

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit A-1. Labor Categories and Occupation Codes.**

The following is a list of the Occupation Codes that are reported with each individual's dose record to the DOE Radiation Exposure Monitoring System (REMS) in accordance with DOE Order 231.1B. Occupation Codes are grouped into Labor Categories for the purposes of analysis and summary in this report. The occupation codes are listed in the REMS Reporting Guide, Table 7, and represent a subset of the occupations listed in the Department of Commerce's Standard Occupational Classification (SOC) Manual (1980).

Labor Category	Occupation Code	Occupation Name
Agriculture	562	Groundskeepers
	570	Forest Workers
	580	Misc. Agriculture
Construction/Repair	610	Mechanics/Repairers
	641	Masons
	642	Carpenters
	643	Electricians
	644	Painters
	645	Pipe Fitter
	650	Miners/Drillers
	660	Misc. Repair/Construction
Laborers	850	Handlers/Laborers/Helpers
Management	110	Manager - Administrator
	400	Sales
	450	Admin. Support and Clerical
Misc.	910	Military
	990	Miscellaneous
Production	681	Machinists
	682	Sheet Metal Workers
	690	Operators, Plant/System/Utility
	710	Machine Setup/Operators
	771	Welders and Solderers
	780	Misc. Precision/Production
Professional	160	Engineer
	170	Scientist
	184	Health Physicist
	200	Misc. Professional
	260	Doctors and Nurses
Service Workers	512	Firefighters
	513	Security Guards
	521	Food Service Employees
	524	Janitors
	525	Misc. Service
Technicians	350	Technicians
	360	Health Technicians
	370	Engineering Technicians
	380	Science Technicians
	383	Radiation Monitors/Techs.
	390	Misc. Technicians
Transport Workers	820	Truck Drivers
	821	Bus Drivers
	825	Pilots
	830	Equipment Operators
	840	Misc. Transport
Unknown	1	Unknown

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit A-2. Organizations Reporting to DOE REMS, 2008-2012.**

The following is a list of all organizations reporting to the DOE REMS from 2008-2012. The list provides the Site groupings used in this report as well as the organization reporting code and name.

Site	Organization Code	Organization Name	Year Reported *				
			2008	2009	2010	2011	2012
Ames Laboratory	1000503	Ames Laboratory (Iowa State)	●	●	●	●	●
Argonne National Laboratory (ANL)	1000703	Argonne National Laboratory	●	●	●	●	●
Brookhaven National Laboratory (BNL)	1001003	Brookhaven National Laboratory	●	●	●	●	●
DOE Headquarters	1500000	DOE Headquarters				●	
	1504001	DOE Headquarters	●				●
	1523016	SPRU-NY (Building remediation)		●	●	●	●
Energy Technology Engineering Center	8001003	Boeing North America, Inc. - Research	●	●	●	●	●
Fermi National Accelerator Lab. (FERMI)	1002503	Fermilab	●	●	●	●	●
Hanford	4700805	Bechtel National Corporation	●	●	●	●	●
	4701001	DOE, Office of River Protection	●	●	●	●	●
	4702004	Advance Technology Laboratories	●	●	●	●	●
	4707104	Washington River Protection Solutions, LLC	●	●	●	●	●
	NA-2100	NNSA - Management and Support Personnel	●	●	●	●	●
	NA-2101	NNSA - Mgmt. & Support Personnel: MELE Assoc.		●	●	●	●
	NA-2110	NNSA - North and South America		●	●	●	●
	NA-2120	NNSA - Europe, Africa and the Middle East		●	●	●	●
	NA-2130	NNSA - Asia and Members of the Former Soviet		●	●	●	●
	7500503	Battelle - PNNL	●	●	●	●	●
	7500605	Washington Closure Hanford	●	●	●	●	●
	7502504	AdvanceMed Hanford	●	●	●	●	●
	7505004	Fluor Hanford, Inc.	●	●	●	●	
	7505005	Kaiser Engineers Hanford	●	●			
	7505006	Fluor Northwest Services	●	●			
	7505024	Duratek Federal Services, Inc. - Hanford	●				
	7505025	Duratek Federal Services, Inc.	●	●			
	7505055	Lockheed Martin Services, Inc.	●				
	7505075	AREVA/COGEMA Engineering Corporation	●	●			
	7505214	Mission Support Alliance (MSA)		●	●	●	●
	7505304	CH2M Hill Plateau Remediation Company	●	●	●	●	●
	7506001	DOE-Richland Field Office	●	●	●	●	●
	Idaho Site	3004001	Idaho Field Office	●		●	
3004001		ICP-DOE		●			
3004001		CH2M-WG: INL		●			
3004402		BBWI - AMWTP		●	●	●	
3004404		BBWI Service Subs		●			
3005003		INL - BEA, LLC - Research		●		●	●
3005004		INL - BEA, LLC - Services	●	●	●	●	●
3005009		INL - BEA, LLC - Security				●	●
3005012		INL - BEA, LLC - Production				●	●
3005016		ICP - BBWI - Construction Subs	●		●		
3005064		INL - BEA, Sub - Red Inc.		●			
3006002		INL - CWI - Projects		●	●	●	●
3006004		ICP - CWI - Subcontractors		●	●	●	●
3006005		ICP - CWI - Support			●	●	●
3006016		ICP - CWI - Construction Subs	●	●	●	●	●
Kansas City Plant		0531002	Honeywell FM & T/KC Production	●	●	●	●
Lawrence Berkeley National Lab. (LBNL)	8003003	Lawrence Berkeley National Laboratory	●	●	●	●	●
Lawrence Livermore National Lab. (LLNL)	0580403	Lawrence Livermore National Laboratory	●	●	●	●	●
	8004003	Lawrence Livermore National Laboratory	●	●	●	●	●
	0580701	LLNL - DOE Site Office	●	●	●	●	●
	0580404	LLNL Services	●				
	0580503	LLNL - Nevada	●	●	●	●	●
Los Alamos National Lab. (LANL)	0540001	NNSA Los Alamos Site Office	●	●	●	●	●
	0544003	Los Alamos National Laboratory	●	●	●	●	●
	0544809	Protection Technologies Los Alamos	●	●	●	●	●

Site	Organization Code	Organization Name	Year Reported *					
			2008	2009	2010	2011	2012	
	0544904	Johnson Controls, Inc.	●	●	●	●	●	
National Renewable Energy Laboratory	2806003	National Renewable Energy Laboratory	●	●	●	●	●	
Nevada National Security Site	0501001	NNSA Service Center				●	●	
	0520001	NNSA Nevada Site Office				●	●	
	0521104	Bechtel Nevada - Amador Valley			●	●	●	
	0521204	Bechtel Nevada - Las Vegas			●	●	●	
	0521304	Bechtel Nevada - Los Alamos			●	●	●	
	0521405	Bechtel Nevada - NTS			●	●	●	
	0521416	Bechtel Nevada - NTS - subcontractors			●	●	●	
	0521503	Bechtel Nevada - Special Tech Lab.			●	●	●	
	3500000	Nevada Operations	●					
	3500000	National Security Technologies, LLC (NSTec)		●	●	●		
	3501204	Bechtel Nevada - Las Vegas	●	●	●	●		
	3501405	Bechtel Nevada - NTS	●	●				
	3501405	NSTec - NTS			●	●		
	3501416	Bechtel Nevada - NTS Subcontractors	●	●				
	3501503	Bechtel Nevada - Special Tech Laboratory	●	●				
	3501503	NSTec - Special Tech. Laboratory			●			
	3501604	Bechtel Nevada - Washington Aerial Measurement	●					
	3501604	NSTec - Washington Aerial Measurement		●	●			
	3507514	Nevada Miscellaneous Contractors - NSTec	●	●	●	●		
	3508004	Nye County Sheriff - NSTec	●	●	●	●	●	
	3508703	SAIC - NV				●	●	
	3509009	Wackenhut Services, Inc. - NSTec	●	●	●	●		
	9700000	Yucca Mountain Project - NSTec	●	●	●	●		
	New Brunswick Laboratory	1004031	New Brunswick Laboratory - Research	●	●	●	●	●
	Oak Ridge Site	4004203	Oak Ridge Inst. For Science & Educ. (ORISE)	●	●	●	●	●
		4004501	Oak Ridge Office	●		●	●	●
4004525		SEC Oak Ridge			●	●	●	
4004526		LATA Sharp			●	●		
4003602		UT-Battelle: ORNL-Isotek	●	●	●	●	●	
4004602		UT-Battelle: Foster Wheeler	●	●	●	●	●	
4005104		USEC: Oak Ridge, K25	●	●	●	●	●	
4006002		Bechtel-Jacobs Co., LLC-ETTP	●	●	●	●	●	
4006105		UT-Battelle - Materials & Energy Corp.	●	●	●			
4006503		UT-Battelle - ORNL	●	●	●	●	●	
4006510		Bechtel Jacobs - ORNL	●	●	●	●	●	
4007509		Wackenhut Services, Inc. - OR Security	●					
4007509		Wackenhut Services	●	●	●	●	●	
4008010		Bechtel-Jacobs, Y-12	●	●	●	●	●	
4018102		BWXT LLC, Y-12	●	●	●	●	●	
Paducah Gaseous Diff. Plant (PGDP)		4007002	Swift & Staley, UDS - Paducah	●	●			
		4007002	Swift & Staley Team			●		●
	6203004	UT-Battelle - Paducah Remediation Services	●					
	6203004	Paducah Remediation Services		●	●	●	●	
	6203005	LATA Kentucky			●			
	6203106	Uranium Disposition Services - Paducah Sub			●	●	●	
	6203204	Swift & Staley Mech Contr, Inc. - Paducah			●	●		
Pantex Plant (PP)	0510001	NNSA Amarillo Site Office	●					
	0510001	B & W Pantex - PXSO/NNSA and DOE Couriers		●	●	●	●	
	0514004	Battelle - Pantex			●	●	●	
	0515002	BWXT - Amarillo	●					
	0515002	B & W Pantex		●	●	●	●	
	0515006	BWXT - Amarillo - Subcontractors	●					
	0515006	B & W Pantex - Subcontractors		●	●	●	●	
	0515009	BWXT - Amarillo - Security Forces	●					
	0515009	B & W Pantex - Security Forces		●	●	●	●	
Portsmouth Gaseous Diff. Plant (PORTS)	6202106	Uranium Disposition Services - Portsmouth Sub	●	●	●	●	●	
	6202204	Theta Pro2Serve Management Co. - Portsmouth	●	●	●	●	●	
	6202304	LATA/Parralax Portsmouth LLC	●	●	●	●	●	

Site	Organization Code	Organization Name	Year Reported *				
			2008	2009	2010	2011	2012
Princeton Plasma Physics Laboratory	1005003	Princeton Plasma Physics Laboratory	●	●	●	●	●
Sandia National Laboratories (SNL)	0578003	Sandia National Laboratories	●	●	●	●	●
Savannah River Site (SRS)	8500505	Bechtel Construction - SR	●		●	●	●
	8500516	Miscellaneous SRS Construction Subs	●		●	●	●
	8501002	Westinghouse Savannah River Co.	●				
	8501002	Savannah River Nuclear Solutions, Inc.		●	●	●	
	8501014	Westinghouse S.R. Subcontractors	●		●		
	8501042	SRR Operations			●	●	●
	8501044	SRR Service Subs		●	●	●	●
	8505004	SRS - WSRC	●				
	8505004	Savannah River Nuclear Solutions, Inc.		●			
	8505501	Savannah River Field Office	●	●	●	●	●
	8505504	Misc. DOE Contractors - SR			●	●	●
	8505516	Savannah River Nuclear Solutions, Inc.		●			
	8505525	SRS - WSRC - Construction	●				
	8505525	Savannah River Nuclear Solutions, Inc.		●		●	
	8505526	SRS - WSRC - Construction	●				
	8505526	Savannah River Nuclear Solutions, Inc.		●			
	8505526	SR Construction - Parsons Subcontractors			●	●	●
	8507004	Miscellaneous DOE Contractors - SR	●		●		
	8509003	Univ. of Georgia Ecology Laboratories	●	●	●	●	
	8509504	Wackenhut Services, Inc. - SRS	●	●			
	8509504	Savannah River Nuclear Solutions, Inc.		●			
	8509509	Wackenhut Services, Inc. - SRNS	●	●	●	●	●
	8511002	Savannah River Nuclear Solutions, Inc.		●	●	●	●
8511004	SRNS Service Subs		●	●	●	●	
8511005	SRNS Construction		●	●	●	●	
8511006	SRNS Construction Subs		●	●	●	●	
Separations Process Research Unit	1522005	DeNuke Services: SPRU LA	●	●	●	●	●
SLAC National Accelerator Facility	8008003	Stanford Linear Accelerator Center	●	●	●	●	●
Thomas Jefferson National Accelerator Facility	4004501	Jefferson Laboratory		●			●
	4009503	Thomas Jefferson National Accel. Facility	●	●	●	●	●
Uranium Mill Tailings Remediation Action Project	3260645	Uranium Mill Tailings Remedial Action - Moab	●	●	●	●	●
Waste Isolation Pilot Plant	0590001	Waste Isolation Pilot Project (WIPP)	●	●			
	0590001	Washington TRU Solutions LLC-WIPP			●		
	0593004	Carlsbad Area Miscellaneous Contractors	●				
	0593004	WIPP Project - Carlsbad Field Office		●			
	0701001	Carlsbad Field Office			●	●	
	0702003	LANL - WIPP				●	
	0703104	Washington TRU Solutions LLC-WIPP			●	●	●
	0703109	Santa Fe Protective Services - WIPP				●	
	0703114	WTS Subcontractors - WIPP			●	●	
	0703124	WTS - Small Subs				●	
0704003	Sandia National Laboratories - WIPP				●		
West Valley Project	4539004	West Valley Nuclear Services, Inc. (WVNS)		●	●	●	●
	4542005	RMI Titanium Company		●			
Pittsburg Naval Reactor Office	6007504	PNR - BAPL & BPMI-P	●	●	●	●	●
	6008003	Pittsburg Naval Reactor	●	●	●		
	6008003	PNR - BAPL & BPMI-P				●	●
	6009003	PNR - Bechtel Bettis, Inc.	●	●	●		
	6009003	Naval Reactors - Idaho				●	●
Schenectady Naval Reactor Office	9004003	LM-KAPL - Kesselring	●	●	●		
	9004003	Knolls Atomic Power Laboratory				●	●
	9005003	LM-KAPL - Knolls	●	●	●		
	9005003	Knolls Atomic Power Laboratory				●	●
	9005004	LM-KAPL - Knolls Service Subs	●	●	●		
9005004	Knolls Atomic Power Laboratory				●	●	

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### Exhibit A-3. Facility Type Codes.

The following is a list of Facility Type Codes reported to REMS in accordance with the REMS Reporting Guide. A facility type code is reported with each individual's dose record and indicates the facility type where the majority of the individual's dose was accrued during the monitoring year.

Facility Type Code	Description
10	Accelerator
21	Fuel/Uranium Enrichment
22	Fuel Fabrication
23	Fuel Processing
40	Maintenance and Support (Site-Wide)
50	Reactor
61	Research, General
62	Research, Fusion
70	Waste Processing/Mgmt.
80	Weapons Fab. and Testing
99	Other

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**Exhibit B-1. Site Dose Data - 2010.**

Site	Collective TED (person-rem)	Percent Change - Coll. TED	Number with Meas. Dose	Percent Change - # with Meas. Dose	Avg. Meas. TED (rem)	Percent Change - Avg. Meas. TED	Percentage of Coll. TED above 0.500 rem	Percent Change - Coll. TED above 0.500 rem
Ames Laboratory	0.907		32		0.028			
Argonne National Laboratory	31.170	77% ▲	177	29% ▲	<b>0.176</b>	37% ▲	<b>51% ▲</b>	57% ▲
Brookhaven National Laboratory	11.529	122% ▲	214	19% ▲	0.054	87% ▲	6% ▲	
Energy Technology Engineering Center	0.292		54		0.005			
Fermi National Accelerator Laboratory	11.220	-40% ▼	169	-30% ▼	0.066	-14% ▼		
Hanford - Hanford Site	112.522	21% ▲	1,673	2% ▲	0.067	18% ▲	1% ▲	-92% ▼
Hanford - Office of River Protection	28.522	38% ▲	535	55% ▲	0.053	-11% ▼		
Hanford - Pacific Northwest National Laboratory	27.500	79% ▲	280	16% ▲	0.098	55% ▲	45% ▲	320% ▲
Idaho Site	130.278	17% ▲	1,890	5% ▲	0.069	12% ▲	5% ▲	405% ▲
Kansas City Plant	0.046		10		0.005			
Lawrence Berkeley National Laboratory	1.097	79% ▲	16	14% ▲	0.069	57% ▲		
Lawrence Livermore National Laboratory	18.214	-30% ▼	144	-21% ▼	0.126	-11% ▼	46% ▲	-32% ▼
Los Alamos National Laboratory	125.389	8% ▲	1,335	-4% ▼	0.094	13% ▲	24% ▲	6% ▲
National Renewable Energy Laboratory	0.022		3		0.007			
Nevada National Security Site	3.288	-40% ▼	84	-2% ▼	0.039	-39% ▼		
New Brunswick Laboratory	0.037		3		0.012			
Oak Ridge - East Tennessee Technology Park	1.187	39% ▲	43	30% ▲	0.028	7% ▲		
Oak Ridge - Oak Ridge Institute for Science and Education	0.114		56		0.002			
Oak Ridge - Oak Ridge National Laboratory	73.481	58% ▲	731	12% ▲	0.101	41% ▲	10% ▲	74% ▲
Oak Ridge - Y-12 National Security Complex	69.516	12% ▲	1,635	19% ▲	0.043	-5% ▼	5% ▲	-31% ▼
Paducah Gaseous Diffusion Plant	1.884	64% ▲	90	14% ▲	0.021	44% ▲		
Pantex Plant	26.131	4% ▲	303	0%	0.086	4% ▲		
Portsmouth Gaseous Diffusion Plant	2.960	92% ▲	63	97% ▲	0.047	-2% ▼		
Princeton Plasma Physics Laboratory	0.663		79		0.008			
Sandia National Laboratory	3.606	-26% ▼	83	-37% ▼	0.043	17% ▲		
Savannah River Site	<b>179.572</b>	65% ▲	<b>2,587</b>	18% ▲	0.069	39% ▲	18% ▲	<b>809% ▲</b>
Separations Process Research Unit	7.850	<b>2,626% ▲</b>	74	<b>640% ▲</b>	0.106	<b>268% ▲</b>	28% ▲	
SLAC National Accelerator Laboratory	0.053		4		0.013			
Thomas Jefferson National Accelerator Facility	3.111	351% ▲	67	148% ▲	0.046	82% ▲		
Uranium Mill Tailings Remedial Action Project	31.497	769% ▲	237	158% ▲	0.133	237% ▲		
Waste Isolation Pilot Plant	1.199	32% ▲	62	-9% ▼	0.019	45% ▲		
West Valley Demonstration Project	41.873	13% ▲	308	34% ▲	0.136	-15% ▼	7% ▲	-71% ▼
Site Office Personnel*	0.077		6		0.013			
<b>Totals</b>	<b>946.807</b>	<b>30% ▲</b>	<b>13,047</b>	<b>11% ▲</b>	<b>0.073</b>	<b>17% ▲</b>	<b>13% ▲</b>	<b>20% ▲</b>

\* Includes personnel at NNSA Albuquerque complex and Oak Ridge, in addition to several smaller facilities not associated with a DOE site.  
 Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-2. Site Dose Data - 2011.**

Site	Collective TED (person-rem)	Percent Change - Coll. TED	Number with Meas. Dose	Percent Change - # with Meas. Dose	Avg. Meas. TED (rem)	Percent Change - Avg. Meas. TED	Percentage of Coll. TED above 0.500 rem	Percent Change - Coll. TED above 0.500 rem
Ames Laboratory	0.762		29		0.026			
Argonne National Laboratory	29.552	-5% ▼	177	0%	0.167	-5% ▼	49% ▲	-5% ▼
Brookhaven National Laboratory	12.822	11% ▲	172	-20% ▼	0.075	38% ▲	23% ▲	300% ▲
Energy Technology Engineering Center	0.139		47		0.003			
Fermi National Accelerator Laboratory	10.090	-10% ▼	155	-8% ▼	0.065	-2% ▼		
Hanford - Hanford Site	94.691	-16% ▼	1,479	-12% ▼	0.064	-5% ▼		
Hanford - Office of River Protection	25.308	-11% ▼	496	-7% ▼	0.051	-4% ▼	2% ▲	
Hanford - Pacific Northwest National Laboratory	22.336	-19% ▼	257	-8% ▼	0.087	-12% ▼	22% ▲	-52% ▼
Idaho Site	129.728	0%	2,398	27% ▲	0.054	-22% ▼	11% ▲	95% ▲
Kansas City Plant	0.049		2		0.025			
Lawrence Berkeley National Laboratory	0.759		13		0.058			
Lawrence Livermore National Laboratory	16.979	-7% ▼	116	-19% ▼	0.146	16% ▲	52% ▲	15% ▲
Los Alamos National Laboratory	127.056	1% ▲	1,459	9% ▲	0.087	-7% ▼	21% ▲	-9% ▼
National Renewable Energy Laboratory	0.017		5		0.003			
Nevada National Security Site	2.743	-17% ▼	78	-7% ▼	0.035	-10% ▼		
New Brunswick Laboratory	0.165		8		0.021			
Oak Ridge - East Tennessee Technology Park	0.830		39		0.021			
Oak Ridge - Oak Ridge Institute for Science and Education	0.211		82		0.003			
Oak Ridge - Oak Ridge National Laboratory	66.800	-10% ▼	730	-2% ▼	0.093	-8% ▼	7% ▲	-27% ▼
Oak Ridge - Y-12 National Security Complex	59.055	-15% ▼	1,537	-6% ▼	0.038	-10% ▼	1% ▲	-80% ▼
Paducah Gaseous Diffusion Plant	4.038	114% ▲	78	-13% ▼	0.052	147% ▲		
Pantex Plant	28.947	11% ▲	311	3% ▲	0.093	8% ▲	6% ▲	
Portsmouth Gaseous Diffusion Plant	2.279	-23% ▼	47	-25% ▼	0.048	3% ▲		
Princeton Plasma Physics Laboratory	0.401		53		0.008			
Sandia National Laboratory	6.913	92% ▲	126	52% ▲	0.055	26% ▲		
Savannah River Site	149.967	-16% ▼	2,512	-3% ▼	0.060	-14% ▼	6% ▲	-69% ▼
Separations Process Research Unit	0.179		13		0.014			
SLAC National Accelerator Laboratory	0.236		10		0.024			
Thomas Jefferson National Accelerator Facility	6.245	101% ▲	57	-15% ▼	0.110	136% ▲	37% ▲	
Uranium Mill Tailings Remedial Action Project	15.000	-52% ▼	191	-19% ▼	0.079	-41% ▼		
Waste Isolation Pilot Plant	0.476		25		0.019			
West Valley Demonstration Project	51.662	23% ▲	247	-20% ▼	0.209	54% ▲	36% ▲	442% ▲
Site Office Personnel*	0.496		23		0.023			
<b>Totals</b>	<b>866.931</b>	<b>-8% ▼</b>	<b>12,972</b>	<b>-1% ▼</b>	<b>0.067</b>	<b>-8% ▼</b>	<b>13% ▲</b>	<b>-3% ▼</b>

\* Includes personnel at NNSA Albuquerque complex and Oak Ridge, in addition to several smaller facilities not associated with a DOE site.  
Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-3. Site Dose Data - 2012.**

Site	Collective TED (person-rem)	Percent Change - Coll. TED	Number with Meas. Dose	Percent Change - # with Meas. Dose	Avg. Meas. TED (rem)	Percent Change - Avg. Meas. TED	Percentage of Coll. TED above 0.500 rem	Percent Change - Coll. TED above 0.500 rem
Ames Laboratory	0.820		25		0.033			
Argonne National Laboratory	21.146	-28% ▼	121	-32% ▼	<b>0.175</b>	5% ▲	<b>52% ▲</b>	7% ▲
Brookhaven National Laboratory	7.981	-38% ▼	171	-1% ▼	0.047	-37% ▼	7% ▲	-71% ▼
Energy Technology Engineering Center	0.226		54		0.004			
Fermi National Accelerator Laboratory	15.980	58% ▲	207	34% ▲	0.077	19% ▲	4% ▲	
Hanford - Hanford Site	58.349	-38% ▼	926	-37% ▼	0.063	-2% ▼	7% ▲	
Hanford - Office of River Protection	21.528	-15% ▼	413	-17% ▼	0.052	2% ▲		
Hanford - Pacific Northwest National Laboratory	17.779	-20% ▼	240	-7% ▼	0.074	-15% ▼	16% ▲	-28% ▼
Idaho Site	61.275	-53% ▼	1,255	-48% ▼	0.049	-10% ▼		
Kansas City Plant	0.021		6		0.004			
Lawrence Berkeley National Laboratory	0.497		10		0.050			
Lawrence Livermore National Laboratory	13.037	-23% ▼	131	13% ▲	0.100	-32% ▼	22% ▲	-58% ▼
Los Alamos National Laboratory	140.148	10% ▲	1,438	-1% ▼	0.097	12% ▲	34% ▲	57% ▲
National Renewable Energy Laboratory	0.020		4		0.005			
Nevada National Security Site	4.284	56% ▲	100	28% ▲	0.043	22% ▲		
New Brunswick Laboratory	0.039		2		0.020			
Oak Ridge - East Tennessee Technology Park	0.306		14		0.022			
Oak Ridge - Oak Ridge Institute for Science and Education	0.124		23		0.005			
Oak Ridge - Oak Ridge National Laboratory	78.792	18% ▲	764	5% ▲	0.103	13% ▲	15% ▲	<b>114% ▲</b>
Oak Ridge - Y-12 National Security Complex	58.245	-1% ▼	1,412	-8% ▼	0.041	7% ▲	1% ▲	-2% ▼
Paducah Gaseous Diffusion Plant	5.984	48% ▲	113	45% ▲	0.053	2% ▲		
Pantex Plant	33.118	14% ▲	339	9% ▲	0.098	5% ▲	9% ▲	32% ▲
Portsmouth Gaseous Diffusion Plant	7.092	<b>211% ▲</b>	135	<b>187% ▲</b>	0.053	8% ▲		
Princeton Plasma Physics Laboratory	0.334		43		0.008			
Sandia National Laboratory	4.315	-38% ▼	122	-3% ▼	0.035	-36% ▼		
Savannah River Site	<b>145.443</b>	-3% ▼	<b>2,044</b>	-19% ▼	0.071	19% ▲	5% ▲	-11% ▼
Separations Process Research Unit	0.584		23		0.025			
SLAC National Accelerator Laboratory	0.315		15		0.021			
Thomas Jefferson National Accelerator Facility	1.963	-69% ▼	85	49% ▲	0.023	-79% ▼		
Uranium Mill Tailings Remedial Action Project	7.673	-49% ▼	87	-54% ▼	0.088	12% ▲		
Waste Isolation Pilot Plant	0.298		18		0.017			
West Valley Demonstration Project	9.312	-82% ▼	86	-65% ▼	0.108	-48% ▼		
Site Office Personnel*	1.425	187% ▲	32	39% ▲	0.045	<b>106% ▲</b>		
<b>Totals</b>	<b>718.453</b>	<b>-17% ▼</b>	<b>10,458</b>	<b>-19% ▼</b>	<b>0.069</b>	<b>3% ▲</b>	<b>13% ▲</b>	<b>2% ▲</b>

\* Includes personnel at NNSA Albuquerque complex and Oak Ridge, in addition to several smaller facilities not associated with a DOE site.  
Note: Boxed values (gray background) indicate the greatest value in each column.



**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-4. Internal Dose by Site, 2010-2012.**

Site	No. of Individuals with New Intakes*			Collective CED Dose from Intake (person-rem)			Average CED		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Argonne National Laboratory	18	6	6	0.527	0.243	0.165	0.029	0.040	0.028
Brookhaven National Laboratory		1			0.001			0.001	
Hanford - Hanford Site	8	15	8	0.161	0.115	0.040	0.020	0.008	0.005
Hanford - Pacific Northwest National Laboratory	1	2	2	0.001	0.027	0.002	0.001	0.014	0.001
Idaho Site	27	33	6	1.315	4.268	0.098	0.049	<b>0.129</b>	0.016
Lawrence Livermore National Laboratory	18	18	3	0.115	0.030	0.035	0.006	0.002	0.012
Los Alamos National Laboratory	28	18	12	0.128	0.548	0.259	0.005	0.030	0.022
Oak Ridge - East Tennessee Technology Park	7	21	11	0.164	0.318	0.265	0.023	0.015	0.024
Oak Ridge - Oak Ridge National Laboratory	1	2	1	0.013	0.094	0.017	0.013	0.047	0.017
Oak Ridge - Y-12 National Security Complex	<b>1,346</b>	<b>1,242</b>	<b>1,222</b>	<b>57.232</b>	<b>44.594</b>	<b>46.775</b>	0.043	0.036	<b>0.038</b>
Paducah Gaseous Diffusion Plant	13	13	3	0.408	0.479	0.071	0.031	0.037	0.024
Pantex Plant	20	7	7	0.095	0.049	0.037	0.005	0.007	0.005
Princeton Plasma Physics Laboratory	8			0.026			0.003		
Sandia National Laboratory	3	1		0.046	0.004		0.015	0.004	
Savannah River Site	60	61	22	31.954	0.325	0.095	<b>0.533</b>	0.005	0.004
Uranium Mill Tailings Remedial Action Project	109	108	50	3.743	2.279	1.916	0.034	0.021	<b>0.038</b>
Site Office Personnel*		1	1		0.015	0.011		0.015	0.011
<b>Totals</b>	<b>1,667</b>	<b>1,549</b>	<b>1,354</b>	<b>95.928</b>	<b>53.389</b>	<b>49.786</b>	<b>0.058</b>	<b>0.034</b>	<b>0.037</b>

\*Only includes intakes that occurred during the monitoring year. Individuals may be counted more than once.  
 Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-5. Neutron Dose Distribution by Site, 2012.**

Site	No. Meas. Dose	Meas < 0.1	0.1 - 0.25	0.25 - 0.5	0.5 - 0.75	0.75 - 1.0	1-2	>2	Total Monitored *	No. of Individuals with Meas. Dose	% of Individuals with Meas. Dose	Collective Neutron Dose (person-rem)	Avg. Meas. Neutron Dose (rem)
Ames Laboratory	166								166				
Argonne National Laboratory	2,353	1	1						2,355	2	0%	0.183	0.092
Brookhaven National Laboratory	2,431	7							2,438	7	0%	0.059	0.008
Energy Technology Engineering Center	82								82				
Fermi National Accelerator Laboratory	1,430								1,430				
Hanford - Hanford Site	4,775	426	30	4					5,235	460	9%	18.758	0.041
Hanford - Office of River Protection	1,722	7							1,729	7	0%	0.269	0.038
Hanford - Pacific Northwest National Laboratory	1,913	33							1,946	33	2%	0.724	0.022
Idaho Site	6,080	85							6,165	85	1%	2.459	0.029
Kansas City Plant	70								70				
Lawrence Berkeley National Laboratory	769								769				
Lawrence Livermore National Laboratory	8,011	37	9	1					8,058	47	1%	2.559	0.054
Los Alamos National Laboratory	8,387	629	131	51	17	8			9,223	836	9%	71.909	0.086
National Renewable Energy Laboratory	14								14				
Nevada National Security Site	2,617								2,617				
New Brunswick Laboratory	29								29				
Oak Ridge - East Tennessee Technology Park	1,339								1,339				
Oak Ridge - Oak Ridge Institute for Science and Education	83								83				
Oak Ridge - Oak Ridge National Laboratory	7,975	304	23	4	1				8,307	332	4%	19.064	0.057
Oak Ridge - Y-12 National Security Complex	6,462	9							6,471	9	0%	0.219	0.024
Paducah Gaseous Diffusion Plant	1,012	15	17						1,044	32	3%	2.945	0.092
Pantex Plant	3,396	43	6						3,445	49	1%	2.702	0.055
Portsmouth Gaseous Diffusion Plant	3,847	12	5						3,864	17	0%	0.994	0.058
Princeton Plasma Physics Laboratory	346								346				
Sandia National Laboratory	2,579	10	3						2,592	13	1%	0.807	0.062
Savannah River Site	6,554	116	63	27					6,760	206	3%	27.191	0.132
Separations Process Research Unit	258								258				
SLAC National Accelerator Laboratory	2,266								2,266				
Thomas Jefferson National Accelerator Facility	1,422								1,422				
Uranium Mill Tailings Remedial Action Project	158								158				
Waste Isolation Pilot Plant	1,007	2							1,009	2	0%	0.022	0.011
West Valley Demonstration Project	331								331				
Site Office Personnel*	973								973				
<b>Totals</b>	<b>80,857</b>	<b>1,736</b>	<b>288</b>	<b>87</b>	<b>18</b>	<b>8</b>			<b>82,994</b>	<b>2,137</b>	<b>3%</b>	<b>150.864</b>	<b>0.071</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

\*Represents the total number of monitoring records. The number of individuals specifically monitored for neutron radiation cannot be determined.

\*\*Includes personnel at NNSA Albuquerque complex and Oak Ridge, in addition to several smaller facilities not associated with a DOE site.

**DOE Occupational Radiation Exposure: 2012 Annual Report  
Exhibit B-6a. Distribution of TED by Facility Type - 2010.**

**Total Effective Dose (TED)**

Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)

Facility Type	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Accelerator	6,674	289	37	12								7,012	5%	338	17.227	0.051
Fuel/Uranium Enrichment	109	31										140	22%	31	0.231	0.007
Fuel Processing	791	263	17	3								1,074	26%	283	11.046	0.039
Maintenance and Support	12,984	1,988	431	155	38	5	1					15,602	17%	2,618	212.977	0.081
Reactor	205	33	16	10	1							265	23%	60	7.317	<b>0.122</b> ◀
Research, General	32,526	2,441	402	163	42	15	7					<b>35,596</b> ◀	9%	3,070	235.689	0.077
Research, Fusion	344	80										424	19%	80	0.683	0.009
Waste Processing/Management	7,015	2,550	621	265	18						1	10,470	<b>33%</b> ◀	<b>3,455</b> ◀	<b>307.818</b> ◀	0.089
Weapons Fabrication and Testing	9,005	1,730	229	52	1	1	1					11,019	18%	2,014	96.824	0.048
Other	9,389	955	105	35	1	2						10,487	10%	1,098	56.995	0.052
<b>Totals</b>	<b>79,042</b>	<b>10,360</b>	<b>1,858</b>	<b>695</b>	<b>101</b>	<b>23</b>	<b>9</b>				<b>1</b>	<b>92,089</b>	<b>14%</b>	<b>13,047</b>	<b>946.807</b>	<b>0.073</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2012 Annual Report  
 Exhibit B-6b. Distribution of TED by Facility Type - 2011.

Total Effective Dose (TED)																
Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)																
Facility Type	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Accelerator	7,108	240	47	13	4							7,412	4%	304	19,588	0.064
Fuel Processing	672	222	11									905	26%	233	7,874	0.034
Maintenance and Support	12,717	2,054	430	148	16	17	2					15,384	17%	2,667	209,437	0.079
Reactor	157	34	14	11	2	2						220	29%	63	10,241	0.163
Research, General	30,622	2,576	361	128	23	12	10					33,732	9%	3,110	203,761	0.066
Research, Fusion	362	55										417	13%	55	0,434	0.008
Waste Processing/Management	6,412	2,202	537	185	48	10						9,394	32%	2,982	253,809	0.085
Weapons Fabrication and Testing	9,407	1,644	200	47	4							11,302	17%	1,895	88,688	0.047
Other	11,435	1,489	138	34	2							13,098	13%	1,663	73,099	0.044
<b>Totals</b>	<b>78,892</b>	<b>10,516</b>	<b>1,738</b>	<b>566</b>	<b>99</b>	<b>41</b>	<b>12</b>					<b>91,864</b>	<b>14%</b>	<b>12,972</b>	<b>866,931</b>	<b>0.067</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2012 Annual Report  
 Exhibit B-6c. Distribution of TED by Facility Type - 2012.

Total Effective Dose (TED)

Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)

Facility Type	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Accelerator	6,548	338	60	12	2							6,960	6%	412	23.083	0.056
Fuel/Uranium Enrichment	1,681	40										1,721	2%	40	0.661	0.017
Fuel Processing	567	182	23	7								779	27%	212	10.648	0.050
Maintenance and Support	11,586	1,790	276	136	51	15	7					13,861	16%	2,275	195.820	0.086
Reactor	101	25	6	1								133	24%	32	2.124	0.066
Research, General	27,549	1,949	329	136	18	10	8					29,999	8%	2,450	183.881	0.075
Research, Fusion	335	44										379	12%	44	0.344	0.008
Waste Processing/Management	5,505	1,681	352	157	10	2						7,707	29%	2,202	167.222	0.076
Weapons Fabrication and Testing	9,033	1,525	215	57	6							10,836	17%	1,803	92.146	0.051
Other	9,631	867	99	22								10,619	9%	988	42.524	0.043
<b>Totals</b>	<b>72,536</b>	<b>8,441</b>	<b>1,360</b>	<b>528</b>	<b>87</b>	<b>27</b>	<b>15</b>					<b>82,994</b>	<b>13%</b>	<b>10,458</b>	<b>718.453</b>	<b>0.069</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-7a. Collective TED by Site and Facility Type - 2010.**

Site	Accelerator	Fuel/Uranium Enrichment	Fuel Fabrication	Fuel Processing	Maintenance and Support	Reactor	Research, General	Research, Fusion	Waste Processing/Management	Weapons Fabrication and Testing	Other	Totals	
Ames Laboratory							0.907					0.907	
Argonne National Laboratory							31.170					31.170	
Brookhaven National Laboratory	2.281				2.166	5.109 ◀	0.270		1.703			11.529	
Energy Technology Engineering Center											0.292	0.292	
Fermi National Accelerator Laboratory	11.220 ◀											11.220	
Hanford - Hanford Site					80.093						32.429 ◀	112.522	
Hanford - Office of River Protection					0.730				15.963		11.829	28.522	
Hanford - Pacific Northwest National Laboratory					0.133		20.349				7.018	27.500	
Idaho Site							72.716		57.562			130.278	
Kansas City Plant										0.046		0.046	
Lawrence Berkeley National Laboratory							1.097					1.097	
Lawrence Livermore National Laboratory							18.214					18.214	
Los Alamos National Laboratory	0.479				121.051 ◀		2.339				1.520	125.389	
National Renewable Energy Laboratory							0.022					0.022	
Nevada National Security Site					3.288							3.288	
New Brunswick Laboratory											0.037	0.037	
Oak Ridge - East Tennessee Technology Park							1.187					1.187	
Oak Ridge - Oak Ridge Institute for Science and Education							0.114					0.114	
Oak Ridge - Oak Ridge National Laboratory							73.481 ◀					73.481	
Oak Ridge - Y-12 National Security Complex							0.001			69.515 ◀		69.516	
Paducah Gaseous Diffusion Plant		0.231 ◀					1.036		0.617			1.884	
Pantex Plant										26.131		26.131	
Portsmouth Gaseous Diffusion Plant							2.960					2.960	
Princeton Plasma Physics Laboratory								0.663 ◀				0.663	
Sandia National Laboratory	0.083				0.101	2.208	0.215	0.020	0.231	0.462	0.286	3.606	
Savannah River Site				11.046 ◀	5.415		9.534		149.323 ◀	0.670	3.584	179.572 ◀	
Separations Process Research Unit									7.850			7.850	
SLAC National Accelerator Laboratory	0.053											0.053	
Thomas Jefferson National Accelerator Facility	3.111											3.111	
Uranium Mill Tailings Remedial Action Project									31.497			31.497	
Waste Isolation Pilot Plant									1.199			1.199	
West Valley Demonstration Project									41.873			41.873	
Site Office Personnel*							0.077					0.077	
<b>Totals</b>	<b>17.227</b>	<b>0.231</b>			<b>11.046</b>	<b>212.977</b>	<b>7.317</b>	<b>235.689</b>	<b>0.683</b>	<b>307.818</b>	<b>96.824</b>	<b>56.995</b>	<b>946.807</b>

\* Includes personnel at NNSA Albuquerque complex and Oak Ridge.

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-7b. Collective TED by Site and Facility Type - 2011.**

Site	Accelerator	Fuel/Uranium Enrichment	Fuel Fabrication	Fuel Processing	Maintenance and Support	Reactor	Research, General	Research, Fusion	Waste Processing/Management	Weapons Fabrication and Testing	Other	Totals
Ames Laboratory							0.762					0.762
Argonne National Laboratory							29.552					29.552
Brookhaven National Laboratory	2.591				2.435	6.976 ◀	0.202		0.618			12.822
Energy Technology Engineering Center											0.139	0.139
Fermi National Accelerator Laboratory	10.090 ◀											10.090
Hanford - Hanford Site					73.676		0.028				20.987	94.691
Hanford - Office of River Protection					0.317				11.266		13.725	25.308
Hanford - Pacific Northwest National Laboratory					0.366		16.200				5.770	22.336
Idaho Site							53.490		48.950		27.288 ◀	129.728
Kansas City Plant										0.049		0.049
Lawrence Berkeley National Laboratory							0.759					0.759
Lawrence Livermore National Laboratory							16.979					16.979
Los Alamos National Laboratory	0.079				123.900 ◀		1.444				1.633	127.056
National Renewable Energy Laboratory							0.017					0.017
Nevada National Security Site					2.743							2.743
New Brunswick Laboratory											0.165	0.165
Oak Ridge - East Tennessee Technology Park							0.830					0.830
Oak Ridge - Oak Ridge Institute for Science and Education							0.211					0.211
Oak Ridge - Oak Ridge National Laboratory							66.407 ◀					66.407
Oak Ridge - Y-12 National Security Complex							0.018			59.037 ◀		59.055
Paducah Gaseous Diffusion Plant							4.038					4.038
Pantex Plant										28.947		28.947
Portsmouth Gaseous Diffusion Plant							2.279					2.279
Princeton Plasma Physics Laboratory								0.401 ◀				0.401
Sandia National Laboratory	0.347				0.195	3.265	0.492	0.033	1.347	0.235	0.999	6.913
Savannah River Site				7.874 ◀	5.805		9.164		124.311 ◀	0.420	2.393	149.967 ◀
Separations Process Research Unit									0.179			0.179
SLAC National Accelerator Laboratory	0.236											0.236
Thomas Jefferson National Accelerator Facility	6.245											6.245
Uranium Mill Tailings Remedial Action Project									15.000			15.000
Waste Isolation Pilot Plant									0.476			0.476
West Valley Demonstration Project									51.662			51.662
Site Office Personnel*							0.889					0.889
<b>Totals</b>	<b>19.588</b>			<b>7.874</b>	<b>209.437</b>	<b>10.241</b>	<b>203.761</b>	<b>0.434</b>	<b>253.809</b>	<b>88.688</b>	<b>73.099</b>	<b>866.931</b>

\* Includes personnel at NNSA Albuquerque complex and Oak Ridge.

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-7c. Collective TED by Site and Facility Type - 2012.**

Site	Accelerator	Fuel/Uranium Enrichment	Fuel Fabrication	Fuel Processing	Maintenance and Support	Reactor	Research, General	Research, Fusion	Waste Processing/Management	Weapons Fabrication and Testing	Other	Totals
Ames Laboratory							0.820					0.820
Argonne National Laboratory							21.146					21.146
Brookhaven National Laboratory	4.335				2.244	0.615	0.173		0.614			7.981
Energy Technology Engineering Center											0.226	0.226
Fermi National Accelerator Laboratory	<b>15.980</b> ◀											15.980
Hanford - Hanford Site					46.314						12.035	58.349
Hanford - Office of River Protection					0.401				14.186		6.941	21.528
Hanford - Pacific Northwest National Laboratory					0.315		13.391				4.073	17.779
Idaho Site							33.539		13.694		<b>14.042</b> ◀	61.275
Kansas City Plant										0.021		0.021
Lawrence Berkeley National Laboratory							0.497					0.497
Lawrence Livermore National Laboratory							13.037					13.037
Los Alamos National Laboratory	0.048				<b>138.417</b> ◀		0.306				1.377	140.148
National Renewable Energy Laboratory							0.020					0.020
Nevada National Security Site					4.284							4.284
New Brunswick Laboratory											0.039	0.039
Oak Ridge - East Tennessee Technology Park		0.306										0.306
Oak Ridge - Oak Ridge Institute for Science and Education							0.124					0.124
Oak Ridge - Oak Ridge National Laboratory							<b>67.343</b> ◀					67.343
Oak Ridge - Y-12 National Security Complex										<b>58.245</b> ◀		58.245
Paducah Gaseous Diffusion Plant		<b>0.344</b> ◀					5.640					5.984
Pantex Plant										33.118		33.118
Portsmouth Gaseous Diffusion Plant							7.092					7.092
Princeton Plasma Physics Laboratory								<b>0.334</b> ◀				0.334
Sandia National Laboratory	0.442				0.373	<b>1.509</b> ◀	0.608	0.010	0.505	0.426	0.442	4.315
Savannah River Site				<b>10.648</b> ◀	3.472		7.282		<b>120.356</b> ◀	0.336	3.349	<b>145.443</b> ◀
Separations Process Research Unit									0.584			0.584
SLAC National Accelerator Laboratory	0.315											0.315
Thomas Jefferson National Accelerator Facility	1.963											1.963
Uranium Mill Tailings Remedial Action Project									7.673			7.673
Waste Isolation Pilot Plant									0.298			0.298
West Valley Demonstration Project									9.312			9.312
Site Office Personnel*		0.011					12.863					12.874
<b>Totals</b>	<b>23.083</b>	<b>0.661</b>		<b>10.648</b>	<b>195.820</b>	<b>2.124</b>	<b>183.881</b>	<b>0.344</b>	<b>167.222</b>	<b>92.146</b>	<b>42.524</b>	<b>718.453</b>

\* Includes personnel at NNSA Albuquerque complex and Oak Ridge.  
Note: Boxed values (gray background) indicate the greatest value in each column.



**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-8. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Accelerator Facilities, 2012.**

**ACCELERATORS**

Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)

Site/Contractor	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Fermi National Accelerator Lab	1,223	150	49	7	1							1,430	14% ◀	207 ◀	15.980 ◀	0.077 ◀
Brookhaven National Laboratory	1,251	71	6	5	1							1,334	6%	83	4.335	0.052
Sandia National Laboratory	415	17	1									433	4%	18	0.442	0.025
Thomas Jefferson Natl. Accel. Facil.	1,337	81	4									1,422	6%	85	1.963	0.023
Stanford Linear Accelerator Center	2,251	15										2,266 ◀	1%	15	0.315	0.021
Los Alamos National Laboratory	43	4										47	9%	4	0.048	0.012
Battelle - PNNL	17											17	0%	0	0.000	0.000
Oak Ridge Office	11											11	0%	0	0.000	0.000
<b>Totals</b>	<b>6,548</b>	<b>338</b>	<b>60</b>	<b>12</b>	<b>2</b>							<b>6,960</b>	<b>6%</b>	<b>412</b>	<b>23.083</b>	<b>0.056</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

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Exhibit B-9. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Fuel Facilities, 2012.

**FUEL FACILITIES**

Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)

Site/Contractor	Less than Meas.	Meas. 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
<b>ENRICHMENT</b>																
Bechtel Jacobs - ETPP	1,325	14										1,339	1%	14	0.306	0.022
Bechtel Jacobs - Paducah	255	25										280	9%	25	0.344	0.014
Wackenhut Services	101	1										102	1%	1	0.011	0.011
<b>Totals</b>	<b>1,681</b>	<b>40</b>										<b>1,721</b>	<b>2%</b>	<b>40</b>	<b>0.661</b>	<b>0.017</b>
<b>FABRICATION</b>																
<b>PROCESSING</b>																
SRR Operations			1									1	100%	1	0.139	0.139
SRNS Construction	39	10	6	2								57	32%	18	2.196	0.122
Savannah River Nuclear Solutions	354	160	16	5								535	34%	181	8.061	0.045
Savannah River Field Office	18	1										19	5%	1	0.036	0.036
SRNS Service Subs	46	7										53	13%	7	0.153	0.022
Wackenhut Services Inc. - SR	103	4										107	4%	4	0.063	0.016
Misc. DOE Contractors - SR	3											3	0%	0	0.000	0.000
SRNS Construction Subs	2											2	0%	0	0.000	0.000
SRR Service Subs	2											2	0%	0	0.000	0.000
<b>Totals</b>	<b>567</b>	<b>182</b>	<b>23</b>	<b>7</b>								<b>779</b>	<b>27%</b>	<b>212</b>	<b>10.648</b>	<b>0.050</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2012 Annual Report

Exhibit B-10. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Maintenance and Support, 2012.

MAINTENANCE AND SUPPORT																
Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)																
Site/Contractor	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Los Alamos National Laboratory	5,056	1,001	186	97	44	15	7					6,406	21%	1,350	138.258	0.102
Wackenhut Services Inc. - NV	323	2		1								326	1%	3	0.300	0.100
CH2M HILL Plateau Remediation Company (Hanford)	706	400	68	34	7							1,215	42%	509	41.667	0.082
SRR Operations	10	11	3									24	58%	14	1.009	0.072
Bechtel Nevada - NTS	932	22	5	1								960	3%	28	1.605	0.057
Mission Support Alliance (MSA)	998	103	8	1								1,110	10%	112	4.647	0.041
Brookhaven National Laboratory	929	55	2	2								988	6%	59	2.244	0.038
Bechtel Nevada - Las Vegas	864	65	1									930	7%	66	2.323	0.035
Battelle - PNNL	69	10										79	13%	10	0.315	0.032
Savannah River Nuclear Solutions	125	72	3									200	38%	75	2.297	0.031
SRNS Service Subs	68	4										72	6%	4	0.123	0.031
Advance Technology Laboratories	18	7										25	28%	7	0.172	0.025
Sandia National Laboratory	372	15										387	4%	15	0.373	0.025
CH2M HILL Hanford Group Inc.	105	10										115	9%	10	0.229	0.023
Protection Technologies Los Alamos	102	1										103	1%	1	0.022	0.022
SRNS Construction	11	2										13	15%	2	0.043	0.022
NNSA Los Alamos Site Office	113	7										120	6%	7	0.137	0.020
NNSA Nevada Site Office	207	3										210	1%	3	0.056	0.019
Battelle - Pantex	18											18	0%	0	0.000	0.000
Bechtel Hanford	1											1	0%	0	0.000	0.000
Bechtel Nevada - Amador Valley	4											4	0%	0	0.000	0.000
Bechtel Nevada - Los Alamos	16											16	0%	0	0.000	0.000
Bechtel Nevada - NTS - subcontractors	79											79	0%	0	0.000	0.000
Bechtel Nevada - Special Tech. Lab.	29											29	0%	0	0.000	0.000
DOE - Richland Field Office	5											5	0%	0	0.000	0.000
DOE Headquarters	302											302	0%	0	0.000	0.000
IT Corporation Las Vegas	54											54	0%	0	0.000	0.000
Johnson Controls Inc.	26											26	0%	0	0.000	0.000
Misc. DOE Contractors - SR	1											1	0%	0	0.000	0.000
NNSA Service Center	11											11	0%	0	0.000	0.000
Nye County Sheriff	4											4	0%	0	0.000	0.000
Savannah River Field Office	5											5	0%	0	0.000	0.000
Science Applications Intl Corp. - NV	3											3	0%	0	0.000	0.000
SRNS Construction Subs	3											3	0%	0	0.000	0.000
SRR Service Subs	11											11	0%	0	0.000	0.000
U.S. Geological Survey - Yucca	1											1	0%	0	0.000	0.000
UT-Battelle: ORNL	4											4	0%	0	0.000	0.000
Yucca Mountain Project Office	1											1	0%	0	0.000	0.000
<b>Totals</b>	<b>11,586</b>	<b>1,790</b>	<b>276</b>	<b>136</b>	<b>51</b>	<b>15</b>	<b>7</b>					<b>13,861</b>	<b>16%</b>	<b>2,275</b>	<b>195.820</b>	<b>0.086</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2012 Annual Report

Exhibit B-11. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Reactor Facilities, 2012.

**REACTOR FACILITIES**

Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)

Site/Contractor	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Sandia National Laboratory	56	13	4	1								74	24%	18	1.509	0.084
Brookhaven National Laboratory	45	12	2									59	24%	14	0.615	0.044
<b>Totals</b>	<b>101</b>	<b>25</b>	<b>6</b>	<b>1</b>								<b>133</b>	<b>24%</b>	<b>32</b>	<b>2.124</b>	<b>0.066</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2012 Annual Report

Exhibit B-12. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Research, General, 2012.

RESEARCH, GENERAL																
Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)																
Site/Contractor	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
SEC Oak Ridge	114	31	13	8	4	4						174	34%	60	11.449	0.191
Argonne National Laboratory	2,234	75	27	9	1	2	7					2,355	5%	121	21.146	0.175
UT-Battelle: Foster Wheeler	28	131	71	48								278	90%	250	34.778	0.139
Lawrence Livermore National Laboratory	7,643	96	16	13	3		1					7,772	2%	129	13.003	0.101
Battelle - PNNL	476	104	13	14	5							612	22%	136	13.391	0.098
Uranium Disposition Services - Portsmouth Sub	174	44	11	4								233	25%	59	4.875	0.083
UDS - Paducah Subs	165	49	17	4								235	30%	70	5.531	0.079
UT-Battelle: ORNL	7,317	310	39	17	5	4						7,692	5%	375	26.951	0.072
Bechtel Jacobs - ORNL	254	55	24									333	24%	79	5.614	0.071
Los Alamos National Laboratory	76	4	1									81	6%	5	0.306	0.061
INL - BEA LLC - Services	1,496	392	65	13								1,966	24%	470	26.534	0.056
Lawrence Berkeley Laboratory	759	8	2									769	1%	10	0.497	0.050
Isotek (Bldg 3019)	52	21	7									80	35%	28	1.346	0.048
INL - BEA LLC - Production	399	106	10									515	23%	116	4.260	0.037
INL - BEA LLC - Research	393	66	2	3								464	15%	71	2.632	0.037
Brookhaven National Laboratory	11	5										16	31%	5	0.173	0.035
Ames Laboratory (Iowa State)	141	25										166	15%	25	0.820	0.033
LATA/Parralax Portsmouth LLC	3,342	75										3,417	2%	75	2.195	0.029
Savannah River Nuclear Solutions	474	216	11	3								704	33%	230	6.685	0.029
Wackenhut Services	131	1										132	1%	1	0.026	0.026
Sandia National Laboratory	368	28										396	7%	28	0.608	0.022
Theta Pro2Serve Management Co. (Ports)	213	1										214	0%	1	0.022	0.022
USEC - Oak Ridge	145	2										147	1%	2	0.042	0.021
Lawrence Livermore National Laboratory - Neva	174	1										175	1%	1	0.019	0.019
INL - BEA LLC - Security	40	6										46	13%	6	0.100	0.017
Savannah River Field Office	14	1										15	7%	1	0.016	0.016
Lawrence Livermore Lab - Government	110	1										111	1%	1	0.015	0.015
SRNS Service Subs	95	22										117	19%	22	0.307	0.014
ICP - CWI - Subcontractors	10	1										11	9%	1	0.013	0.013
SRNS Construction Subs	2	2										4	50%	2	0.026	0.013
SRNS Construction	62	14										76	18%	14	0.143	0.010
Wackenhut Services Inc. - SR	47	10										57	18%	10	0.100	0.010
Paducah Remediation Services (PRS)	511	18										529	3%	18	0.109	0.006
National Renewable Energy Lab (NREL)- GO	10	4										14	29%	4	0.020	0.005
Oak Ridge Inst. for Sci. & Educ. (ORISE)	60	23										83	28%	23	0.124	0.005
Univ. of Georgia Ecology Laboratory	3	1										4	25%	1	0.005	0.005
ICP - CWI - Construction Subs	3											3	0%	0	0.000	0.000
ICP - CWI - Projects	2											2	0%	0	0.000	0.000
SRR Operations	1											1	0%	0	0.000	0.000
<b>Totals</b>	<b>27,549</b>	<b>1,949</b>	<b>329</b>	<b>136</b>	<b>18</b>	<b>10</b>	<b>8</b>					<b>29,999</b>	<b>8%</b>	<b>2,450</b>	<b>183.881</b>	<b>0.075</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2012 Annual Report

Exhibit B-13. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Research, Fusion, 2012.

**RESEARCH, FUSION**

Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)

Site/Contractor	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Sandia National Laboratory	30	1										31	3%	1	0.010	<b>0.010</b>
Princeton Plasma Physics Laboratory	303	43										<b>346</b>	<b>12%</b>	<b>43</b>	<b>0.334</b>	0.008
Los Alamos National Laboratory	2											2	0%	0	0.000	0.000
<b>Totals</b>	<b>335</b>	<b>44</b>										<b>379</b>	<b>12%</b>	<b>44</b>	<b>0.344</b>	<b>0.008</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**

**Exhibit B-14. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Waste Processing, 2012.**

<b>WASTE PROCESSING</b>																
Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)																
Site/Contractor	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
SRNS Service Subs	199	77	30	23	3							332	40%	133	16.754	0.126 ◀
SRNS Construction Subs	12	1	1									14	14%	2	0.238	0.119
West Valley Nuclear Services Inc.	245	48	28	10								331	26%	86	9.312	0.108
Savannah River Nuclear Solutions	742	392	98	79	7	2						1,320 ◀	44%	578 ◀	62.117 ◀	0.107
Energy Solutions - UMTRA Project - Moab	71	59	20	8								158	55% ◀	87	7.673	0.088
SRR Service Subs	59	8	3	2								72	18%	13	1.097	0.084
SRR Operations	680	431	99	29								1,239	45%	559	38.099	0.068
Brookhaven National Laboratory	31	7	3									41	24%	10	0.614	0.061
SRNS Construction	84	20	3	2								109	23%	25	1.336	0.053
Sandia National Laboratory	62	9	1									72	14%	10	0.505	0.051
ICP - CWI - Projects	723	238	36	1								998	28%	275	13.134	0.048
ICP - CWI - Construction Subs	21	7	1									29	28%	8	0.363	0.045
CH2M HILL Hanford Group Inc.	800	283	28	3								1,114	28%	314	13.548	0.043
Advance Technology Laboratories	32	17										49	35%	17	0.638	0.038
Bechtel Construction - SR	40	14	1									55	27%	15	0.426	0.028
INL - BEA LLC - Services	1	1										2	50%	1	0.025	0.025
SPRU-NY (Building remediation)	235	23										258	9%	23	0.584	0.025
Wackenhut Services Inc. - SR	234	10										244	4%	10	0.244	0.024
Washington TRU Solutions LLC-WIPP	991	18										1,009	2%	18	0.298	0.017
ICP - CWI - Support	112	11										123	9%	11	0.172	0.016
Savannah River Field Office	54	2										56	4%	2	0.019	0.010
Misc. S.R.S. Const. Subcontractors	17	5										22	23%	5	0.026	0.005
Bechtel Hanford	1											1	0%	0	0.000	0.000
Bechtel National Corporation	2											2	0%	0	0.000	0.000
CH2M HILL Plateau Remediation Company (Hanford)	2											2	0%	0	0.000	0.000
DeNuke Services (SPRU-LA)	14											14	0%	0	0.000	0.000
ICP - CWI - Subcontractors	4											4	0%	0	0.000	0.000
INL - BEA LLC - Research	1											1	0%	0	0.000	0.000
Los Alamos National Laboratory	2											2	0%	0	0.000	0.000
Misc. DOE Contractors - SR	29											29	0%	0	0.000	0.000
Mission Support Alliance (MSA)	3											3	0%	0	0.000	0.000
NNSA Los Alamos Site Office	1											1	0%	0	0.000	0.000
SR construction - Parsons Subcontractors	1											1	0%	0	0.000	0.000
<b>Totals</b>	<b>5,505</b>	<b>1,681</b>	<b>352</b>	<b>157</b>	<b>10</b>	<b>2</b>						<b>7,707</b>	<b>29%</b>	<b>2,202</b>	<b>167.222</b>	<b>0.076</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2012 Annual Report

Exhibit B-15. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Weapons Fabrication, 2012.

**WEAPONS FABRICATION**

Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)

Site/Contractor	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
B & W Pantex	2,839	233	62	34	5							3,173	11%	334	32.854	<b>0.098</b> ◀
B & W - Security	140	4	1									145	3%	5	0.264	0.053
BWXT Y-12	4,969	1,237	151	23	1							<b>6,381</b> ◀	22%	<b>1,412</b> ◀	<b>58.245</b> ◀	0.041
Sandia National Laboratory	514	13	1									528	3%	14	0.426	0.030
Savannah River Nuclear Solutions	280	29										309	9%	29	0.319	0.011
SRNS Service Subs	3	2										5	<b>40%</b> ◀	2	0.012	0.006
SRNS Construction	16	1										17	6%	1	0.005	0.005
Honeywell FM&T/KC Production	64	6										70	9%	6	0.021	0.004
B & W - Subcontractors	107											107	0%	0	0.000	0.000
Bechtel Jacobs - Y-12	90											90	0%	0	0.000	0.000
Los Alamos National Laboratory	1											1	0%	0	0.000	0.000
PXSO/NNSA and DOE Couriers	2											2	0%	0	0.000	0.000
Savannah River Field Office	8											8	0%	0	0.000	0.000
<b>Totals</b>	<b>9,033</b>	<b>1,525</b>	<b>215</b>	<b>57</b>	<b>6</b>							<b>10,836</b>	<b>17%</b>	<b>1,803</b>	<b>92.146</b>	<b>0.051</b>

Note: Boxed values (gray background) indicate the greatest value in each column.



# DOE Occupational Radiation Exposure: 2012 Annual Report

## Exhibit B-16. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Other, 2012.

OTHER																
Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)																
Site/Contractor	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Office Of River Protection	77	1	2									80	4%	3	0.386	0.129
CH2M HILL Hanford Group Inc.	244	35	20	7								306	20%	62	6.555	0.106
Misc. DOE Contractors - SR	13		1									14	7%	1	0.106	0.106
SRNS Service Subs	222	19	6									247	10%	25	1.554	0.062
ICP - CWI - Subcontractors	1,231	195	26	5								1,457	16%	226	11.090	0.049
CH2M HILL Plateau Remediation Company (Hanford)	526	87	7	2								622	15%	96	4.321	0.045
ICP - CWI - Construction Subs	221	19	4									244	9%	23	1.008	0.044
INL - BEA LLC - Services	190	36	6									232	18%	42	1.853	0.044
Battelle - PNNL	1,144	84	8	2								1,238	8%	94	4.073	0.043
SRNS Construction	93	9		1								103	10%	10	0.398	0.040
Bechtel Hanford	1,369	161	15	2								1,547	12%	178	6.916	0.039
Savannah River Nuclear Solutions	381	42	2	1								426	11%	45	1.266	0.028
DOE - Richland Field Office	607	27		1								635	4%	28	0.759	0.027
Sandia National Laboratory	653	18										671	3%	18	0.442	0.025
New Brunswick Laboratory - Research	27	2										29	7%	2	0.039	0.020
SRR Service Subs	5	1										6	17%	1	0.020	0.020
INL - BEA LLC - Research	36	4										40	10%	4	0.076	0.019
Los Alamos National Laboratory	2,357	68	2	1								2,428	3%	71	1.377	0.019
Advanced Med Hanford	36	1										37	3%	1	0.017	0.017
ICP - CWI - Projects	22	1										23	4%	1	0.015	0.015
Mission Support Alliance (MSA)	55	2										57	4%	2	0.022	0.011
Savannah River Field Office	29	1										30	3%	1	0.005	0.005
Boeing North America Inc. - Research	28	54										82	66%	54	0.226	0.004
Advance Technology Laboratories	12											12	0%	0	0.000	0.000
Bechtel National Corporation	26											26	0%	0	0.000	0.000
INL - BEA LLC - Production	5											5	0%	0	0.000	0.000
Johnson Controls Inc.	1											1	0%	0	0.000	0.000
NNSA Los Alamos Site Office	4											4	0%	0	0.000	0.000
Protection Technologies Los Alamos	1											1	0%	0	0.000	0.000
SR construction - Parsons Subcontractors	2											2	0%	0	0.000	0.000
SRNS Construction Subs	6											6	0%	0	0.000	0.000
SRR Operations	2											2	0%	0	0.000	0.000
Wackenhut Services Inc. - SR	6											6	0%	0	0.000	0.000
<b>Totals</b>	<b>9,631</b>	<b>867</b>	<b>99</b>	<b>22</b>								<b>10,619</b>	<b>9%</b>	<b>988</b>	<b>42.524</b>	<b>0.043</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-17. Internal Dose by Facility Type and Nuclide, 2010-2012.**

Facility Type	Nuclide*	No. of Individuals with New Intakes**			Collective CED (person-rem)			Average CED (rem)		
		2010	2011	2012	2010	2011	2012	2010	2011	2012
Accelerator	Total									
Fuel Fabrication	Total									
Fuel Processing	Plutonium	9	7	1	0.037	0.029	0.003	0.004	0.004	0.003
	Total	9	7	1	0.037	0.029	0.003	0.004	0.004	0.003
Fuel/Uranium Enrichment	Uranium			12			0.276			0.023
	Total			12			0.276			0.023
Maintenance and Support	Americium	1		2	0.013		0.126	0.013		0.063
	Hydrogen-3	7	5	8	0.014	0.006	0.018	0.002	0.001	0.002
	Mixed	18	5		0.050	0.019		0.003	0.004	
	Other	2			0.042			0.021		
	Plutonium	8	19	4	0.208	0.313	0.025	0.026	0.016	0.006
	Uranium		3	2		0.324	0.115		0.108	0.058
	Total	36	32	16	0.327	0.662	0.284	0.009	0.021	0.018
Other	Americium		1	1		0.015	0.010		0.015	0.010
	Hydrogen-3	2		1	0.004		0.001	0.002		0.001
	Plutonium	23	21	8	0.206	0.219	0.078	0.009	0.010	0.010
	Total	25	22	10	0.210	0.234	0.089	0.008	0.011	0.009
Reactor	Other		1			0.001			0.001	
	Total		1			0.001			0.001	
Research, Fusion	Hydrogen-3	8			0.026			0.003		
	Total	8			0.026			0.003		
Research, General	Americium	17	3	2	0.419	0.051	0.059	0.025	0.017	0.030
	Hydrogen-3	19	20	2	0.101	0.035	0.002	0.005	0.002	0.001
	Mixed			1			0.011			0.011
	Other	1	1	1	0.022	0.004	0.046	0.022	0.004	0.046
	Plutonium	22	19	5	0.795	3.748	0.112	0.036	<b>0.197</b>	0.022
	Thorium		2			0.143			0.072	
	Uranium	21	35	5	0.605	0.812	0.064	0.029	0.023	0.013
	Total	80	80	16	1.942	4.793	0.294	0.024	0.060	0.018
Waste Processing/Management	Americium	6	10		0.595	0.410		0.099	0.041	
	Hydrogen-3			1			0.004			0.004
	Mixed		1			0.013			0.013	
	Other	1			0.004			0.004		
	Plutonium	21	34	18	31.698	0.308	0.104	<b>1.509</b>	0.009	0.006
	Uranium	109	108	50	3.743	2.279	1.916	0.034	0.021	0.038
	Total	137	153	69	36.040	3.010	2.024	0.263	0.020	0.029
Weapons Fabrication and Testing	Americium		3			0.284			0.095	
	Hydrogen-3	6	5	1	0.019	0.017	0.004	0.003	0.003	0.004
	Mixed	22	45	37	0.443	1.350	0.780	0.020	0.030	0.021
	Plutonium	1		1	0.001		0.005	0.001		0.005
	Thorium	1	1	2	0.374	0.091	0.220	0.374	0.091	<b>0.110</b>
	Uranium	<b>1,342</b>	<b>1,200</b>	<b>1,189</b>	<b>56.509</b>	<b>42.918</b>	<b>45.807</b>	0.042	0.036	0.039
	Total	1,372	1,254	1,230	57.346	44.660	46.816	0.042	0.036	0.038
<b>Totals</b>	<b>1,667</b>	<b>1,549</b>	<b>1,354</b>	<b>95.928</b>	<b>53.389</b>	<b>49.786</b>	<b>0.058</b>	<b>0.034</b>	<b>0.037</b>	

\*Intakes grouped by nuclide. Intakes involving multiple nuclides were grouped into "mixed." Nuclides where fewer than 10 individuals had intakes were grouped as "other."

\*\*Individuals may be counted more than once.

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report  
Exhibit B-18a. Distribution of TED by Labor Category - 2010.**

**Total Effective Dose (TED)**

**Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)**

Labor Category	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Agriculture	85	7	3	2								97	12%	12	1.332	<b>0.111</b> ◀
Construction	3,997	1,310	192	42	1							5,542	28%	1,545	82.812	0.054
Laborers	974	387	80	42	2							1,485	34%	511	39.855	0.078
Management	7,692	756	65	22	1	1						8,537	10%	845	36.082	0.043
Miscellaneous	6,949	974	210	69	14	2	1				1	8,220	15%	1,271	127.519	0.100
Production	2,263	1,329	426	162	7	1						4,188	<b>46%</b> ◀	1,925	174.257	0.091
Scientists	18,514	1,853	133	44	10	1	1					20,556	10%	2,042	84.41	0.041
Service	2,629	257	12	10	1							2,909	10%	280	10.585	0.038
Technicians	6,472	1,806	451	174	53	14	6					8,976	28%	<b>2,504</b> ◀	<b>243.961</b> ◀	0.097
Transport	1,594	227	63	33								1,917	17%	323	25.892	0.080
Unknown	27,873	1,454	223	95	12	4	1					<b>29,662</b> ◀	6%	1,789	120.102	0.067
<b>Totals</b>	<b>79,042</b>	<b>10,360</b>	<b>1,858</b>	<b>695</b>	<b>101</b>	<b>23</b>	<b>9</b>				<b>1</b>	<b>92,089</b>	<b>14%</b>	<b>13,047</b>	<b>946.807</b>	<b>0.073</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report  
Exhibit B-18b. Distribution of TED by Labor Category - 2011.**

**Total Effective Dose (TED)**

Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)

Labor Category	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Agriculture	96	6	2	1								105	9%	9	0.869	<b>0.097</b> ◀
Construction	4,169	1,290	179	44		1						5,683	27%	1,514	80.029	0.053
Laborers	956	386	77	33	5	1						1,458	34%	502	39.17	0.078
Management	8,183	752	62	11	1							9,009	9%	826	30.937	0.037
Miscellaneous	6,565	1,226	162	61	17	7	4					8,042	18%	1,477	100.705	0.068
Production	2,423	1,380	383	123	19	9						4,337	<b>44%</b> ◀	1,914	171.006	0.089
Scientists	19,365	2,027	121	36	6	2	1					21,558	10%	2,193	81.004	0.037
Service	2,728	259	12	5								3,004	9%	276	9.589	0.035
Technicians	6,684	1,714	450	163	44	18	7					9,080	26%	<b>2,396</b> ◀	<b>232.198</b> ◀	0.097
Transport	1,600	206	42	11	1							1,860	14%	260	16.386	0.063
Unknown	26,123	1,270	248	78	6	3						<b>27,728</b> ◀	6%	1,605	105.038	0.065
<b>Totals</b>	<b>78,892</b>	<b>10,516</b>	<b>1,738</b>	<b>566</b>	<b>99</b>	<b>41</b>	<b>12</b>					<b>91,864</b>	<b>14%</b>	<b>12,972</b>	<b>866.931</b>	<b>0.067</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-18c. Distribution of TED by Labor Category - 2012.**

<b>Total Effective Dose (TED)</b>																
<b>Number of Individuals Receiving Radiation Doses in Each Dose Range (rem)</b>																
<b>Labor Category</b>	<b>Less than Meas</b>	<b>Meas 0 - 0.10</b>	<b>0.10 - 0.25</b>	<b>0.25 - 0.50</b>	<b>0.50 - 0.75</b>	<b>0.75 - 1.00</b>	<b>1 - 2</b>	<b>2 - 3</b>	<b>3 - 4</b>	<b>4 - 5</b>	<b>&gt;5</b>	<b>Total Monitored</b>	<b>Percent of Monitored with Meas. TED</b>	<b>No. with Meas. TED</b>	<b>Collective TED (Person-rem)</b>	<b>Avg. Meas. TED (rem)</b>
Agriculture	87	2										89	2%	2	0.105	0.052
Construction	3,660	806	143	25	3							4,637	21%	977	53.74	0.055
Laborers	1,358	263	73	15	2							1,711	21%	353	25.204	0.071
Management	8,452	670	51	17	2		1					9,193	8%	741	31.079	0.042
Miscellaneous	6,972	1,059	177	69	5	1	3					8,286	16%	1,314	89.805	0.068
Production	2,466	1,126	248	98	15	3						3,956	<b>38%</b> ◀	1,490	122.838	0.082
Scientists	20,538	1,735	174	48	7	4	1					<b>22,507</b> ◀	9%	<b>1,969</b> ◀	89.847	0.046
Service	3,026	218	12	3								3,259	7%	233	7.501	0.032
Technicians	6,787	1,410	293	152	44	13	10					8,709	22%	1,922	<b>193.527</b> ◀	<b>0.101</b> ◀
Transport	1,313	91	28	18	1							1,451	10%	138	13.524	0.098
Unknown	17,877	1,061	161	83	8	6						19,196	7%	1,319	91.283	0.069
<b>Totals</b>	<b>72,536</b>	<b>8,441</b>	<b>1,360</b>	<b>528</b>	<b>87</b>	<b>27</b>	<b>15</b>					<b>82,994</b>	<b>13%</b>	<b>10,458</b>	<b>718.453</b>	<b>0.069</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-19. Internal Dose by Labor Category, 2010-2012.**

Labor Category	No. of Individuals with New Intakes*			Collective CED Dose from Intake (person-rem)			Average CED		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Agriculture	2	1		0.035	0.034		0.018	0.034	
Construction	263	240	207	6.512	5.360	4.797	0.025	0.022	0.023
Laborers	87	99	87	3.902	5.133	5.538	0.045	0.052	<b>0.064</b> ◀
Management	122	110	121	4.999	4.651	4.613	0.041	0.042	0.038
Miscellaneous	47	37	22	<b>33.229</b> ◀	3.876	0.451	<b>0.707</b> ◀	<b>0.105</b> ◀	0.020
Production	<b>404</b> ◀	<b>386</b> ◀	<b>343</b> ◀	21.790	<b>16.261</b> ◀	<b>18.212</b> ◀	0.054	0.042	0.053
Scientists	178	158	172	4.292	3.403	4.023	0.024	0.022	0.023
Service	9	15	48	0.353	0.787	1.746	0.039	0.052	0.036
Technicians	202	171	143	7.386	5.655	5.511	0.037	0.033	0.039
Transport	65	69	38	2.077	1.416	1.493	0.032	0.021	0.039
Unknown	288	263	173	11.353	6.813	3.402	0.039	0.026	0.020
<b>Totals</b>	<b>1,667</b>	<b>1,549</b>	<b>1,354</b>	<b>95.928</b>	<b>53.389</b>	<b>49.786</b>	<b>0.058</b>	<b>0.034</b>	<b>0.037</b>

\*Only included intakes that occurred during the monitoring year. Individuals may be counted more than once.  
 Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-20. Dose Distribution by Labor Category and Occupation, 2012.**

Labor Category	Occupation	Less than Meas	Meas 0 - 0.10	0.10 - 0.25	0.25 - 0.50	0.50 - 0.75	0.75 - 1.00	1 - 2	2 - 3	3 - 4	4 - 5	>5	Total Monitored	Percent of Monitored with Meas. TED	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Agriculture	Misc. Agriculture	15											15				
	Groundskeepers	72	2										74	3%	2	0.105	0.052
Construction	Carpenters	368	64	10									442	17%	74	3.259	0.044
	Electricians	1,275	245	25	5	1							1,551	18%	276	12.175	0.044
	Masons	16	1										17	6%	1	0.016	0.016
	Mechanics/Repairers	539	120	40	10								709	24%	170	13.049	0.077
	Miners/Drillers	89	1										90	1%	1	0.060	0.060
	Misc. Repair/Construction	959	267	37	4								1,267	24%	308	13.496	0.044
	Painters	110	18	2									130	15%	20	0.821	0.041
	Pipe Fitter	304	90	29	6	2							431	29%	127	10.864	0.086
Laborers	Handlers/Laborers/Helpers	1,358	263	73	15	2							1,711	21%	353	25.204	0.071
Management	Sales	2											2				
	Admin. Support & Clerical Sec.	2,541	116	11	14								2,682	5%	141	9.179	0.065
	Manager - Administrator	5,909	554	40	3	2		1					6,509	9%	600	21.900	0.036
Miscellaneous	Military	50	4										54	7%	4	0.061	0.015
	Miscellaneous	6,922	1,055	177	69	5	1	3					8,232	16%	1,310	89.744	0.069
Production	Welders and Solderers	32	9	1									42	24%	10	0.568	0.057
	Machine Setup/Operators	134	128	53	11								326	59%	192	16.661	0.087
	Machinists	97	25		3	4	1						130	25%	33	4.716	0.143
	Misc. Precision/Production	472	189	31	12								704	33%	232	15.262	0.066
	Operators, Plant/ System/Util.	1,492	734	159	66	11	2						2,464	39%	972	81.382	0.084
	Sheet Metal Workers	239	41	4	6								290	18%	51	4.249	0.083
Scientists	Health Physicist	398	61	7	1								467	15%	69	2.859	0.041
	Misc. Professional	7,796	709	88	24	2		1					8,620	10%	824	41.118	0.050
	Scientist	5,714	412	36	12	1	1						6,176	7%	462	20.267	0.044
	Engineer	6,568	545	43	11	4	3						7,174	8%	606	25.420	0.042
	Doctors and Nurses	62	8										70	11%	8	0.183	0.023
Service	Firefighters	506	30		1								537	6%	31	0.752	0.024
	Food Service Employees	9	3										12	25%	3	0.147	0.049
	Janitors	479	26	2									507	6%	28	1.075	0.038
	Misc. Service	299	17	2									318	6%	19	0.704	0.037
	Security Guards	1,733	142	8	2								1,885	8%	152	4.823	0.032
Technicians	Engineering Technicians	1,699	161	28	13								1,901	11%	202	13.390	0.066
	Technicians	1,171	218	53	47	31	9	7					1,536	24%	365	66.731	0.183
	Science Technicians	550	144	8	1	1							704	22%	154	6.300	0.041
	Radiation Monitors/Techs.	1,049	667	170	72	7	1						1,966	47%	917	79.755	0.087
	Health Technicians	208	23	5									236	12%	28	1.298	0.046
	Misc. Technicians	2,110	197	29	19	5	3	3					2,366	11%	256	26.053	0.102
Transport	Bus Drivers	7	1										8	13%	1	0.012	0.012
	Equipment Operators	331	52	18	15	1							417	21%	86	10.177	0.118
	Misc. Transport	425	10	2	2								439	3%	14	1.090	0.078
	Pilots	22											22				
	Truck Drivers	528	28	8	1								565	7%	37	2.245	0.061
Unknown	Unknown	17,877	1,061	161	83	8	6						19,196	7%	1,319	91.283	0.069
<b>Totals</b>		<b>72,536</b>	<b>8,441</b>	<b>1,360</b>	<b>528</b>	<b>87</b>	<b>27</b>	<b>15</b>					<b>82,994</b>	<b>13%</b>	<b>10,458</b>	<b>718.453</b>	<b>0.069</b>

Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2012 Annual Report**  
**Exhibit B-21. Internal Dose Distribution by Site and Nuclide, 2012.**

Site	Nuclide	Number of Individuals Receiving Doses in Each Dose Range											Total Individ. with Meas. CED	Collective CED (person-rem)	Avg. CED (rem)	
		Meas. 0-0.02	0.02-0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	>5.0				
Argonne National Laboratory	Other		1											1	0.046	0.046
Argonne National Laboratory	Plutonium		4											4	0.108	0.027
Argonne National Laboratory	Mixed	1												1	0.011	0.011
Hanford - Hanford Site	Hydrogen-3	1												1	0.001	0.001
Hanford - Hanford Site	Plutonium	7												7	0.039	0.006
Hanford - Pacific Northwest National Laboratory	Hydrogen-3	2												2	0.002	0.001
Idaho Site	Americium	1												1	0.010	0.010
Idaho Site	Plutonium	4	1											5	0.088	0.018
Lawrence Livermore National Laboratory	Uranium	3												3	0.035	0.012
Los Alamos National Laboratory	Americium		2											2	0.126	0.063
Los Alamos National Laboratory	Hydrogen-3	8												8	0.018	0.002
Los Alamos National Laboratory	Uranium	1		1										2	0.115	0.058
Oak Ridge - East Tennessee Technology Park	Uranium	4	7											11	0.265	0.024
Oak Ridge - Oak Ridge National Laboratory	Americium	1												1	0.017	0.017
Oak Ridge - Y-12 National Security Complex	Plutonium	1												1	0.005	0.005
Oak Ridge - Y-12 National Security Complex	Thorium		1	1										2	0.220	0.110
Oak Ridge - Y-12 National Security Complex	Uranium	624	431	116	16	1								1,188	45.801	0.039
Oak Ridge - Y-12 National Security Complex	Mixed	21	8	2										31	0.749	0.024
Paducah Gaseous Diffusion Plant	Americium		1											1	0.042	0.042
Paducah Gaseous Diffusion Plant	Uranium	2												2	0.029	0.014
Pantex Plant	Mixed	6												6	0.031	0.005
Pantex Plant	Other	1												1	0.006	0.006
Savannah River Site	Hydrogen-3	2												2	0.008	0.004
Savannah River Site	Plutonium	20												20	0.087	0.004
Uranium Mill Tailings Remedial Action Project	Uranium	23	22	5										50	1.916	0.038
Site Office Personnel*	Uranium	1												1	0.011	0.011
<b>Totals</b>		<b>734</b>	<b>478</b>	<b>125</b>	<b>16</b>	<b>1</b>								<b>1,354</b>	<b>49.786</b>	<b>0.037</b>

Note: Boxed values (gray background) indicate the greatest value in each column.



**DOE Occupational Radiation Exposure: 2012 Annual Report  
Exhibit B-22. Extremity Dose Distribution by Site, 2012.**

Site	No. Meas. Dose	Meas. 0-0.1	0.10-1	1-5	5-10	10-20	20-30	>30	Total Monitored*	No. with Meas.	No. Above Monitoring Threshold (5 rems)**	Collective Extremity Dose (person-rem)	Avg. Meas. Extremity Dose (rem)
Ames Laboratory	160	6							166	6		0.190	0.032
Argonne National Laboratory	2,268	39	34	11	2	1			2,355	87	3	73.998	0.851
Brookhaven National Laboratory	2,380	14	29	13	2				2,438	58	2	42.670	0.736
Energy Technology Engineering Center	82								82				
Fermi National Accelerator Laboratory	1,422	4	4						1,430	8		1.290	0.161
Hanford - Hanford Site	4,990	82	138	24	1				5,235	245	1	108.581	0.443
Hanford - Office of River Protection	1,298	197	207	27					1,729	431		122.003	0.283
Hanford - Pacific Northwest National Laboratory	1,679	134	99	27	7				1,946	267	7	147.619	0.553
Idaho National Laboratory	4,823	1,037	281	24					6,165	1,342		141.944	0.106
Kansas City Plant	70								70				
Lawrence Berkeley National Laboratory	738	15	6	9	1				769	31	1	32.815	1.059
Lawrence Livermore National Laboratory	7,997	16	30	13	2				8,058	61	2	54.572	0.895
Los Alamos National Laboratory	7,632	1,087	359	123	20	2			9,223	1,591	22	581.616	0.366
National Renewable Energy Laboratory	14								14				
Nevada National Security Site	2,602	7	8						2,617	15		1.625	0.108
New Brunswick Laboratory	29								29				
Oak Ridge - East Tennessee Technology Park	1,339								1,339				
Oak Ridge - Oak Ridge Institute for Science and Education	83								83				
Oak Ridge - Oak Ridge National Laboratory	8,189	35	62	21					8,307	118		72.160	0.612
Oak Ridge - Y-12 National Security Complex	6,414	31	15	11					6,471	57		35.279	0.619
Paducah Gaseous Diffusion Plant	1,044								1,044				
Pantex Plant	3,133	129	130	46	7				3,445	312	7	168.521	0.540
Portsmouth Gaseous Diffusion Plant	3,864								3,864				
Princeton Plasma Physics Laboratory	346								346				
Sandia National Laboratory	2,592								2,592				
Savannah River Site	5,666	235	649	194	11	4	1		6,760	1,094	16	768.116	0.702
Separations Process Research Unit	258								258				
SLAC National Accelerator Laboratory	2,266								2,266				
Thomas Jefferson National Accelerator Facility	1,421	1							1,422	1		0.030	0.030
Uranium Mill Tailings Remedial Action Project	158								158				
Waste Isolation Pilot Plant	1,009								1,009				
West Valley Demonstration Project	310	12	9						331	21		3.190	0.152
Site Office Personnel*	910	24	36	3					973	63		18.673	0.296
<b>Totals</b>	<b>77,186</b>	<b>3,105</b>	<b>2,096</b>	<b>546</b>	<b>53</b>	<b>7</b>	<b>1</b>		<b>82,994</b>	<b>5,808</b>	<b>61</b>	<b>2,374.892</b>	<b>0.409</b>

\* Represents the total number of monitoring records. The number of individuals provided extremity monitoring cannot be determined.

\*\* All extremity doses above 5 rems were for the upper extremities (hands and forearms). DOE annual limit for extremities is 50 rems. 10 CFR 835.402(a)(1)(ii) requires extremity monitoring for a shallow dose equivalent to the skin or extremity of 5 rems or more in a year.

\*\*\* Includes personnel at NNSA Albuquerque complex and Oak Ridge.

Note: Boxed values (gray background) indicate the greatest value in each column.