

**DOE Occupational Radiation Exposure: 2013 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: 2013 Annual Report**  
**Exhibit A-2. Organizations Reporting to DOE REMS, 2009-2013.**

The following is a list of all organizations reporting to the DOE REMS from 2009-2013. 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 *				
			2009	2010	2011	2012	2013
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-2000	NNSA - Visitors					●
	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	●				
	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 *					
			2009	2010	2011	2012	2013	
	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	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	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	●	●	●	●		
4004602		Wastren Advantage, Inc.					●	
4005104		USEC: Oak Ridge, K25	●	●	●	●	●	
4006002		Bechtel-Jacobs Co., LLC-ETTP	●	●				
4006002		UCOR			●	●	●	
4006105		UT-Battelle - Materials & Energy Corp.	●	●				
4006503		UT-Battelle - ORNL	●	●	●	●	●	
4006510		Bechtel Jacobs - ORNL	●	●	●	●		
4007509		Wackenhut Services	●	●	●	●		
4007509		UCOR			●	●	●	
4007509		National Strategic Protective Services					●	
4008010		Bechtel-Jacobs, Y-12	●	●	●	●		
4008010		UCOR			●	●	●	
4018102		BWXT LLC, Y-12	●	●	●	●		
Paducah Gaseous Diff. Plant (PGDP)		4007002	Swift & Staley, UDS - Paducah	●				
	4007002	Swift & Staley Team		●		●	●	
	6203004	LATA Environmental Services					●	
	6203004	Paducah Remediation Services	●	●	●	●		
	6203005	LATA Kentucky		●				
	6203106	Uranium Disposition Services - Paducah Sub		●	●	●	●	
	6203106	B&W Conversions Services, LLC					●	
	6203204	Swift & Staley Mech Contr, Inc. - Paducah		●	●			
Pantex Plant (PP)	0510001	B & W Pantex - PXSO/NNSA and DOE Couriers	●	●	●	●	●	
	0514004	Battelle - Pantex		●	●	●	●	
	0515002	B & W Pantex	●	●	●	●	●	
	0515006	B & W Pantex - Subcontractors	●	●	●	●	●	
	0515009	B & W Pantex - Security Forces	●	●	●	●	●	
Portsmouth Gaseous Diff. Plant (PORTS)	6202106	Uranium Disposition Services - Portsmouth Sub	●	●	●	●	●	
	6202204	Theta Pro2Serve Management Co. - Portsmouth	●	●				
	6202204	Wastren - Portsmouth Services			●	●	●	
	6202304	FLUOR B & W Portsmouth			●	●	●	

Site	Organization Code	Organization Name	Year Reported *				
			2009	2010	2011	2012	2013
	6202304	LATA/Parralax Portsmouth LLC	●	●			
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	Savannah River Nuclear Solutions, Inc.	●	●	●		
	8501014	Westinghouse S.R. Subcontractors		●			
	8501042	SRR Operations		●	●	●	●
	8501044	SRR Service Subs	●	●	●	●	●
	8505004	Savannah River Nuclear Solutions, Inc.	●				
	8505501	Savannah River Field Office	●	●	●	●	●
	8505504	Misc. DOE Contractors - SR		●	●	●	●
	8505516	Savannah River Nuclear Solutions, Inc.	●				
	8505525	Savannah River Nuclear Solutions, Inc.	●		●		●
	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	●	●	●	●	
	1523016	NY SPRU	●	●	●	●	●
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	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			●	●	●

## DOE Occupational Radiation Exposure: 2013 Annual Report

### 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

**DOE Occupational Radiation Exposure: 2013 Annual Report**  
**Exhibit B-1. 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	-4% ▼	177	2% ▲	0.167	-6% ▼	49% ▲	-6% ▼
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	127.162	-2% ▼	2,391	27% ▲	0.053	-23% ▼	10% ▲	75% ▲
Kansas City Plant	0.049		2		0.024			
Lawrence Berkeley National Laboratory	0.759		13		0.058			
Lawrence Livermore National Laboratory	16.979	-7% ▼	116	-21% ▼	0.146	16% ▲	52% ▲	15% ▲
Los Alamos National Laboratory	127.079	1% ▲	1,460	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	66.727	-10% ▼	729	-1% ▼	0.092	-9% ▼	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	204% ▲	78	10% ▲	0.052	176% ▲		
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	140% ▲	126	114% ▲	0.055	12% ▲		
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		0.022			
<b>Totals</b>	<b>864.315</b>	<b>-9% ▼</b>	<b>12,965</b>	<b>0%</b>	<b>0.067</b>	<b>-8% ▼</b>	<b>12% ▲</b>	<b>-4% ▼</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: 2013 Annual Report**  
**Exhibit B-2. 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	21.212	-28% ▼	122	-31% ▼	<b>0.174</b>	4% ▲	<b>52% ▲</b>	7% ▲
Brookhaven National Laboratory	7.981	-38% ▼	171	-1% ▼	0.047	-37% ▼	7% ▲	-71% ▼
Energy Technology Engineering Center	0.227		55		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	61.292	-52% ▼	1,257	-47% ▼	0.049	-8% ▼		
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	-2% ▼	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	78.790	18% ▲	763	5% ▲	0.103	13% ▲	15% ▲	<b>114% ▲</b>
Oak Ridge - Y-12 National Security Complex	58.643	-1% ▼	1,413	-8% ▼	0.042	8% ▲	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*	1.395	181% ▲	31	35% ▲	0.045	<b>109% ▲</b>		
<b>Totals</b>	<b>718.903</b>	<b>-17% ▼</b>	<b>10,461</b>	<b>-19% ▼</b>	<b>0.069</b>	<b>3% ▲</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.

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**Exhibit B-3. Site Dose Data - 2013.**

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	0.730		24		0.030			
Argonne National Laboratory	13.017	-39% ▼	74	-39% ▼	<b>0.176</b>	1% ▲	<b>61% ▲</b>	19% ▲
Brookhaven National Laboratory	6.988	-12% ▼	194	13% ▲	0.036	-23% ▼		
Energy Technology Engineering Center	0.479		57		0.008			
Fermi National Accelerator Laboratory	19.750	24% ▲	175	-15% ▼	0.113	46% ▲	8% ▲	70% ▲
Hanford: Pacific Northwest National Laboratory	0.046		6		0.008			
Hanford: Hanford Site	50.081	-14% ▼	715	-23% ▼	0.070	11% ▲	29% ▲	<b>299% ▲</b>
Hanford: Office of River Protection	18.228	-15% ▼	448	8% ▲	0.041	-22% ▼		
Hanford: Pacific Northwest National Laboratory	14.504	-18% ▼	397	65% ▲	0.037	-51% ▼		
Idaho National Laboratory	71.752	17% ▲	1,438	14% ▲	0.050	2% ▲		
Kansas City Plant	0.001		1		0.001			
Lawrence Berkeley National Laboratory	0.623		9		0.069			
Lawrence Livermore National Laboratory	8.475	-35% ▼	103	-21% ▼	0.082	-17% ▼	28% ▲	25% ▲
Los Alamos National Laboratory	<b>138.734</b>	-1% ▼	<b>1,703</b>	18% ▲	0.081	-16% ▼	15% ▲	-56% ▼
National Renewable Energy Laboratory	0.068		5		0.014			
Nevada National Security Site	3.218	-25% ▼	89	-11% ▼	0.036	-16% ▼		
New Brunswick Laboratory	0.012		1		0.012			
Oak Ridge: East Tennessee Technology Park	0.040		4		0.010			
Oak Ridge: Oak Ridge Institute for Science and Education	0.083		6		0.014			
Oak Ridge: Oak Ridge National Laboratory	74.531	-5% ▼	642	-16% ▼	0.116	12% ▲	15% ▲	-1% ▼
Oak Ridge: Y-12 National Security Complex	49.727	-15% ▼	1,337	-5% ▼	0.037	-10% ▼	1% ▲	34% ▲
Paducah Gaseous Diffusion Plant	6.450	8% ▲	92	-19% ▼	0.070	32% ▲		
Pantex Plant	21.829	-34% ▼	330	-3% ▼	0.066	-32% ▼		
Portsmouth Gaseous Diffusion Plant	8.634	22% ▲	102	-24% ▼	0.085	61% ▲		
Princeton Plasma Physics Laboratory	0.339		58		0.006			
Sandia National Laboratories	4.335	0%	123	1% ▲	0.035	0%		
Savannah River Site	88.536	-39% ▼	1,471	-28% ▼	0.060	-15% ▼	4% ▲	-28% ▼
Separations Process Research Unit	2.896	<b>396% ▲</b>	48	<b>109% ▲</b>	0.060	<b>138% ▲</b>		
SLAC National Accelerator Laboratory	0.281		10		0.028			
Thomas Jefferson National Accelerator Facility	1.503	-23% ▼	48	-44% ▼	0.031	36% ▲		
Uranium Mill Tailings Remedial Action Project	7.407	-3% ▼	55	-37% ▼	0.135	53% ▲		
Waste Isolation Pilot Plant	0.552		32		0.017			
West Valley Demonstration Project	12.901	39% ▲	101	17% ▲	0.128	18% ▲	4% ▲	
Service Center Personnel*	0.035		3		0.012			
<b>Totals</b>	<b>626.785</b>	<b>-13% ▼</b>	<b>9,901</b>	<b>-5% ▼</b>	<b>0.063</b>	<b>-8% ▼</b>	<b>10% ▲</b>	<b>-22% ▼</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: 2013 Annual Report**  
**Exhibit B-4. Internal Dose by Site, 2011-2013.**

Site	No. of Individuals with Measurable CED*			Collective CED Dose (person-rem)			Average Measurable CED		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Argonne National Laboratory	6	9	7	0.243	0.231	0.168	0.040	0.026	0.024
Brookhaven National Laboratory	1			0.001			0.001		
Hanford: Hanford Site	15	8	5	0.115	0.040	0.012	0.008	0.005	0.002
Hanford: Pacific Northwest National Laboratory	2	2	2	0.027	0.002	0.008	0.014	0.001	0.004
Idaho National Laboratory	26	9	5	2.480	0.147	0.124	<b>0.095</b> ◀	0.016	0.025
Lawrence Livermore National Laboratory	18	3	2	0.030	0.035	0.024	0.002	0.012	0.012
Los Alamos National Laboratory	18	12	10	0.548	0.259	1.804	0.030	0.022	<b>0.180</b> ◀
Oak Ridge: East Tennessee Technology Park	21	11	1	0.318	0.265	0.012	0.015	0.024	0.012
Oak Ridge: Oak Ridge National Laboratory	2	1	1	0.094	0.017	0.012	0.047	0.017	0.012
Oak Ridge: Y-12 National Security Complex	<b>1,242</b> ◀	<b>1,223</b> ◀	<b>1,115</b> ◀	<b>44.594</b> ◀	<b>47.127</b> ◀	<b>38.812</b> ◀	0.036	<b>0.039</b> ◀	0.035
Paducah Gaseous Diffusion Plant	13	3		0.479	0.071		0.037	0.024	
Pantex Plant	7	7	10	0.049	0.037	0.014	0.007	0.005	0.001
Sandia National Laboratories	1			0.004			0.004		
Savannah River Site	61	22	12	0.325	0.095	0.051	0.005	0.004	0.004
Uranium Mill Tailings Remedial Action Project	108	50	45	2.279	1.916	2.925	0.021	0.038	0.065
Service Center Personnel*	1	1		0.015	0.011		0.015	0.011	
<b>Totals</b>	<b>1,542</b>	<b>1,361</b>	<b>1,215</b>	<b>51.601</b>	<b>50.253</b>	<b>43.966</b>	<b>0.033</b>	<b>0.037</b>	<b>0.036</b>

\*The number of internal depositions represents the number of internal dose records with positive results reported for each individual.  
 Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2013 Annual Report**  
**Exhibit B-5. Neutron Dose Distribution by Site, 2013.**

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	160								160				
Argonne National Laboratory	1,937	1							1,938	1	0%	0.020	0.020
Brookhaven National Laboratory	2,343	11							2,354	11	0%	0.074	0.007
Energy Technology Engineering Center	146								146				
Fermi National Accelerator Laboratory	1,259								1,259				
Hanford: Pacific Northwest National Laboratory	27								27				
Hanford: Hanford Site	3,983	371	25	4					4,383	400	9%	14.038	0.035
Hanford: Office of River Protection	1,816	13							1,829	13	1%	0.498	0.038
Hanford: Pacific Northwest National Laboratory	2,380								2,380				
Idaho National Laboratory	5,484	96	2						5,582	98	2%	3.076	0.031
Kansas City Plant	65								65				
Lawrence Berkeley National Laboratory	721								721				
Lawrence Livermore National Laboratory	7,719	33	4	2	2				7,760	41	1%	3.214	0.078
Los Alamos National Laboratory	8,200	699	127	42	9	1			<b>9,078</b>	<b>878</b>	<b>10%</b>	<b>57.950</b>	0.066
National Renewable Energy Laboratory	15								15				
Nevada National Security Site	2,716	1							2,717	1	0%	0.092	0.092
New Brunswick Laboratory	42								42				
Oak Ridge: East Tennessee Technology Park	625								625				
Oak Ridge: Oak Ridge Institute for Science and Education	79								79				
Oak Ridge: Oak Ridge National Laboratory	3,699	306	47	11	1				4,064	365	9%	25.091	0.069
Oak Ridge: Y-12 National Security Complex	5,391								5,391				
Paducah Gaseous Diffusion Plant	938	25	10						973	35	4%	2.486	0.071
Pantex Plant	3,102	26							3,128	26	1%	0.809	0.031
Portsmouth Gaseous Diffusion Plant	2,650	6	6						2,662	12	0%	1.096	0.091
Princeton Plasma Physics Laboratory	360								360				
Sandia National Laboratories	2,288	6							2,294	6	0%	0.141	0.023
Savannah River Site	5,699	93	35	9					5,836	137	2%	14.293	<b>0.104</b>
Separations Process Research Unit	248								248				
SLAC National Accelerator Laboratory	2,327								2,327				
Thomas Jefferson National Accelerator Facility	1,378								1,378				
Uranium Mill Tailings Remedial Action Project	113								113				
Waste Isolation Pilot Plant	670	1							671	1	0%	0.012	0.012
West Valley Demonstration Project	320								320				
Service Center Personnel*	736								736				
<b>Totals</b>	<b>69,636</b>	<b>1,688</b>	<b>256</b>	<b>68</b>	<b>12</b>	<b>1</b>			<b>71,661</b>	<b>2,025</b>	<b>3%</b>	<b>122.890</b>	<b>0.061</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: 2013 Annual Report**  
**Exhibit B-6a. 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	<b>0.163</b>
Research, General	30,622	2,573	359	126	23	12	9					<b>33,724</b>	9%	<b>3,102</b>	201,122	0.065
Research, Fusion	362	55										417	13%	55	0,434	0.008
Waste Processing/Management	6,412	2,202	537	185	48	10						9,394	<b>32%</b>	2,982	<b>253,809</b>	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	1,490	138	34	2							13,099	13%	1,664	73,122	0.044
<b>Totals</b>	<b>78,892</b>	<b>10,514</b>	<b>1,736</b>	<b>564</b>	<b>99</b>	<b>41</b>	<b>11</b>					<b>91,857</b>	<b>14%</b>	<b>12,965</b>	<b>864,315</b>	<b>0.067</b>

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

DOE Occupational Radiation Exposure: 2013 Annual Report  
 Exhibit B-6b. 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	6,549	338	60	12	2							6,961	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	11,597	1,790	276	136	51	15	7					13,872	16%	2,275	<b>195.820</b> ◀	<b>0.086</b> ◀
Reactor	101	25	6	1								133	24%	32	2.124	0.066
Research, General	27,544	1,949	329	135	18	10	8					<b>29,993</b> ◀	8%	<b>2,449</b> ◀	183.711	0.075
Research, Fusion	335	44										379	12%	44	0.344	0.008
Waste Processing/Management	5,506	1,687	353	157	10	2						7,715	<b>29%</b> ◀	2,209	167.445	0.076
Weapons Fabrication and Testing	9,033	1,525	215	58	6							10,837	17%	1,804	92.544	0.051
Other	9,669	863	98	23								10,653	9%	984	42.523	0.043
<b>Totals</b>	<b>72,582</b>	<b>8,443</b>	<b>1,360</b>	<b>529</b>	<b>87</b>	<b>27</b>	<b>15</b>					<b>83,043</b>	<b>13%</b>	<b>10,461</b>	<b>718.903</b>	<b>0.069</b>

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

DOE Occupational Radiation Exposure: 2013 Annual Report  
 Exhibit B-6c. Distribution of TED by Facility Type - 2013.

**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	6,423	271	48	28	1	1						6,772	5%	349	26.426	0.076
Fuel/Uranium Enrichment	880	21										901	2%	21	0.329	0.016
Fuel Processing	585	120	16	9	2							732	20%	147	11.100	0.076
Maintenance and Support	11,126	1,987	341	127	25	15	7					13,628	18%	2,502	193.249	<b>0.077</b>
Reactor	81	13	4	1								99	18%	18	1.296	0.072
Research, General	24,544	2,534	384	158	14	12	2					<b>27,648</b>	11%	<b>3,104</b>	<b>204.193</b>	0.066
Research, Fusion	337	59										396	15%	59	0.349	0.006
Waste Processing/Management	4,050	1,213	242	72	5							5,582	<b>27%</b>	1,532	103.773	0.068
Weapons Fabrication and Testing	7,679	1,498	186	23	1							9,387	18%	1,708	72.279	0.042
Other	6,055	435	24	2								6,516	7%	461	13.791	0.030
<b>Totals</b>	<b>61,760</b>	<b>8,151</b>	<b>1,245</b>	<b>420</b>	<b>48</b>	<b>28</b>	<b>9</b>					<b>71,661</b>	<b>14%</b>	<b>9,901</b>	<b>626.785</b>	<b>0.063</b>

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

**DOE Occupational Radiation Exposure: 2013 Annual Report**  
**Exhibit B-7a. 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 National Laboratory							50.924		48.950		27.288 ◀	127.162
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				1.656	127.079
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							66.727 ◀					66.727
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 Laboratories	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
Service Center Personnel*							0.496					0.496
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
<b>Totals</b>	<b>19.588</b>			<b>7.874</b>	<b>209.437</b>	<b>10.241</b>	<b>201.122</b>	<b>0.434</b>	<b>253.809</b>	<b>88.688</b>	<b>73.122</b>	<b>864.315</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: 2013 Annual Report  
Exhibit B-7b. 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							21.212					21.212
Brookhaven National Laboratory	4.335				2.244	0.615	0.173		0.614			7.981
Energy Technology Engineering Center											0.227	0.227
Fermi National Accelerator Laboratory	15.980											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 National Laboratory							33.335		13.917		14.040	61.292
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				138.417		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							78.790					78.790
Oak Ridge: Y-12 National Security Complex										58.643		58.643
Paducah Gaseous Diffusion Plant		0.344					5.640					5.984
Pantex Plant										33.118		33.118
Portsmouth Gaseous Diffusion Plant							7.092					7.092
Princeton Plasma Physics Laboratory								0.334				0.334
Sandia National Laboratories	0.442				0.373	1.509	0.608	0.010	0.505	0.426	0.442	4.315
Savannah River Site				10.648	3.472		7.282		120.356	0.336	3.349	145.443
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
Service Center Personnel*		0.011					1.384					1.395
<b>Totals</b>	<b>23.083</b>	<b>0.661</b>		<b>10.648</b>	<b>195.820</b>	<b>2.124</b>	<b>183.711</b>	<b>0.344</b>	<b>167.445</b>	<b>92.544</b>	<b>42.523</b>	<b>718.903</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: 2013 Annual Report**  
**Exhibit B-7c. Collective TED by Site and Facility Type - 2013.**

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							0.730					0.730
Argonne National Laboratory							13.017					13.017
Brookhaven National Laboratory	4.530				1.850	0.035	0.121		0.452			6.988
Energy Technology Engineering Center											0.479	0.479
Fermi National Accelerator Laboratory	19.750											19.750
Hanford: Pacific Northwest National Laboratory							0.046					0.046
Hanford: Hanford Site					42.908						7.173	50.081
Hanford: Office of River Protection					3.872				11.903		2.453	18.228
Hanford: Pacific Northwest National Laboratory							14.504					14.504
Idaho National Laboratory							71.752					71.752
Kansas City Plant										0.001		0.001
Lawrence Berkeley National Laboratory							0.623					0.623
Lawrence Livermore National Laboratory							8.475					8.475
Los Alamos National Laboratory	0.122				136.881		0.209				1.522	138.734
National Renewable Energy Laboratory							0.068					0.068
Nevada National Security Site					3.218							3.218
New Brunswick Laboratory							0.012					0.012
Oak Ridge: East Tennessee Technology Park		0.040										0.040
Oak Ridge: Oak Ridge Institute for Science and Education							0.083					0.083
Oak Ridge: Oak Ridge National Laboratory							74.531					74.531
Oak Ridge: Y-12 National Security Complex										49.727		49.727
Paducah Gaseous Diffusion Plant		0.289					6.161					6.450
Pantex Plant										21.829		21.829
Portsmouth Gaseous Diffusion Plant							8.634					8.634
Princeton Plasma Physics Laboratory								0.339				0.339
Sandia National Laboratories	0.240				0.147	1.261	0.654	0.010	0.305	0.573	1.145	4.335
Savannah River Site				11.100	4.373		4.550		67.345	0.149	1.019	88.536
Separations Process Research Unit									2.896			2.896
SLAC National Accelerator Laboratory	0.281											0.281
Thomas Jefferson National Accelerator Facility	1.503											1.503
Uranium Mill Tailings Remedial Action Project									7.407			7.407
Waste Isolation Pilot Plant									0.552			0.552
West Valley Demonstration Project									12.901			12.901
Service Center Personnel*							0.023		0.012			0.035
<b>Totals</b>	<b>26.426</b>	<b>0.329</b>		<b>11.100</b>	<b>193.249</b>	<b>1.296</b>	<b>204.193</b>	<b>0.349</b>	<b>103.773</b>	<b>72.279</b>	<b>13.791</b>	<b>626.785</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: 2013 Annual Report**  
**Exhibit B-8. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Accelerator Facilities, 2013.**

**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	1,084	112	37	24	1	1						1,259	14% ◀	175 ◀	19.750 ◀	0.113 ◀
Brookhaven National Laboratory	1,275	93	8	4								1,380	8%	105	4.530	0.043
Sandia National Laboratories	376	6	1									383	2%	7	0.240	0.034
Los Alamos National Laboratory	41	4										45	9%	4	0.122	0.031
Thomas Jefferson Natl. Accel. Facil.	1,322	46	2									1,370	4%	48	1.503	0.031
SLAC National Accelerator Laboratory	2,317	10										2,327 ◀	0%	10	0.281	0.028
Thomas Jefferson Site Office-DOE Employees	8											8	0%	0	0.000	0.000
<b>Totals</b>	<b>6,423</b>	<b>271</b>	<b>48</b>	<b>28</b>	<b>1</b>	<b>1</b>						<b>6,772</b>	<b>5%</b>	<b>349</b>	<b>26.426</b>	<b>0.076</b>

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

DOE Occupational Radiation Exposure: 2013 Annual Report

Exhibit B-9. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Fuel Facilities, 2013.

**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>																
Swift and Staley Team	178	17										195	9% ◀	17 ◀	0.289 ◀	0.017 ◀
URS/CH2MHill - Oak Ridge (UCOR): ETPP	621	4										625 ◀	1%	4	0.040	0.010
URS/CH2MHill - Oak Ridge (UCOR): NSPS	81											81	0%	0	0.000	0.000
<b>Totals</b>	<b>880</b>	<b>21</b>										<b>901</b>	<b>2%</b>	<b>21</b>	<b>0.329</b>	<b>0.016</b>
<b>FABRICATION</b>																
<b>PROCESSING</b>																
SRNS Construction	29	10	1	3	2							45	36% ◀	16	2.854	0.178 ◀
Savannah River Nuclear Solutions	399	106	15	6								526 ◀	24%	127 ◀	8.220 ◀	0.065
Wackenhut Services Inc. - SR	123	2										125	2%	2	0.015	0.008
Savannah River Field Office	18	1										19	5%	1	0.006	0.006
SRNS Service Subs	14	1										15	7%	1	0.005	0.005
SRNS Construction Subs	2											2	0%	0	0.000	0.000
<b>Totals</b>	<b>585</b>	<b>120</b>	<b>16</b>	<b>9</b>	<b>2</b>							<b>732</b>	<b>20%</b>	<b>147</b>	<b>11.100</b>	<b>0.076</b>

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

DOE Occupational Radiation Exposure: 2013 Annual Report

Exhibit B-10. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Maintenance and Support, 2013.

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)
CH2M Hill Plateau Remediation Company (CHPRC)	798	346	53	18	5	6	6					1,232	35%	434	39.353	0.091
SRR Operations	2	10	6									18	89%	16	1.405	0.088
Los Alamos National Laboratory	4,495	1,208	255	108	20	9	1					6,096	26%	1,601	136.738	0.085
Washington River Protection Solutions LLC	222	78	6	1								307	28%	85	3.633	0.043
NSTec - NTS	1019	20	4									1,043	2%	24	0.941	0.039
Savannah River Nuclear Solutions	156	71	5									232	33%	76	2.895	0.038
Mission Support Alliance	947	91	6									1,044	9%	97	3.555	0.037
NNSA Nevada Site Office	244	2										246	1%	2	0.073	0.037
NSTec - Las Vegas	863	55	2									920	6%	57	2.071	0.036
NNSA Los Alamos Site Office	113	4										117	3%	4	0.119	0.030
Navarro-Intera LLC	71	1										72	1%	1	0.029	0.029
Sandia National Laboratories	346	5										351	1%	5	0.147	0.029
Brookhaven National Laboratory	841	71	4									916	8%	75	1.850	0.025
Advanced Technologies and Laboratories Intl	15	10										25	40%	10	0.239	0.024
Wackenhut Services Inc. - NV	294	3										297	1%	3	0.069	0.023
NSTec - Los Alamos	15	1										16	6%	1	0.020	0.020
Savannah River Field Office	5	1										6	17%	1	0.019	0.019
SRNS Construction	3	1										4	25%	1	0.018	0.018
NSTec - NTS subcontractors	84	1										85	1%	1	0.015	0.015
Protection Technologies Los Alamos	76	2										78	3%	2	0.024	0.012
SRNS Construction Subs		2										2	100%	2	0.012	0.006
SRNS Service Subs	47	4										51	8%	4	0.024	0.006
Battelle - Pantex	21											21	0%	0	0.000	0.000
BATTELLE - PNNL	28											28	0%	0	0.000	0.000
DOE Headquarters	303											303	0%	0	0.000	0.000
DOE-Richland Field Office	5											5	0%	0	0.000	0.000
Johnson Controls Inc.	16											16	0%	0	0.000	0.000
Misc. DOE Contractors - SR	16											16	0%	0	0.000	0.000
NNSA Albuquerque Complex	14											14	0%	0	0.000	0.000
NSTec - Livermore Operations	8											8	0%	0	0.000	0.000
NSTec - Special Tech. Lab	24											24	0%	0	0.000	0.000
Nye County Sheriff	4											4	0%	0	0.000	0.000
Science Applications Intl Corp. -NV	2											2	0%	0	0.000	0.000
SRR Service Subs	6											6	0%	0	0.000	0.000
UT-Batelle ORNL	14											14	0%	0	0.000	0.000
Wackenhut Services Inc. - SR	6											6	0%	0	0.000	0.000
Washington Closure Hanford LLC	3											3	0%	0	0.000	0.000
<b>Totals</b>	<b>11,126</b>	<b>1,987</b>	<b>341</b>	<b>127</b>	<b>25</b>	<b>15</b>	<b>7</b>					<b>13,628</b>	<b>18%</b>	<b>2,502</b>	<b>193.249</b>	<b>0.077</b>

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

DOE Occupational Radiation Exposure: 2013 Annual Report

Exhibit B-11. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Reactor Facilities, 2013.

**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 Laboratories	63	11	4	1								79	20%	16	1.261	0.079
Brookhaven National Laboratory	18	2										20	10%	2	0.035	0.018
<b>Totals</b>	<b>81</b>	<b>13</b>	<b>4</b>	<b>1</b>								<b>99</b>	<b>18%</b>	<b>18</b>	<b>1.296</b>	<b>0.072</b>

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

DOE Occupational Radiation Exposure: 2013 Annual Report

Exhibit B-12. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Research, General, 2013.

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)
Argonne National Laboratory	1,864	52	7	6	2	5	2					1,938	4%	74	13.017	0.176
Wastren Advantage Inc. - TWPC	53	99	92	46								290	82%	237	33.485	0.141
UT-Batelle ORNL	3,144	233	39	32	11	5						3,464	9%	320	35.966	0.112
BWCS-Portsmouth	152	36	7	8								203	25%	51	5.640	0.111
SEC Oak Ridge	23	21	4	3								51	55%	28	2.500	0.089
Lawrence Livermore National Laboratory	7,387	79	12	4	1	2						7,485	1%	98	8.358	0.085
B & W Conversion Services LLC - Paducah	183	51	22	2								258	29%	75	6.161	0.082
BBWI-AMWTP	308	221	47	28								604	49%	296	23.742	0.080
Lawrence Berkeley Laboratory	712	7	1	1								721	1%	9	0.623	0.069
INL - BEA LLC - Security	31	8	1	1								41	24%	10	0.608	0.061
Fluor/B&W - Portsmouth	2,231	44	7									2,282	2%	51	2.994	0.059
ICP - CWI - Construction Subs	138	27	2	2								169	18%	31	1.641	0.053
Los Alamos National Laboratory	60	4										64	6%	4	0.209	0.052
ICP - CWI - Subcontractors	217	18	3	1								239	9%	22	1.091	0.050
ICP - CWI - Projects	607	152	18	3								780	22%	173	7.918	0.046
ICP - CWI - Support	93	17	1	1								112	17%	19	0.865	0.046
URS/CH2MHill - Oak Ridge (UCOR): ORNL	188	51	5	1								245	23%	57	2.580	0.045
INL - BEA LLC - Services	2,035	596	59	8								2,698	25%	663	28.285	0.043
INL - BEA LLC - Research	188	59	7	1								255	26%	67	2.796	0.042
BATTELLE - PNNL	1,328	311	32	8								1,679	21%	351	13.249	0.038
INL - BEA LLC - Production	292	105	8	1								406	28%	114	4.022	0.035
Ames Laboratory (Iowa State)	135	24										159	15%	24	0.730	0.030
Savannah River Nuclear Solutions	460	136	5	1								602	24%	142	4.056	0.029
Battelle -PNNL- Subs	517	43	3									563	8%	46	1.255	0.027
Brookhaven National Laboratory	5	5										10	50%	5	0.121	0.024
Lawrence Livermore National Laboratory Nevada	165	5										170	3%	5	0.117	0.023
SRNS Construction	62	6	1									69	10%	7	0.163	0.023
BBWI Service Subs	50	24										74	32%	24	0.500	0.021
Sandia National Laboratories	372	30	1									403	8%	31	0.654	0.021
Idaho Field Office	185	19										204	9%	19	0.284	0.015
National Renewable Energy Laboratory	10	5										15	33%	5	0.068	0.014
Oak Ridge Institute for Science & Education	73	6										79	8%	6	0.083	0.014
Isotek (Bldg 3019)	67	2										69	3%	2	0.023	0.012
New Brunswick Laboratory - Research	41	1										42	2%	1	0.012	0.012
Wackenhut Services Inc. - SR	55	4										59	7%	4	0.049	0.012
SRNS Service Subs	38	21										59	36%	21	0.238	0.011
Savannah River Field Office	10	2										12	17%	2	0.019	0.010
Pacific Northwest Site Office	21	6										27	22%	6	0.046	0.008
SRNS Construction Subs	4	2										6	33%	2	0.013	0.007
Univ. of Georgia Ecology Laboratory	9	2										11	18%	2	0.012	0.006
Bechtel Construction - SR	1											1	0%	0	0.000	0.000
LATA Environmental Services of Kentucky	520											520	0%	0	0.000	0.000
LATA Sharp	9											9	0%	0	0.000	0.000
Lawrence Livermore National Laboratories	105											105	0%	0	0.000	0.000
URS/CH2MHill - Oak Ridge (UCOR): NSPS	95											95	0%	0	0.000	0.000
USEC - Oak Ridge	124											124	0%	0	0.000	0.000
Wastren - Portsmouth Services	177											177	0%	0	0.000	0.000
<b>Totals</b>	<b>24,544</b>	<b>2,534</b>	<b>384</b>	<b>158</b>	<b>14</b>	<b>12</b>	<b>2</b>					<b>27,648</b>	<b>11%</b>	<b>3,104</b>	<b>204.193</b>	<b>0.066</b>

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

DOE Occupational Radiation Exposure: 2013 Annual Report

Exhibit B-13. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Research, Fusion, 2013.

**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 Laboratories	30	1										31	3%	1	0.010	<b>0.010</b>
Princeton Plasma Physics Laboratory	302	58										<b>360</b>	<b>16%</b>	<b>58</b>	<b>0.339</b>	0.006
Ames Laboratory (Iowa State)	1											1	0%	0	0.000	0.000
Los Alamos National Laboratory	4											4	0%	0	0.000	0.000
<b>Totals</b>	<b>337</b>	<b>59</b>										<b>396</b>	<b>15%</b>	<b>59</b>	<b>0.349</b>	<b>0.006</b>

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

**DOE Occupational Radiation Exposure: 2013 Annual Report**

**Exhibit B-14. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Waste Processing, 2013.**

<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)
Energy Solutions - UMTRA Project - Moab	58	25	21	9								113	49%	55	7.407	0.135
West Valley Nuclear Services Inc.	219	54	30	16	1							320	32%	101	12.901	0.128
Savannah River Nuclear Solutions	533	139	45	24	4							745	28%	212	21.884	0.103
Brookhaven National Laboratory	21	4	3									28	25%	7	0.452	0.065
SRR Operations	814	361	76	14								1,265	36%	451	29.193	0.065
SPRU-NY (Building remediation)	200	38	10									248	19%	48	2.896	0.060
Bechtel Construction - SR	143	185	27	6								361	60%	218	11.941	0.055
SRNS Construction	70	16	4									90	22%	20	1.064	0.053
Wackenhut Services Inc. - SR	210	27	2									239	12%	29	1.513	0.052
SR construction - Parsons		1										1	100%	1	0.047	0.047
SRNS Service Subs	116	33	4	1								154	25%	38	1.560	0.041
Washington River Protection Solutions LLC	745	265	19	2								1,031	28%	286	11.543	0.040
Sandia National Laboratories	57	7	1									65	12%	8	0.305	0.038
Advanced Technologies and Laboratories Int'l	31	12										43	28%	12	0.332	0.028
BECHTEL NATIONAL CORPORATION	1	1										2	50%	1	0.028	0.028
Savannah River Field Office	51	4										55	7%	4	0.086	0.022
Washington TRU Solutions LLC-WIPP	602	32										634	5%	32	0.552	0.017
SRNS Construction Subs	3	1										4	25%	1	0.013	0.013
Carlsbad Field Office	27	1										28	4%	1	0.012	0.012
Misc. S.R.S. Const. Subcontractors	9	1										10	10%	1	0.007	0.007
SRR Service Subs	64	5										69	7%	5	0.032	0.006
Misc. DOE Contractors - SR	15	1										16	6%	1	0.005	0.005
CH2M Hill Plateau Remediation Company (CHPRC)	1											1	0%	0	0.000	0.000
Los Alamos National Lab - WIPP	7											7	0%	0	0.000	0.000
Los Alamos National Laboratory	2											2	0%	0	0.000	0.000
Mission Support Alliance	2											2	0%	0	0.000	0.000
NNSA Los Alamos Site Office	1											1	0%	0	0.000	0.000
Sandia National Lab - WIPP	6											6	0%	0	0.000	0.000
Santa Fe Protective Services (WIPP)	6											6	0%	0	0.000	0.000
SR construction - Parsons Subcontractors	4											4	0%	0	0.000	0.000
Washington Closure Hanford LLC	1											1	0%	0	0.000	0.000
WTS - Small subs	1											1	0%	0	0.000	0.000
WTS Subcontractors - WIPP	30											30	0%	0	0.000	0.000
<b>Totals</b>	<b>4,050</b>	<b>1,213</b>	<b>242</b>	<b>72</b>	<b>5</b>							<b>5,582</b>	<b>27%</b>	<b>1,532</b>	<b>103.773</b>	<b>0.068</b>

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

DOE Occupational Radiation Exposure: 2013 Annual Report

Exhibit B-15. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Weapons Fabrication, 2013.

**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	2,554	251	59	15								2,879	11%	325	21.655	<b>0.067</b>
BWXT Y-12	3,981	1,202	126	8	1							<b>5,318</b>	25%	<b>1,337</b>	<b>49.727</b>	0.037
B & W - Security	137	5										142	4%	5	0.174	0.035
Sandia National Laboratories	471	19	1									491	4%	20	0.573	0.029
Savannah River Nuclear Solutions	295	16										311	5%	16	0.125	0.008
SRNS Construction	9	2										11	18%	2	0.013	0.007
SRNS Service Subs	4	2										6	<b>33%</b>	2	0.011	0.006
Kansas City Plant	64	1										65	2%	1	0.001	0.001
B & W - Subcontractors	83											83	0%	0	0.000	0.000
PXSO/NNSA and DOE Couriers	3											3	0%	0	0.000	0.000
Savannah River Field Office	5											5	0%	0	0.000	0.000
URS/CH2MHill - Oak Ridge (UCOR): Y-12	73											73	0%	0	0.000	0.000
<b>Totals</b>	<b>7,679</b>	<b>1,498</b>	<b>186</b>	<b>23</b>	<b>1</b>							<b>9,387</b>	<b>18%</b>	<b>1,708</b>	<b>72.279</b>	<b>0.042</b>

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



DOE Occupational Radiation Exposure: 2013 Annual Report

Exhibit B-16. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Other, 2013.

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)
Wackenhut Services Inc. - SR	15	1										16	6%	1	0.071	0.071
Washington River Protection Solutions LLC	254	48	4									306	17%	52	2.417	0.046
Washington Closure Hanford LLC	1,249	121	14	1								1,385	10%	136	5.649	0.042
SRNS Service Subs	63	10	2									75	16%	12	0.452	0.038
Mission Support Alliance	42	1										43	2%	1	0.037	0.037
CH2M Hill Plateau Remediation Company	178	30	2									210	15%	32	1.093	0.034
Sandia National Laboratories	456	33	2									491	7%	35	1.145	0.033
SRNS Construction	69	4										73	5%	4	0.107	0.027
DOE-Richland Field Office	418	15										433	3%	15	0.394	0.026
Office of River Protection	76	2										78	3%	2	0.036	0.018
Los Alamos National Laboratory	2,564	87		1								2,652	3%	88	1.522	0.017
Savannah River Nuclear Solutions	353	22										375	6%	22	0.346	0.016
Savannah River Field Office	42	4										46	9%	4	0.043	0.011
Boeing North America Inc. - Research	89	57										146	39%	57	0.479	0.008
Advanced Technologies and Laboratories Int'l	12											12	0%	0	0.000	0.000
Battelle - PNNL	110											110	0%	0	0.000	0.000
Bechtel Construction - SR	1											1	0%	0	0.000	0.000
Bechtel National Corporation	25											25	0%	0	0.000	0.000
CSC Hanford Occupational Health Services	23											23	0%	0	0.000	0.000
Lockheed Martin Services Inc.	1											1	0%	0	0.000	0.000
Misc. DOE Contractors - SR	3											3	0%	0	0.000	0.000
NNSA Los Alamos Site Office	2											2	0%	0	0.000	0.000
Protection Technologies Los Alamos	1											1	0%	0	0.000	0.000
SRNS Construction Subs	4											4	0%	0	0.000	0.000
SRR Operations	2											2	0%	0	0.000	0.000
SRR Service Subs	3											3	0%	0	0.000	0.000
<b>Totals</b>	<b>6,055</b>	<b>435</b>	<b>24</b>	<b>2</b>								<b>6,516</b>	<b>7%</b>	<b>461</b>	<b>13.791</b>	<b>0.030</b>

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

**DOE Occupational Radiation Exposure: 2013 Annual Report**  
**Exhibit B-17. Internal Dose by Facility Type and Nuclide, 2011-2013.**

Facility Type	Nuclide*	No. of Individuals with Measurable CED*			Collective CED Dose (person-rem)			Average Measurable CED (rem)		
		2011	2012	2013	2011	2012	2013	2011	2012	2013
Accelerator	Total									
Fuel Fabrication	Total									
Fuel Processing	Plutonium	7	1	4	0.029	0.003	0.013	0.004	0.003	0.003
	Total	7	1	4	0.029	0.003	0.013	0.004	0.003	0.003
Fuel/Uranium Enrichment	Uranium		12	1		0.276	0.012		0.023	0.012
	Total		12	1		0.276	0.012		0.023	0.012
Maintenance and Support	Americium		2			0.126			0.063	
	Hydrogen-3	5	8	5	0.006	0.018	0.005	0.001	0.002	0.001
	Mixed	5			0.019			0.004		
	Plutonium	19	4	5	0.313	0.025	1.697	0.016	0.006	<b>0.339</b> ◀
	Uranium	3	2	2	0.324	0.115	0.106	0.108	0.058	0.053
	Total	32	16	12	0.662	0.284	1.808	0.021	0.018	0.151
Other	Americium	1	1	3	0.015	0.010	0.008	0.015	0.010	0.003
	Hydrogen-3		1			0.001			0.001	
	Plutonium	21	10		0.219	0.105		0.010	0.011	
	Total	22	12	3	0.234	0.116	0.008	0.011	0.010	0.003
Reactor	Other	1			0.001			0.001		
	Total	1			0.001			0.001		
Research, Fusion	Total									
Research, General	Americium	3	3	6	0.051	0.085	0.148	0.017	0.028	0.025
	Californium		1	1		0.023	0.032		0.023	0.032
	Hydrogen-3	20	2	2	0.035	0.002	0.008	0.002	0.001	0.004
	Mixed		1	1		0.011	0.012		0.011	0.012
	Other	1	1	1	0.004	0.046	0.012	0.004	0.046	0.012
	Plutonium	12	6	5	1.960	0.129	0.112	<b>0.163</b> ◀	0.022	0.022
	Thorium	2			0.143			0.072		
	Uranium	35	5	1	0.812	0.064	0.012	0.023	0.013	0.012
	Total	73	19	17	3.005	0.360	0.336	0.041	0.019	0.020
Waste Processing/Management	Americium	10			0.410			0.041		
	Hydrogen-3		1			0.004			0.004	
	Mixed	1			0.013			0.013		
	Plutonium	34	19	1	0.308	0.126	0.003	0.009	0.007	0.003
	Uranium	108	50	45	2.279	1.916	2.925	0.021	0.038	0.065
	Total	153	70	46	3.010	2.046	2.928	0.020	0.029	0.064
Weapons Fabrication and Testing	Americium	3			0.284			0.095		
	Hydrogen-3	5	1	7	0.017	0.004	0.035	0.003	0.004	0.005
	Mixed	45	36	43	1.350	0.779	0.385	0.030	0.022	0.009
	Plutonium		1			0.005			0.005	
	Thorium	1	2		0.091	0.220		0.091	<b>0.110</b> ◀	
	Uranium	<b>1,200</b> ◀	<b>1,191</b> ◀	<b>1,082</b> ◀	<b>42.918</b> ◀	<b>46.160</b> ◀	<b>38.441</b> ◀	0.036	0.039	0.036
	Total	1,254	1,231	1,132	44.660	47.168	38.861	0.036	0.038	0.034
	<b>Totals</b>	<b>1,542</b>	<b>1,361</b>	<b>1,215</b>	<b>51.601</b>	<b>50.253</b>	<b>43.966</b>	<b>0.033</b>	<b>0.037</b>	<b>0.036</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."  
 Note: Boxed values (gray background) indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2013 Annual Report  
Exhibit B-18a. 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	178	44		1						5,682	27%	1,513	79.925	0.053
Laborers	956	386	77	33	5	1						1,458	34%	502	39.170	0.078
Management	8,183	752	62	11	1							9,009	9%	826	30.937	0.037
Miscellaneous	6,565	1,226	161	60	17	7	3					8,039	18%	1,474	98.630	0.067
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	257	12	4								3,001	9%	273	9.202	0.034
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	104.988	0.065
<b>Totals</b>	<b>78,892</b>	<b>10,514</b>	<b>1,736</b>	<b>564</b>	<b>99</b>	<b>41</b>	<b>11</b>					<b>91,857</b>	<b>14%</b>	<b>12,965</b>	<b>864.315</b>	<b>0.067</b>

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

**DOE Occupational Radiation Exposure: 2013 Annual Report**  
**Exhibit B-18b. 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	3,664	806	143	25	3							4,641	21%	977	53.758	0.055
Laborers	1,359	263	73	16	2							1,713	21%	354	25.520	0.072
Management	8,452	670	51	17	2		1					9,193	8%	741	31.084	0.042
Miscellaneous	6,992	1,059	176	69	5	1	3					8,305	16%	1,313	89.711	0.068
Production	2,466	1,126	248	98	15	3						3,956	<b>38%</b> ◀	1,490	122.870	0.082
Scientists	20,557	1,736	174	48	7	4	1					<b>22,527</b> ◀	9%	<b>1,970</b> ◀	89.878	0.046
Service	3,027	217	12	3								3,259	7%	232	7.507	0.032
Technicians	6,785	1,413	294	152	44	13	10					8,711	22%	1,926	<b>193.686</b> ◀	<b>0.101</b> ◀
Transport	1,313	91	28	18	1							1,451	10%	138	13.524	0.098
Unknown	17,880	1,060	161	83	8	6						19,198	7%	1,318	91.260	0.069
<b>Totals</b>	<b>72,582</b>	<b>8,443</b>	<b>1,360</b>	<b>529</b>	<b>87</b>	<b>27</b>	<b>15</b>					<b>83,043</b>	<b>13%</b>	<b>10,461</b>	<b>718.903</b>	<b>0.069</b>

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

**DOE Occupational Radiation Exposure: 2013 Annual Report  
Exhibit B-18c. Distribution of TED by Labor Category - 2013.**

**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	61		1									62	2%	1	0.147	<b>0.147</b> ◀
Construction	3,019	951	141	40	2	1						4,154	27%	1,135	63.110	0.056
Laborers	988	242	54	7								1,291	23%	303	17.652	0.058
Management	6,947	628	53	19	1							7,648	9%	701	28.797	0.041
Miscellaneous	4,460	586	81	34		1						5,162	14%	702	39.939	0.057
Production	2,061	1,058	212	55	7	5	6					3,404	<b>39%</b> ◀	1,343	102.839	0.077
Scientists	18,763	1,817	130	48	6	6						<b>20,770</b> ◀	10%	<b>2,007</b> ◀	87.500	0.044
Service	3,448	421	19	3								3,891	11%	443	14.759	0.033
Technicians	6,309	1,408	329	124	32	14	3					8,219	23%	1,910	<b>174.991</b> ◀	0.092
Transport	1,082	67	20	9								1,178	8%	96	8.678	0.090
Unknown	14,622	973	205	81		1						15,882	8%	1,260	88.373	0.070
<b>Totals</b>	<b>61,760</b>	<b>8,151</b>	<b>1,245</b>	<b>420</b>	<b>48</b>	<b>28</b>	<b>9</b>					<b>71,661</b>	<b>14%</b>	<b>9,901</b>	<b>626.785</b>	<b>0.063</b>

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

**DOE Occupational Radiation Exposure: 2013 Annual Report**  
**Exhibit B-19. Internal Dose by Labor Category, 2011-2013.**

Labor Category	No. of Individuals with Measurable CED*			Collective CED Dose (person-rem)			Average Measurable CED		
	2011	2012	2013	2011	2012	2013	2011	2012	2013
Agriculture	1			0.034			0.034		
Construction	239	208	231	5.344	4.827	6.584	0.022	0.023	0.029
Laborers	99	88	53	5.133	5.820	3.134	0.052	<b>0.066</b> ◀	0.059
Management	110	121	106	4.651	4.618	3.714	0.042	0.038	0.035
Miscellaneous	34	23	14	2.324	0.477	0.824	<b>0.068</b> ◀	0.021	0.059
Production	<b>386</b> ◀	<b>343</b> ◀	<b>336</b> ◀	<b>16.261</b> ◀	<b>18.233</b> ◀	<b>14.890</b> ◀	0.042	0.053	0.044
Scientists	158	172	176	3.403	4.039	3.984	0.022	0.023	0.023
Service	12	48	43	0.567	1.764	1.529	0.047	0.037	0.036
Technicians	171	146	117	5.655	5.571	5.223	0.033	0.038	0.045
Transport	69	38	30	1.416	1.493	2.026	0.021	0.039	<b>0.068</b> ◀
Unknown	263	174	109	6.813	3.411	2.058	0.026	0.020	0.019
<b>Totals</b>	<b>1,542</b>	<b>1,361</b>	<b>1,215</b>	<b>51.601</b>	<b>50.253</b>	<b>43.966</b>	<b>0.033</b>	<b>0.037</b>	<b>0.036</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: 2013 Annual Report**  
**Exhibit B-20. Dose Distribution by Labor Category and Occupation, 2013.**

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	Groundskeepers	61		1									62	2%	1	0.147	0.147
Construction	Carpenters	224	80	25	2								331	32%	107	7.131	0.067
	Electricians	988	296	17	11								1,312	25%	324	13.630	0.042
	Masons	17	5										22	23%	5	0.133	0.027
	Mechanics/Repairers	421	100	33	9								563	25%	142	11.312	0.080
	Miners/Drillers	80	4										84	5%	4	0.051	0.013
	Misc. Repair/Construction	870	331	37	10	2	1						1,251	30%	381	19.820	0.052
	Painters	105	26	1									132	20%	27	0.775	0.029
	Pipe Fitter	314	109	28	8								459	32%	145	10.258	0.071
Laborers	Handlers/Laborers/Helpers	988	242	54	7								1,291	23%	303	17.652	0.058
Management	Admin. Support & Clerical Sec.	1,762	74	16	7	1							1,860	5%	98	7.015	0.072
	Manager - Administrator	5,185	554	37	12								5,788	10%	603	21.782	0.036
Miscellaneous	Military	117	3										120	3%	3	0.062	0.021
	Miscellaneous	4,343	583	81	34		1						5,042	14%	699	39.877	0.057
Production	Machine Setup/Operators	116	146	39	4	1							306	62%	190	13.737	0.072
	Machinists	95	13	6	2	1							117	19%	22	2.554	0.116
	Misc. Precision/Production	346	200	23	3								572	40%	226	11.081	0.049
	Operators, Plant/ System/Util.	1,255	652	139	44	3	5	6					2,104	40%	849	71.196	0.084
	Sheet Metal Workers	223	43	5	2	2							275	19%	52	4.194	0.081
	Welders and Solderers	26	4										30	13%	4	0.077	0.019
Scientists	Health Physicist	431	67	8									506	15%	75	2.656	0.035
	Misc. Professional	6,431	640	63	34	2	2						7,172	10%	741	39.700	0.054
	Scientist	5,373	440	31	7	1	2						5,854	8%	481	20.150	0.042
	Engineer	6,473	665	28	7	3	2						7,178	10%	705	24.915	0.035
	Doctors and Nurses	55	5										60	8%	5	0.079	0.016
Service	Firefighters	501	23										524	4%	23	0.250	0.011
	Food Service Employees	10											10				
	Janitors	417	30	2									449	7%	32	0.765	0.024
	Misc. Service	954	206	9	1								1,170	18%	216	7.182	0.033
	Security Guards	1,566	162	8	2								1,738	10%	172	6.562	0.038
Technicians	Health Technicians	122	46	2									170	28%	48	1.530	0.032
	Technicians	1,131	203	73	43	12	5	1					1,468	23%	337	45.655	0.135
	Science Technicians	528	132	19	2								681	22%	153	7.754	0.051
	Misc. Technicians	2,018	214	42	18	10	7	2					2,311	13%	293	33.035	0.113
	Engineering Technicians	1,637	201	26	2								1,866	12%	229	10.146	0.044
	Radiation Monitors/Techs.	873	612	167	59	10	2						1,723	49%	850	76.871	0.090
Transport	Bus Drivers	5											5				
	Equipment Operators	229	40	10	8								287	20%	58	5.876	0.101
	Misc. Transport	387	12	1									400	3%	13	0.438	0.034
	Pilots	19											19				
	Truck Drivers	442	15	9	1								467	5%	25	2.364	0.095
Unknown	Unknown	14,622	973	205	81		1						15,882	8%	1,260	88.373	0.070
<b>Totals</b>		<b>61,760</b>	<b>8,151</b>	<b>1,245</b>	<b>420</b>	<b>48</b>	<b>28</b>	<b>9</b>					<b>71,661</b>	<b>14%</b>	<b>9,901</b>	<b>626.785</b>	<b>0.063</b>

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

**DOE Occupational Radiation Exposure: 2013 Annual Report**  
**Exhibit B-21. Internal Dose Distribution by Site and Nuclide, 2013.**

Site	Nuclide	Number of Individuals Receiving Doses in Each Dose Range											Total Indiv. 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	Californium		1											1	0.032	0.032
Argonne National Laboratory	Plutonium	2	2											4	0.099	0.025
Argonne National Laboratory	Americium	2												2	0.037	0.018
Hanford: Hanford Site	Americium	3												3	0.008	0.003
Hanford: Hanford Site	Plutonium	2												2	0.004	0.002
Hanford: Pacific Northwest National Laboratory	Hydrogen-3	2												2	0.008	0.004
Idaho National Laboratory	Americium	3	1											4	0.111	0.028
Idaho National Laboratory	Plutonium	1												1	0.013	0.013
Lawrence Livermore National Laboratory	Uranium	1												1	0.012	0.012
Lawrence Livermore National Laboratory	Mixed	1												1	0.012	0.012
Los Alamos National Laboratory	Plutonium			1		1	1							3	1.693	<b>0.564</b> ◀
Los Alamos National Laboratory	Uranium	1	1											2	0.106	0.053
Los Alamos National Laboratory	Hydrogen-3	5												5	0.005	0.001
Oak Ridge: East Tennessee Technology Park	Uranium	1												1	0.012	0.012
Oak Ridge: Oak Ridge National Laboratory	Other	1												1	0.012	0.012
Oak Ridge: Y-12 National Security Complex	Mixed	28	5											33	0.371	0.011
Oak Ridge: Y-12 National Security Complex	Uranium	583	397	97	4	1								<b>1,082</b> ◀	<b>38.441</b> ◀	0.036
Pantex Plant	Mixed	10												10	0.014	0.001
Savannah River Site	Hydrogen-3	7												7	0.035	0.005
Savannah River Site	Plutonium	5												5	0.016	0.003
Uranium Mill Tailings Remedial Action Project	Uranium	13	23	8	1									45	2.925	0.065
<b>Totals</b>		<b>671</b>	<b>430</b>	<b>106</b>	<b>5</b>	<b>2</b>	<b>1</b>							<b>1,215</b>	<b>43.966</b>	<b>0.036</b>

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



**DOE Occupational Radiation Exposure: 2013 Annual Report  
Exhibit B-22. Extremity Dose Distribution by Site, 2013.**

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	159	1							160	1		0.030	0.030
Argonne National Laboratory	1,902	14	10	8	4				1,938	36	4	53.394	1.483
Brookhaven National Laboratory	2,304	13	28	9					2,354	50		27.220	0.544
Energy Technology Engineering Center	146								146				
Fermi National Accelerator Laboratory	1,254	2	3						1,259	5		0.720	0.144
Hanford: Pacific Northwest National Laboratory	21	6							27	6		0.046	0.008
Hanford: Hanford Site	4,193	52	104	28	6				4,383	190	6	134.861	0.710
Hanford: Office of River Protection	1,399	189	230	11					1,829	430		94.098	0.219
Hanford: Pacific Northwest National Laboratory	1,985	331	61	3					2,380	395		24.725	0.063
Idaho National Laboratory	4,051	1,224	286	21					5,582	1,531		152.054	0.099
Kansas City Plant	65								65				
Lawrence Berkeley National Laboratory	697	11	5	5	3				721	24	3	30.470	1.270
Lawrence Livermore National Laboratory	7,723	14	16	7					7,760	37		21.560	0.583
Los Alamos National Laboratory	7,354	1,178	431	106	9				9,078	1,724	9	461.047	0.267
National Renewable Energy Laboratory	15								15				
Nevada National Security Site	2,713	4							2,717	4		0.155	0.039
New Brunswick Laboratory	41	1							42	1		0.030	0.030
Oak Ridge: East Tennessee Technology Park	625								625				
Oak Ridge: Oak Ridge Institute for Science and Education	79								79				
Oak Ridge: Oak Ridge National Laboratory	3,893	41	96	29	5				4,064	171	5	140.391	0.821
Oak Ridge: Y-12 National Security Complex	5,344	22	11	14					5,391	47		32.299	0.687
Paducah Gaseous Diffusion Plant	973								973				
Pantex Plant	2,820	164	109	35					3,128	308		101.348	0.329
Portsmouth Gaseous Diffusion Plant	2,662								2,662				
Princeton Plasma Physics Laboratory	360								360				
Sandia National Laboratories	2,294								2,294				
Savannah River Site	4,989	172	516	140	13	6			5,836	847	19	630.645	0.745
Separations Process Research Unit	248								248				
Service Center Personnel*	719	17							736	17		0.179	0.011
SLAC National Accelerator Laboratory	2,327								2,327				
Thomas Jefferson National Accelerator Facility	1,373	2	3						1,378	5		0.610	0.122
Uranium Mill Tailings Remedial Action Project	113								113				
Waste Isolation Pilot Plant	671								671				
West Valley Demonstration Project	301	13	6						320	19		1.680	0.088
<b>Totals</b>	<b>65,813</b>	<b>3,471</b>	<b>1,915</b>	<b>416</b>	<b>40</b>	<b>6</b>			<b>71,661</b>	<b>5,848</b>	<b>46</b>	<b>1,907.562</b>	<b>0.326</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.