



INFORMATION SYSTEM ON OCCUPATIONAL EXPOSURE

General Distribution

July 2003

## ISOE INFORMATION SHEET

North American Technical Center  
Information System on Occupational Exposure

### 3-YEAR ROLLING AVERAGE ANNUAL DOSE COMPARISONS United States Pressurized Water Reactor (PWR) 2000-2002 Occupational Dose Benchmarking Charts

#### NATC ISOE Information Sheet No. 03-1

NATC ISOE Information Sheet No. 03-1 presents the U.S. Pressurized Water Reactor (PWR) occupational exposure results for FY 2002. The 3-Year Rolling Average Occupational Dose Comparisons provide a means to evaluate site occupational dose performance over an entire fuel cycle.

For this report, annual site doses were used for 2000, 2001 and 2002. Annual site doses were divided by the number of units per site. The top 10% US PWR

units for this period are provided in the following table.

Indian Point 3	44.5 (445)
Seabrook	48.4 (484)
Palo Verde 1,2,3	53.4 (534)
Ginna	55.7 (557)
Crystal River 3	55.9 (559)

**Table 1: U.S. PWR Three-Year Rolling Average, 2000-2002**

Table 1: U.S. PWR Three-Year Rolling Average, 2000-2002

**PRESSURIZED WATER REACTORS  
COLLECTIVE RADIATION EXPOSURE PER UNIT**

SITE NAME	COMPANY	Collective Radiation Exposure Per Site (Person-Rem or Person-cSv)														Three-Year Rolling Average	
		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000^	2001	2002	Per Unit
		Arkansas 1,2	Entergy Operations, Inc.	1388	712	762	352	846	210	171	387	213	119	166.599	183.997	242.326	106.04
Beaver Valley 1,2	First Energy Corporation	530	1378	348	496	272	621	44	453	450	306	59.311	99.461	337.867	182.846	90.479	101.9
Braidwood 1,2	Excelon Nuclear	75	296	186	550	226	273	299	237	336	321	259.236	145.976	194.126	100.57	90.716	64.2
Byron 1,2	Excelon Nuclear	458	192	434	268	199	432	280	306	456	241	275.221	239.102	193.871	59.451	195.013	74.7
Callaway	Ameren UE	27	283	442	21	336	224	14	186	248	12	200.729	320.554	16.058	106.782	95.648	72.8
Calvert Cliffs 1,2	Constellation Energy	292	346	304	132	330	407	458	236	239	229	186.887	191.778	134.689	166.864	245.075	91.1
Catawba 1,2	Duke Power Company	556	334	810	462	394	397	206	462	303	266	161.703	118.662	186.532	116.241	81.325	64.0
Comanche Peak 1,2	TU Electric	0	0	8	148	163	102	92	164	280	146	232.026	251.276	77.697	114.968	225.317	69.7
Cook 1,2	American Electric Power	936	494	580	70	492	43.6	467	202	216	550	104.638	171.479	337.584	27.29	278.001	107.1
Crystal River 3	Progress Energy	64	234	476	116	425	69.4	227	8	354	179	19.298	251.077	14.649	147.946	5.039	55.9
Davis-Besse	First Energy Corporation	307	38	489	216	20	336	145	7	159	10	155.269	27.951	168.043	5.505	402.766	192.1
Diablo Canyon 1,2	Pacific Gas & Electric Co.	878	466	324	546	426	260	590	300	276	219	173.238	448.634	180.792	400.702	148.69	121.7
Farley 1,2	Southern Nuclear Operating Co.	552	750	458	648	804	333	251	461	232	278	431.821	190.463	359.855	168.689	96.431	104.2
Fort Calhoun	Omaha Public Power District	272	93	290	57	256	157	23	139	236	41	223.847	158.843	35.215	225.891	163.806	141.6
Ginna	Rochester Gas & Electric Corp.	295	605	347	328	261	193	148	136	211	81	14.892	175.173	76.435	10.156	80.432	55.7
Indian Point 2	Entergy Nuclear NE	235	1436	608	1468	82	675	48	546	56	367	289.600	40.931	567.224	22.067	248.487	279.3
Indian Point 3	Entergy Nuclear NE	93	876	358	40	194	53	58	67	26	234	14.774	116.920	8.693	118.115	6.797	44.5
Kewaunee	Nuclear MGMT. Company	210	239	145	221	113	105	74	95	123	56	88.205	5.055	99.864	200.245	4.449	101.5
McGuire 1,2	Duke Power Company	1104	620	728	362	386	463	385	143	234	492	142.245	256.524	132.513	136.581	180.618	75.0
Millstone 2,3	Dominion Nuclear	804	1080	594	382	1094	521	196	423	128	253	112.543	252.138	142.664	174.238	292.197	101.5
North Anna 1,2	Dominion Generation	112	1472	590	630	590	908	192	359	324	103	265.922	94.402	65.405	308.907	143.312	86.3
Oconee 1, 2, 3	Duke Power Company	870	684	405	552	654	238	527	304	258	223	366.028	202.025	272.697	579.209	224.672	119.6

Conn Yankee and Maine Yankee were shut down during 1997.

Zion was shut down in 1998.

2000^ - Based on Official TLD Data

SITE NAME	COMPANY	Collective Radiation Exposure Per Site															Three-Year Rolling Average  Per Unit
		(Person-Rem or Person-cSv)															
		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 <sup>^</sup>	2001	2002	
Palisades	Nuclear MGMT. Company	730	314	766	211	292	288	61	454	302	48	216.563	218.451	26.305	362.723	24.38	137.8
Palo Verde 1,2,3	Arizona Public Service Co.	688	720	498	606	528	612	455	482	322	246	192.425	146.328	158.105	182.043	140.057	53.4
Point Beach 1,2	Nuclear MGMT. Company	410	504	378	266	256	186	177	190	98	92	169.253	194.489	138.989	131.667	180.654	75.2
Prairie Island 1,2	Nuclear MGMT. Company	200	100	188	98	216	105	109	106	112	174	116.649	72.496	106.091	124.708	127.713	59.8
Robinson 2	Progress Energy	564	195	437	193	352	325	63	215	167	13	170.476	123.952	8.396	124.75	110.631	81.3
Salem 1,2	Public Service Electric & Gas Co.	504	338	272	459	416	413	188	227	340	175	41.100	317.545	198.068	153.088	292.692	107.3
San Onofre 1,2,3 *	Southern California Edison Co.	780	567	885	411	330	767	40	453	144	341	195.600	353.765	115.499	131.384	136.443	63.9
Seabrook	Florida Power & Light Co.	0	0	6	92	135	5.6	113	102	10	186	18.509	105.728	70.091	8.672	66.583	48.4
Sequoyah 1,2	Tennessee Valley Authority	678	658	1678	698	465	372	346	239	266	414	255.295	164.569	357.22	145.066	108.252	101.8
Shearon Harris	Progress Energy	169	156	85	226	213	30.8	222	174	20	149	133.497	15.538	100.981	252.241	6.674	120.0
South Texas 1,2	Houston Lighting & Power Co./AEP	0	161	206	258	140	251	48	294	204	273	183.977	259.770	231.634	237.645	329.091	133.1
St. Lucie 1,2	Florida Power & Light Co.	612	496	778	480	244	461	504	413	392	646	134.459	176.878	98.691	228.071	155.946	80.5
Summer 1	South Carolina Electric & Gas Co.	511	52	376	291	26	276	347	10	107	163	13.513	120.172	166.561	69.398	59.644	98.5
Surry 1,2	Dominion Generation	1542	836	576	510	588	387	378	406	200	320	188.959	137.891	193.169	328.65	87.778	101.6
Three Mile Island 1	AmerGen	210	54	264	198	34	206	40	213	16	204	16.722	154.936	8.689	196.699	6.533	70.6
Turkey Point 3,4	Florida Power & Light Co.	738	434	730	940	322	360	468	219	188	414	156.415	127.567	219.852	101.575	73.764	65.9
Vogtle 1,2	Southern Nuclear Operation Co.	138	32	466	362	426	367	216	199	454	158	162.210	228.942	121.312	129.27	243.957	82.4
Waterford 3	Entergy Operations, Inc.	259	245	39	345	210	13.8	187	155	24	148	24.032	123.198	131.701	4.677	109.439	81.9
Watts Bar 1	Tennessee Valley Authority	0	0	0	0	0	0	0	0	0	112	3.042	98.946	122.453	5.912	93.598	74.0
Wolf Creek	Wolf Creek Nuclear Operating Corp.	297	18	195	331	66	168	230	14	115	265	10.382	147.704	143.417	5.176	99.987	82.9
Total Units Included * :		68	68	68	68	68	68	68	68	68	69	69	69	69	69	69	69
Annual PWR Average * :		281	272	272	221	203	185	134	150	130	134	92	105	95	93	87	91.7

Conn Yankee and Maine Yankee were shut down during 1997.

Zion was shut down in 1998.

2000<sup>^</sup> - Based on Official TLD Data