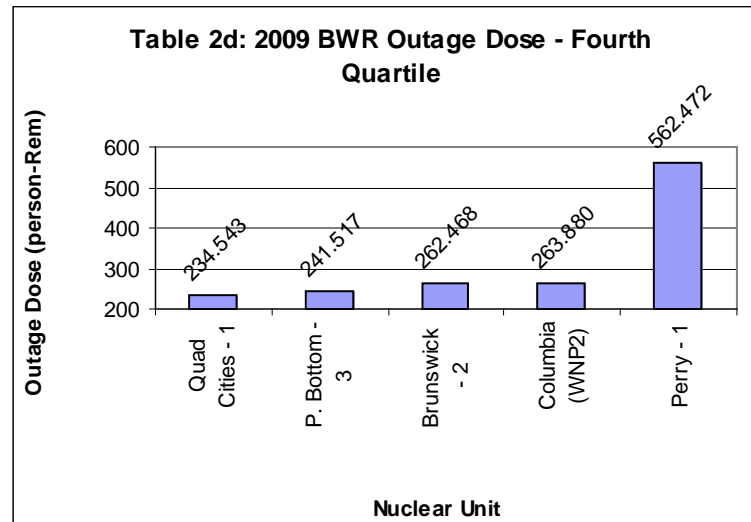
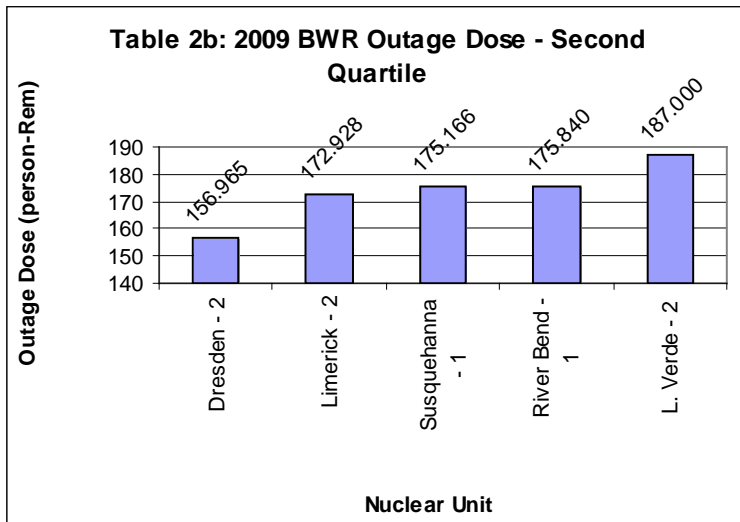
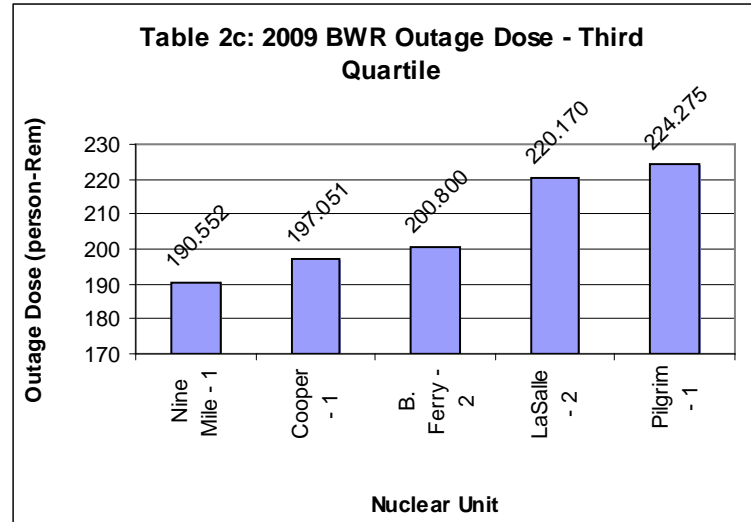
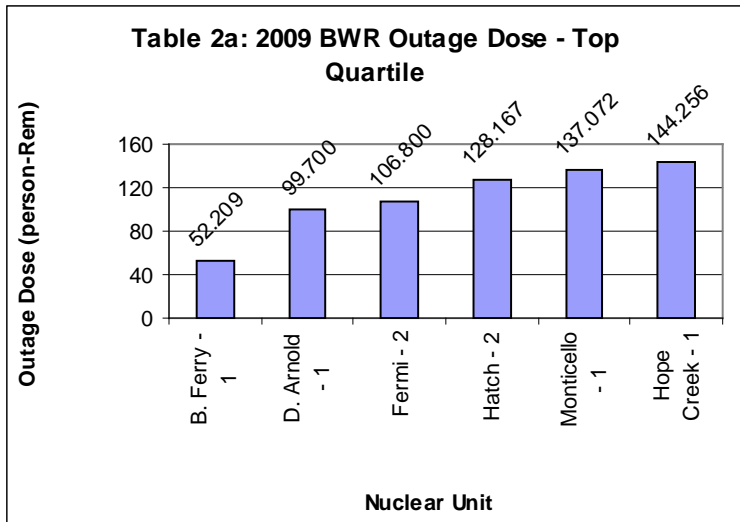
**Table 4a-d : Total Dose Quartiles**

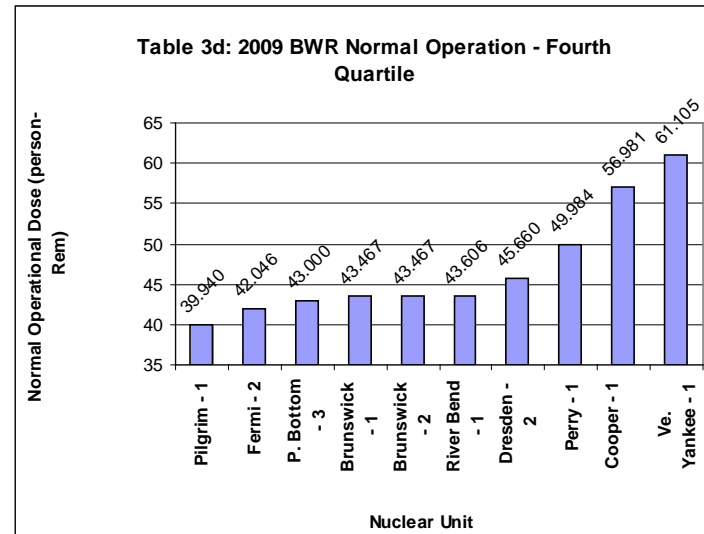
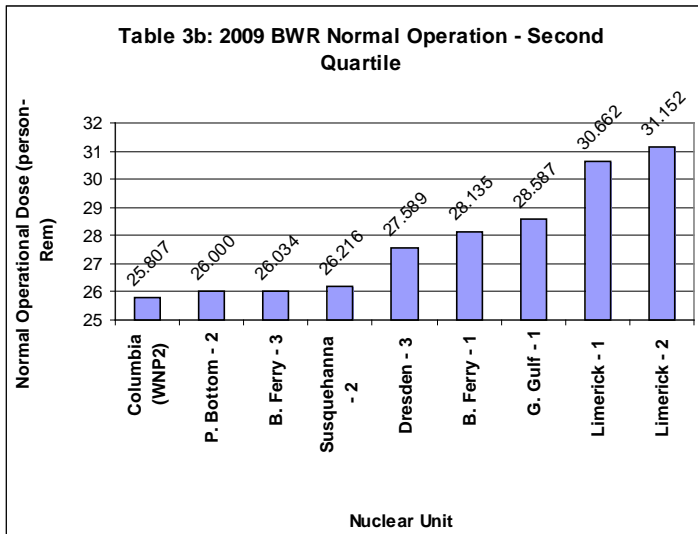
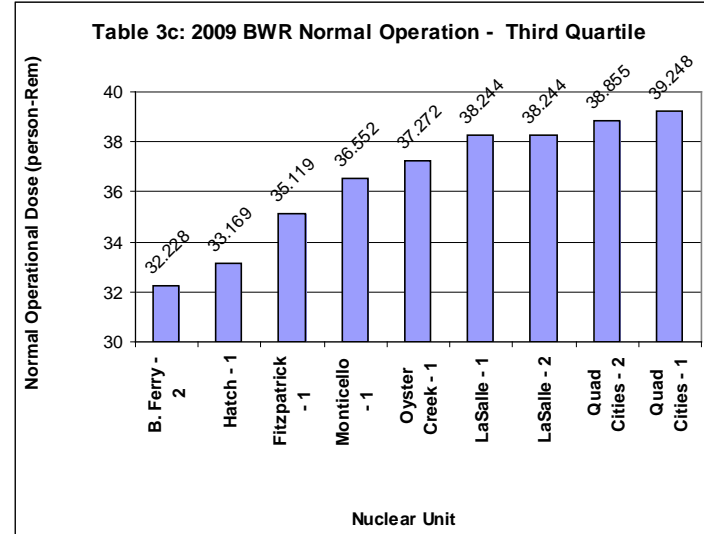
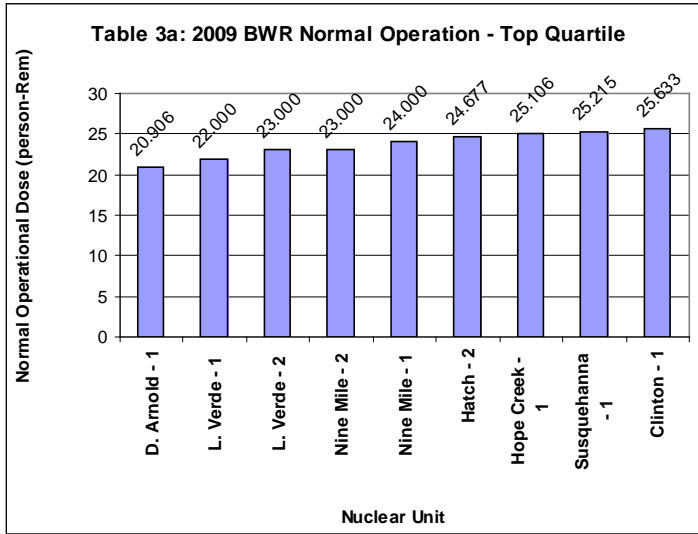
**Table 5: 2009 BWR Occupation Dose Data**

For reference, selected data for 2009 BWR collective dose per reactor unit is provided in the table below:

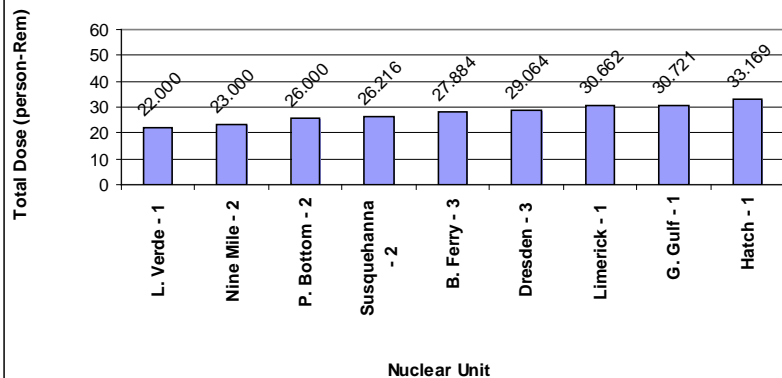
<b>Country</b>	<b>Collective Dose per Reactor (man.Sv)</b>
United States	1.51
Mexico	2.32
Japan	1.36



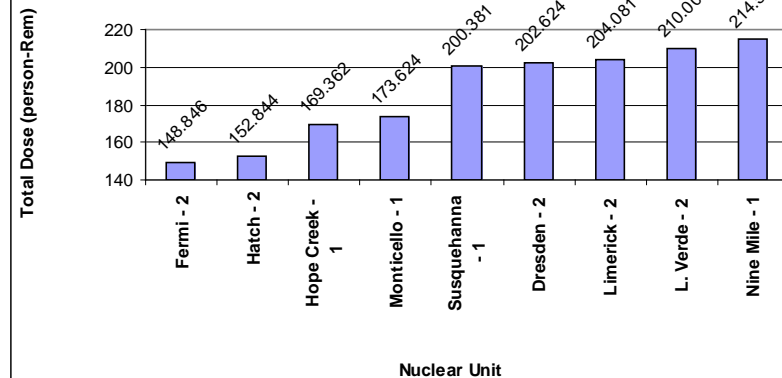




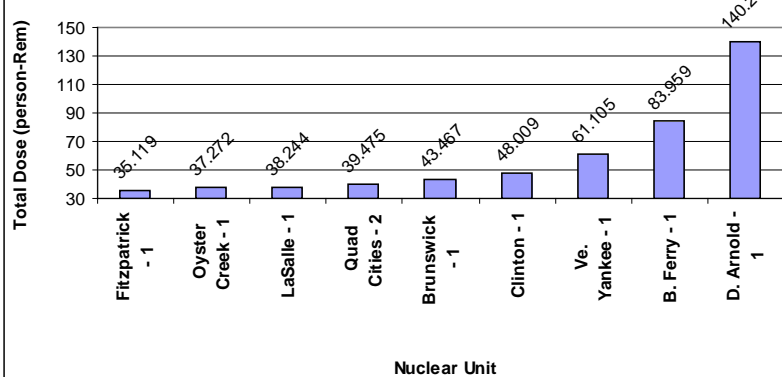
**Table 4a: 2009 BWR Total Dose - Top Quartile**



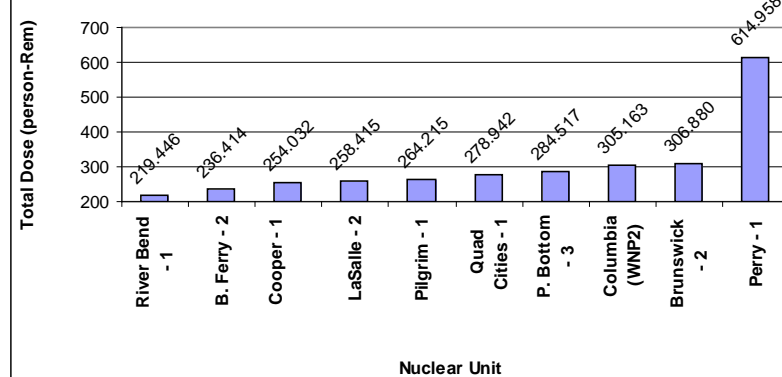
**Table 4c: 2009 BWR Total Dose - Third Quartile**



**Table 4b: 2009 BWR Total Dose - Second Quartile**



**Table 4d: 2009 BWR Total Dose - Fourth Quartile**



**Table 5: 2009 BWR Occupation Dose Data**

Nuclear Unit	Outage Start Date	Outage End Date	Outage Dose	Normal Operation	Other Shutdowns	Total Unit Dose	Total Site Dose	TLD Values
B. Ferry - 1	10/1/2009	11/7/2009	52.209	28.135	3.615	83.959		
B. Ferry - 2	4/26/2009	6/8/2009	200.800	32.228	3.386	236.414		
B. Ferry - 3				26.034	1.850	27.884	348.257	348.257
Brunswick - 1				43.467		43.467		
Brunswick - 2	2/28/2009	4/20/2009	262.468	43.467	0.945	306.880	350.347	350.347
Clinton - 1				25.633	22.376	48.009	48.009	48.009
Cooper - 1	9/26/2009	11/4/2009	197.051	56.981		254.032	254.032	254.032
Dresden - 2	11/2/2009	12/1/2009	156.965	45.660		202.624		
Dresden - 3				27.589	1.475	29.064	231.688	231.688
D. Arnold - 1	2/2/2009	2/28/2009	99.700	20.906	19.600	140.206	140.206	140.206
Fermi - 2	3/28/2009	4/30/2009	106.800	42.046		148.846	148.846	148.846
G. Gulf - 1				28.587	2.134	30.721	30.721	30.721
Hatch - 1				33.169		33.169		
Hatch - 2	2/9/2009	5/22/2009	128.167	24.677		152.844	186.013	186.013
Hope Creek - 1	4/11/2009	5/2/2009	144.256	25.106		169.362	169.362	169.362
Fitzpatrick - 1				35.119		35.119	35.119	35.119
LaSalle - 1				38.244		38.244		
LaSalle - 2	1/19/2009	2/9/2009	220.170	38.244		258.415	296.659	296.659
L. Verde - 1				22.000		22.000		
L. Verde - 2	4/3/2009	5/28/2009	187.000	23.000		210.000	210.000	
Limerick - 1				30.662		30.662		
Limerick - 2	3/23/2009	4/11/2009	172.928	31.152		204.081	234.742	234.742
Monticello - 1	3/15/2009	5/6/2009	137.072	36.552		173.624	173.624	173.624
Nine Mile - 1	3/21/2009	4/8/2009	190.552	24.000		214.552		
Nine Mile - 2				23.000		23.000	237.552	237.552
Oyster Creek - 1				37.272		37.272	37.272	37.272

<b>Nuclear Unit</b>	<b>Outage Start Date</b>	<b>Outage End Date</b>	<b>Outage Dose</b>	<b>Normal Operation</b>	<b>Other Shutdowns</b>	<b>Total Unit Dose</b>	<b>Total Site Dose</b>	<b>TLD Values</b>
P. Bottom - 2				26.000		26.000		
P. Bottom - 3	9/14/2009	10/12/2009	241.517	43.000		284.517	310.517	310.517
Perry - 1	2/23/2009	5/11/2009	562.472	49.984	2.502	614.958	614.958	614.958
Pilgrim - 1	4/18/2009	5/18/2009	224.275	39.940		264.215	264.215	264.215
Quad Cities - 1	4/27/2009	5/17/2009	234.543	39.248	5.151	278.942		
Quad Cities - 2				38.855	0.621	39.475	318.418	318.418
River Bend - 1	9/20/2009	10/17/2009	175.840	43.606		219.446	219.446	219.446
Susquehanna - 1	4/7/2009	5/18/2009	175.166	25.215		200.381		
Susquehanna - 2				26.216		26.216	226.597	226.597
Ve. Yankee - 1				61.105		61.105	61.105	61.105
Columbia (WNP2)	5/9/2009	6/20/2009	263.880	25.807	15.476	305.163	305.163	305.163