

DOE Occupational Radiation Exposure: 2010 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

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Exhibit A-2. Organizations Reporting to DOE REMS, 2006-2010.

The following is a list of all organizations reporting to the DOE REMS from 2006-2010. 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 *				
			2006	2007	2008	2009	2010
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	1504001	DOE Headquarters	●		●		
	1523016	SPRU-NY (Building remediation)				●	●
Energy Technology Engineering Center	8001003	Boeing North America, Inc. - Research	●	●	●	●	●
	8007001	Oakland Field Office	●				
Fermi National Accelerator Lab. (FERMI)	1002503	Fermilab	●	●	●	●	●
Fernald Environmental	4521001	Fernald Closure Project (FCP)	●				
	4521004	FEMP Office Service Subcontractors	●				
	4523702	Fluor Fernald - FEMP	●				
	4523706	Fluor Fernald Construction Subcontractors	●				
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	Flour Hanford, Inc.	●	●	●	●	●
	7505005	Kaiser Engineers Hanford	●	●	●	●	
	7505006	Fluor Northwest Services	●	●	●	●	
	7505024	Duratek Federal Services, Inc. - Hanford	●	●	●		
	7505025	Duratek Federal Services, Inc.	●	●	●	●	
	7505044	NUMATEC Hanford	●	●			
	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 National Laboratory	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	●	●	●	●	●
	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	●	●	●	●	●
	3260605	SM Stoller - EM	●				
	Kansas City Plant	0530001	NNSA Kansas City Site Office	●			
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			●	●	●

Site	Organization Code	Organization Name	Year Reported *					
			2006	2007	2008	2009	2010	
	0580404	LLNL Services			●			
	8004004	LLNL Services	●					
	0580503	LLNL - Nevada		●	●	●	●	
	8005003	LLNL - Nevada	●					
Los Alamos National Lab. (LANL)	0540001	NNSA Los Alamos Site Office	●	●	●	●	●	
	0544003	Los Alamos National Laboratory	●	●	●	●	●	
	0544809	Protection Technologies Los Alamos	●	●	●	●	●	
	0544904	Johnson Controls, Inc.	●	●	●	●	●	
Mound Plant	4516002	CH2M Hill-Mound, Inc.	●					
	4516004	CH2M Hill-Mound, Inc. - Service Subs	●					
National Renewable Energy Laboratory	2806003	National Renewable Energy Laboratory	●	●	●	●	●	
Nevada National Security Site	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	●	●	●	●	●	
	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		BJC, LLC: Wackenhut				●		
4007509		UT-Battelle: ORNL-Wackenhut				●		
4007509		Wackenhut Services	●	●	●		●	
4008010		Bechtel-Jacobs, Y-12	●	●	●	●	●	
4018102		BWXT LLC, Y-12	●	●	●	●	●	
Paducah Gaseous Diff. Plant (PGDP)		4007002	Bechtel-Jacobs Co., LLC-Paducah	●				
		4007002	Swift & Staley, UDS - Paducah			●	●	
	4007002	Swift & Staley Team					●	
	6203004	UT-Battelle - Paducah Remediaton 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				●	●	

Site	Organization Code	Organization Name	Year Reported *				
			2006	2007	2008	2009	2010
	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	●	●	●	●	●
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				●	●
	8505001	S.R. Forest Station	●	●			
	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	●	●	●	●	●
	8009005	Separation Process Research Unit	●	●			
Thomas Jefferson National Accelerator Facility	4004501	Jefferson Laboratory				●	
	4009503	Thomas Jefferson National Accel. Facility	●	●	●		●
	4009503	Jefferson Laboratory				●	
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					●
	0593001	Carlsbad Area Office	●	●			
	0593004	Carlsbad Area Miscellaneous Contractors	●	●	●		
	0593004	WIPP Project - Carlsbad Field Office				●	
	0701001	Carlsbad Field Office					●
	0703104	Washington TRU Solutions LLC-WIPP					●
	0703114	WTS Subcontractors - WIPP					●
West Valley Project	4539004	West Valley Nuclear Services, Inc. (WVNS)	●	●		●	●
	4542005	RMI Environmental Services	●				
	4542005	RMI Titanium Company				●	
Pittsburg Naval Reactor Office	6007504	PNR - BAPL & BPMP-P	●	●	●	●	●
	6008003	Pittsburg Naval Reactor	●	●	●		

Site	Organization Code	Organization Name	Year Reported *				
			2006	2007	2008	2009	2010
	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 - 2008.

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	0.5		30		0.017			
Argonne National Laboratory	13.2	43% ▲	128	-12% ▼	0.103	63% ▲	33%	187% ▲
Brookhaven National Laboratory	5.4	-13% ▼	149	-22% ▼	0.036	11% ▲		
Energy Technology Engineering Center	0.1		15		0.009			
Fermi National Accelerator Laboratory	15.4	-7% ▼	166	-22% ▼	0.093	19% ▲	7%	13% ▲
Hanford - Hanford Site	76.5	-38% ▼	1,778	8% ▲	0.043	-43% ▼	1%	-96% ▼
Hanford - Office of River Protection	18.3	-20% ▼	372	-6% ▼	0.049	-15% ▼		
Hanford - Pacific Northwest National Laboratory	11.1	1% ▲	226	25% ▲	0.049	-19% ▼		
Idaho National Laboratory	120.4	-10% ▼	1,956	5% ▲	0.062	-14% ▼	5%	-36% ▼
Kansas City Plant	0.1		39		0.003			
Lawrence Berkeley National Laboratory	0.4		8		0.054			
Lawrence Livermore National Laboratory	20.4	31% ▲	129	-6% ▼	0.158	39% ▲	63%	58% ▲
Los Alamos National Laboratory	107.3	-28% ▼	1,219	-12% ▼	0.088	-18% ▼	30%	-34% ▼
National Renewable Energy Lab (NREL)	0		3		0.005			
Nevada National Security Site	5.2	-9% ▼	75	7% ▲	0.070	-15% ▼		
New Brunswick Laboratory	0.1		8		0.017			
Oak Ridge - East Tennessee Technology Park	0.4		23		0.019			
Oak Ridge - Oak Ridge Institute for Science and Education	0.2		53		0.003			
Oak Ridge - Oak Ridge National Laboratory	42.7	34% ▲	492	16% ▲	0.087	16% ▲	12%	-35% ▼
Oak Ridge - Y-12 National Security Complex	72.1	-3% ▼	1,301	3% ▲	0.055	-6% ▼	5%	-7% ▼
Paducah Gaseous Diffusion Plant	1.3	-23% ▼	44	52% ▲	0.029	-50% ▼		
Pantex Plant	16.5	-31% ▼	287	-2% ▼	0.057	-30% ▼		
Portsmouth Gaseous Diffusion Plant	1.4	-4% ▼	36	100% ▲	0.039	-52% ▼		
Princeton Plasma Physics Laboratory	1.3	-7% ▼	123	-20% ▼	0.010	16% ▲		
Sandia National Laboratories	7.2	-8% ▼	160	-9% ▼	0.045	1% ▲		
Savannah River Site	127.1	13% ▲	2,151	1% ▲	0.059	12% ▲	4%	-49% ▼
Service Center Personnel *	0.5		14		0.033			
Stanford Linear Accelerator Laboratory	0.6		25		0.022			
Thomas Jefferson National Accelerator Facility	1.5	97% ▲	51	168% ▲	0.030	-27% ▼		
UMTRA Project - Moab	0.1		7		0.011			
Waste Isolation Pilot Project (WIPP)	1.1		63		0.017			
West Valley Project	22.2	-50% ▼	157	-16% ▼	0.141	-40% ▼		
Totals	690.5	-13% ▼	11,288	2% ▲	0.061	-15% ▼	10%	-47% ▼

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

* Includes service center personnel from Albuquerque, Chicago, Oak Ridge, and Ohio in addition to several smaller facilities not associated with a DOE site.

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Exhibit B-2. Site Dose Data - 2009.

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	0.7		31		0.023			
Argonne National Laboratory	17.6	34% ▲	137	7% ▲	0.129	25% ▲	33%	-2% ▼
Brookhaven National Laboratory	5.2	-4% ▼	180	21% ▲	0.029	-21% ▼		
Energy Technology Engineering Center	0.1		43		0.003			
Fermi National Accelerator Laboratory	18.8	22% ▲	243	46% ▲	0.077	-17% ▼	3%	-58% ▼
Hanford - Hanford Site	93.4	22% ▲	1,634	-8% ▼	0.057	33% ▲	7%	943% ▲
Hanford - Office of River Protection	20.6	13% ▲	346	-7% ▼	0.060	22% ▲		
Hanford - Pacific Northwest National Laboratory	15.3	38% ▲	242	7% ▲	0.063	29% ▲	11%	
Idaho National Laboratory	111.3	-8% ▼	1,808	-8% ▼	0.062	0%	1%	-77% ▼
Kansas City Plant	0.5		10		0.053			
Lawrence Berkeley National Laboratory	0.6		14		0.044			
Lawrence Livermore National Laboratory	26.1	28% ▲	182	41% ▲	0.143	-9% ▼	67%	6% ▲
Los Alamos National Laboratory	115.7	8% ▲	1,392	14% ▲	0.083	-6% ▼	22%	-26% ▼
National Renewable Energy Lab (NREL)	0.0		5		0.006			
Nevada National Security Site	5.5	6% ▲	86	15% ▲	0.064	-8% ▼		
New Brunswick Laboratory	0.1		3		0.020			
Oak Ridge - East Tennessee Technology Park	1.1	156% ▲	37	61% ▲	0.030	59% ▲		
Oak Ridge - Oak Ridge Institute for Science and Education	0.2		62		0.004			
Oak Ridge - Oak Ridge National Laboratory	46.9	10% ▲	659	34% ▲	0.071	-18% ▼	6%	-55% ▼
Oak Ridge - Y-12 National Security Complex	61.9	-14% ▼	1,379	6% ▲	0.045	-19% ▼	7%	38% ▲
Paducah Gaseous Diffusion Plant	1.2	-10% ▼	79	80% ▲	0.015	-50% ▼		
Pantex Plant	25.2	53% ▲	302	5% ▲	0.083	45% ▲	9%	
Portsmouth Gaseous Diffusion Plant	1.5	10% ▲	32	-11% ▼	0.048	24% ▲		
Princeton Plasma Physics Laboratory	0.8		101		0.008			
Sandia National Laboratories	4.1	-43% ▼	88	-45% ▼	0.047	4% ▲		
Savannah River Site	108.8	-14% ▼	2,183	1% ▲	0.050	-16% ▼	2%	-44% ▼
Separations Process Research Unit	0.3		10		0.029			
Service Center Personnel *	0.5		10		0.048			
Stanford Linear Accelerator Laboratory	0.2		6		0.028			
Thomas Jefferson National Accelerator Facility	0.7		27		0.026			
UMTRA Project - Moab	3.6	4,732% ▲	92	1,214% ▲	0.039	268% ▲		
Waste Isolation Pilot Project (WIPP)	0.9		68		0.013			
West Valley Project	37.0	67% ▲	230	46% ▲	0.161	14% ▲	23%	
Totals	726.4	5% ▲	11,721	4% ▲	0.062	1% ▲	11%	7% ▲

* Includes service center personnel from Albuquerque 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 - 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	0.9	26% ▲	32	3% ▲	0.028	23% ▲		
Argonne National Laboratory	30.8	76% ▲	173	28% ▲	0.178	37% ▲	52%	58% ▲
Brookhaven National Laboratory	11.5	122% ▲	214	19% ▲	0.054	87% ▲	6%	
Energy Technology Engineering Center	0.3	134% ▲	54	26% ▲	0.005	86% ▲		
Fermi National Accelerator Laboratory	11.2	-40% ▼	169	-30% ▼	0.066	-14% ▼		
Hanford - Hanford Site	112.5	21% ▲	1,673	2% ▲	0.067	18% ▲	1%	-92% ▼
Hanford - Office of River Protection	28.5	38% ▲	535	55% ▲	0.053	-11% ▼		
Hanford - Pacific Northwest National Laboratory	27.5	79% ▲	280	16% ▲	0.098	55% ▲	45%	320% ▲
Idaho National Laboratory	129.9	17% ▲	1,889	4% ▲	0.069	12% ▲	5%	406% ▲
Kansas City Plant	0		10		0.005			
Lawrence Berkeley National Laboratory	1.1	79% ▲	16	14% ▲	0.069	57% ▲		
Lawrence Livermore National Laboratory	18.3	-30% ▼	146	-20% ▼	0.126	-12% ▼	45%	-32% ▼
Los Alamos National Laboratory	125.4	8% ▲	1,335	-4% ▼	0.094	13% ▲	24%	6% ▲
National Renewable Energy Lab (NREL)	0.0		3		0.007			
Nevada National Security Site	3.0	-46% ▼	73	-15% ▼	0.041	-36% ▼		
Oak Ridge - East Tennessee Technology Park	1.2	6% ▲	43	16% ▲	0.028	-9% ▼		
Oak Ridge - Oak Ridge Institute for Science and Education	0.1	-51% ▼	56	-10% ▼	0.002	-45% ▼		
Oak Ridge - Oak Ridge National Laboratory	74	58% ▲	739	12% ▲	0.100	41% ▲	10%	74% ▲
Oak Ridge - Y-12 National Security Complex	69.4	13% ▲	1,634	18% ▲	0.042	-5% ▼	5%	-31% ▼
Paducah Gaseous Diffusion Plant	1.3	16% ▲	71	-10% ▼	0.019	29% ▲		
Pantex Plant	26.1	4% ▲	303		0.086	4% ▲		
Portsmouth Gaseous Diffusion Plant	3.0	92% ▲	63	97% ▲	0.047	-2% ▼		
Princeton Plasma Physics Laboratory	0.7	-16% ▼	79	-22% ▼	0.008	8% ▲		
Sandia National Laboratories	2.9	-30% ▼	59	-33% ▼	0.049	4% ▲		
Savannah River Site	179.6	65% ▲	2,587	19% ▲	0.069	39% ▲	18%	793% ▲
Separations Process Research Unit	7.9		74		0.106		28%	
Service Center Personnel*	0.4	-29% ▼	16	7% ▲	0.023	-33% ▼		
Stanford Linear Accelerator Laboratory	0.1	-69% ▼	4	-33% ▼	0.013	-53% ▼		
Thomas Jefferson National Accelerator Facility	3.1	351% ▲	67	148% ▲	0.046	82% ▲		
UMTRA Project - Moab	31.5	769% ▲	237	158% ▲	0.133	237% ▲		
Waste Isolation Pilot Project (WIPP)	1.2	32% ▲	62	-9% ▼	0.019	45% ▲		
West Valley Project	41.9	13% ▲	308	34% ▲	0.136	-15% ▼	7%	-71% ▼
Totals	945.4	30% ▲	13,004	11% ▲	0.073	17% ▲	13%	19% ▲

* Includes service center personnel from Albuquerque 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: 2010 Annual Report
Exhibit B-4. Internal Dose by Site, 2008-2010.

Site	No. of Individuals with New Intakes*			Collective CED Dose from Intake (person-rem)			Average CED		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
Argonne National Laboratory	6	6	6	0.105	0.240	0.156	0.018	0.040	0.026
Brookhaven National Laboratory	5	8		0.012	0.136		0.002	0.017	
Hanford - Hanford Site	14	1	8	0.219	0.001	0.161	0.016	0.001	0.020
Hanford - Pacific Northwest National Laboratory	7		1	0.010		0.001	0.001		0.001
Idaho National Laboratory	7	9	21	0.530	0.443	0.743	0.078 ◀	0.049 ◀	0.035
Lawrence Livermore National Laboratory	10	8	19	0.023	0.015	0.157	0.002	0.002	0.008
Los Alamos National Laboratory	36	31	28	2.336	0.349	0.128	0.065	0.011	0.005
Nevada National Security Site	9	4		0.134	0.048		0.015	0.012	
New Brunswick Laboratory	1			0.010			0.010		
Oak Ridge - East Tennessee Technology Park			7			0.164			0.023
Oak Ridge - Oak Ridge National Laboratory	22	6	1	0.190	0.054	0.013	0.009	0.009	0.013
Oak Ridge - Y-12 National Security Complex	1,054 ◀	1,125 ◀	1,345 ◀	53.955 ◀	49.205 ◀	57.146 ◀	0.051	0.044	0.042
Paducah Gaseous Diffusion Plant	1	2	13	0.011	0.089	0.408	0.011	0.045	0.031
Pantex Plant	18	21	20	0.244	0.068	0.095	0.014	0.003	0.005
Princeton Plasma Physics Laboratory		9	8		0.070	0.026		0.008	0.003
Savannah River Site	32	58	60	0.217	0.382	31.954	0.007	0.007	0.533 ◀
UMTRA Project - Moab			109			3.743			0.034
West Valley Project	1			0.004			0.004		
Totals	1,223	1,288	1,646	58.000	51.100	94.895	0.047	0.040	0.058

*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: 2010 Annual Report
Exhibit B-5. Neutron Dose Distribution by Site, 2010.

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	152								152				
Argonne National Laboratory	2,594	5							2,599	5	0%	0.083	0.022
Boeing North America, Inc. - Research	103								103				
Brookhaven National Laboratory	2,573	1							2,574	1	0%	0.005	0.006
Fermi National Accelerator Laboratory	1,532								1,532				
Hanford - Hanford Site	6,721	659	75	2					7,457	736	10% ◀	33.101	0.041
Hanford - Office of River Protection	2,177	12							2,189	12	1%	0.345	0.031
Hanford - Pacific Northwest National Laboratory	2,027	83	1						2,111	84	4%	2.491	0.045
Honeywell, FM&T/KC Production	59								59				
Idaho National Laboratory	7,471	136	10						7,617	146	2%	6.220	0.030
Lawrence Berkeley National Laboratory	985								985				
Lawrence Livermore National Laboratory	7,512	29	8	4					7,553	41	1%	3.642	0.067
Los Alamos National Laboratory	8,694	786	152	35	12				9,679	985	10% ◀	64.464	0.072
Nevada Test Site	3,023								3,023				
Oak Ridge - East Tennessee Technology Park	2,001								2,001				0.011
Oak Ridge - Oak Ridge Institute for Science and Education	133								133				
Oak Ridge - Oak Ridge National Laboratory	9,439	287	23	7	1				9757	318	3%	15.765	0.047
Oak Ridge - Y-12 National Security Complex	6,918	13	2						6,933	15	0%	0.721	0.059
Paducah Gaseous Diffusion Plant	2,280								2,280				0.080
Pantex Plant	3,025	52	1						3,078	53	2%	2.096	0.047
Portsmouth Gaseous Diffusion Plant	1,534	10							1,544	10	1%	0.469	0.085
Princeton Plasma Physics Laboratory	374								374				
Sandia National Laboratory	2,121	3							2,124	3	0%	0.087	0.056
Savannah River Site	8,047	231	67	7					8,352	305	4%	22.775	0.096
SPRU-NY	226								226				
Stanford Linear Accelerator Laboratory	2,334								2,334				
Thomas Jefferson National Accelerator Facility	1,459	3							1,462	3	0%	0.080	
UMTRA PROJECT - MOAB	355								355				
West Valley Project	649								649				
Site Office Personnel*	1,989	5							1,994	5	0%	0.087	0.032
Totals	88,507	2,315	339	55	13	0	0	0	91,229	2,722	0.03	152.431	0.056

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 service center personnel from Albuquerque and Oak Ridge, in addition to several smaller facilities not associated with a DOE site.

DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-6a. Distribution of TED by Facility Type - 2008.

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	10,301	324	34	22	3							10,684	4%	383	22.541	0.059
Fuel/Uranium Enrichment	104	15										119	13%	15	0.134	0.009
Fuel Processing	1,007	349	17									1,373	27%	366	11.448	0.031
Maintenance and Support	12,313	2,072	326	104	24	7	3	1				14,850	17%	2,537 ◀	167.019 ◀	0.066
Reactor	226	19	6									251	10%	25	1.417	0.057
Research, General	24,975	1,628	239	83	34	10	3					26,972 ◀	7%	1,997	146.125	0.073 ◀
Research, Fusion	294	125										419	30%	125	1.304	0.010
Waste Processing/Management	5,080	1,868	411	118	4							7,481	32% ◀	2,401	161.422	0.067
Weapons Fabrication and Testing	7,765	1,423	223	45	3	2						9,461	18%	1,696	91.641	0.054
Other	9,856	1,518	169	49	5	1						11,598	15%	1,742	87.132	0.050
Totals	71,921	9,341	1,425	421	73	20	6	1				83,208	14%	11,287	690.183	0.061

Note: Arrowed values indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-6b. Distribution of TED by Facility Type - 2009.**

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	7,662	306	53	18	1							8,040	5%	378	22.923	0.061
Fuel/Uranium Enrichment	92	47										139	34% ◀	47	0.249	0.005
Fuel Processing	1,059	286	13									1,358	22%	299	8.920	0.030
Maintenance and Support	13,020	2,073	358	125	23	12	4					15,615	17%	2,595	185.810 ◀	0.072 ◀
Reactor	251	35	2	1								289	13%	38	1.644	0.043
Research, General	25,436	1,741	242	100	14	13	4					27,550 ◀	8%	2,114	147.386	0.070
Research, Fusion	326	102										428	24%	102	0.797	0.008
Waste Processing/Management	6,971	2,457	415	141	18	1						10,003	30%	3,032 ◀	165.459	0.055
Weapons Fabrication and Testing	7,948	1,498	205	44	9	1						9,705	18%	1,757	89.450	0.051
Other	11,885	1,178	110	62	6	1	2					13,244	10%	1,359	103.767	0.076
Totals	74,650	9,723	1,398	491	71	28	10					86,371	14%	11,721	726.405	0.062

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

DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-6c. 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	6,661	289	37	12								6,999	5%	338	17.233	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	12,976	1,986	431	155	38	5	1					15,592	17%	2,616	212.935	0.081
Reactor	202	33	17	8	1							261	23%	59	6.949	0.118
Research, General	30,612	2,151	399	163	42	16	6					33,389	8%	2,777	228.733	0.082
Research, Fusion	345	79										424	19%	79	0.663	0.008
Waste Processing/Management	7,223	2,581	619	264	18						1	10,706	33%	3,483	307.798	0.088
Weapons Fabrication and Testing	8,569	1,717	229	52	1	1	1					10,570	19%	2,001	96.577	0.048
Other	10,737	1,188	111	35	1	2						12,074	11%	1,337	63.204	0.047
Totals	78,225	10,318	1,860	692	101	24	8				1	91,229	14%	13,004	945.369	0.073

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

**DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-7a. Collective TED by Site and Facility Type - 2008.**

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							0.511					0.511
Argonne National Laboratory	0.479				0.188		9.665		2.810		0.035	13.177
Boeing North America, Inc. - Research											0.141	0.141
Brookhaven National Laboratory	2.986				1.221	0.041	0.743		0.439			5.430
DOE - NNSA							0.033		0.036		0.011	0.080
Fermi National Accelerator Laboratory	15.400 ◀											15.400
Hanford - Hanford Site					60.760						15.773	76.533
Hanford - Office of River Protection					1.860				14.081		2.316	18.257
Hanford - Pacific Northwest National Laboratory					0.200		6.593				4.302	11.095
Honeywell, FM&T/KC Production										0.126		0.126
Idaho National Laboratory							45.996 ◀		32.136		41.932 ◀	120.064
Lawrence Berkeley National Laboratory							0.429					0.429
Lawrence Livermore National Laboratory							20.356					20.356
Los Alamos National Laboratory	1.144				88.937 ◀		7.700		0.110		9.433	107.324
Nevada Test Site					5.219							5.219
New Brunswick Laboratory											0.137	0.137
Oak Ridge - East Tennessee Technology Park							0.438					0.438
Oak Ridge - Oak Ridge Institute for Science and Education							0.172					0.172
Oak Ridge - Oak Ridge National Laboratory							42.726					42.726
Oak Ridge - Y-12 National Security Complex											72.058 ◀	72.058
Paducah Gaseous Diffusion Plant		0.134 ◀					0.027		1.112			1.273
Pantex Plant										16.454		16.454
Portsmouth Gaseous Diffusion Plant							1.397					1.397
Princeton Plasma Physics Laboratory								1.282 ◀				1.282
Sandia National Laboratory	0.451				0.608	1.376 ◀	0.753	0.022	0.882	2.658	0.469	7.219
Savannah River Site				11.448 ◀	8.026		8.118		86.566 ◀	0.345	12.569	127.072 ◀
Service Center Personnel*							0.468				0.014	0.482
Stanford Linear Accelerator Laboratory	0.560											0.560
Thomas Jefferson National Accelerator Facility	1.521											1.521
West Valley Project									22.181			22.181
WIPP									1.069			1.069
Totals	22.541	0.134		11.448	167.019	1.417	146.125	1.304	161.422	91.641	87.132	690.183

Note: Arrowed values indicate the greatest value in each column.

* Includes service center personnel from Albuquerque and Oakland.

DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-7b. Collective TED by Site and Facility Type - 2009.

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							0.717					0.717
Argonne National Laboratory							2.018				15.592	17.610
Brookhaven National Laboratory	2.295				1.770	0.280	0.336		0.510			5.191
Energy Technology Engineering Center											0.125	0.125
Fermi National Accelerator Laboratory	18.750											18.750
Hanford - Hanford Site					64.057						29.301	93.358
Hanford - Office of River Protection					1.518				8.760		10.361	20.639
Hanford - Pacific Northwest National Laboratory					0.161		10.001				5.164	15.326
Idaho National Laboratory							45.917		28.817		36.592	111.326
Kansas City Plant										0.525		0.525
Lawrence Berkeley National Laboratory							0.613					0.613
Lawrence Livermore National Laboratory							26.055					26.055
Los Alamos National Laboratory	0.430				107.657		3.504		0.007		4.135	115.733
Nevada Test Site					5.519							5.519
New Brunswick National Laboratory											0.059	0.059
Oak Ridge - East Tennessee Technology Park							1.123					1.123
Oak Ridge - Oak Ridge Institute for Science and Education							0.231					0.231
Oak Ridge - Oak Ridge National Laboratory							46.899					46.899
Oak Ridge - Y-12 National Security Complex							0.026			61.856		61.882
Paducah Gaseous Diffusion Plant		0.249					0.167		0.735			1.151
Pantex Plant										25.158		25.158
Portsmouth Gaseous Diffusion Plant							1.540					1.540
Princeton Plasma Physics Laboratory								0.786				0.786
Sandia National Laboratories	0.589				0.254	1.364	0.279	0.011	0.107	1.463	0.058	4.125
Savannah River Site				8.920	4.874		7.449		84.717	0.448	2.380	108.788
Separations Process Research Unit									0.288			0.288
Service Center Personnel*							0.511					0.511
SLAC National Accelerator Laboratory	0.169											0.169
Thomas Jefferson National Accelerator Facility	0.690											0.690
Uranium Mill Tailings Remediation Action Project									3.624			3.624
Waste Isolation Pilot Plant									0.909			0.909
West Valley Demonstration Project									36.985			36.985
Totals	22.923	0.249		8.920	185.810	1.644	147.386	0.797	165.459	89.450	103.767	726.405

* Includes service center personnel from Albuquerque and Oak Ridge.
Note: Boxed values (gray background) indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-7c. 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							30.799					30.799
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 National Laboratory							66.035		57.562		6.348	129.945
Kansas City Plant										0.046		0.046
Lawrence Berkeley National Laboratory							1.097					1.097
Lawrence Livermore National Laboratory							18.349					18.349
Los Alamos National Laboratory	0.479				121.051 ◀		2.339				1.520	125.389
National Renewable Energy Lab (NREL)							0.022					0.022
Nevada National Security Site					2.999							2.999
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							74.013 ◀					74.013
Oak Ridge - Y-12 National Security Complex							0.001			69.429 ◀		69.430
Paducah Gaseous Diffusion Plant		0.231 ◀					0.482		0.617			1.330
Pantex Plant										26.131		26.131
Portsmouth Gaseous Diffusion Plant							2.960					2.960
Princeton Plasma Physics Laboratory								0.663 ◀				0.663
Sandia National Laboratories	0.089				0.059	1.840	0.201		0.211	0.301	0.184	2.885
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
Service Center Personnel *					0.289		0.074					0.363
Stanford Linear Accelerator Laboratory	0.053											0.053
Thomas Jefferson National Accelerator Facility	3.111											3.111
UMTRA Project - Moab									31.497			31.497
Waste Isolation Pilot Project (WIPP)									1.199			1.199
West Valley Project									41.873			41.873
Totals	17.233	0.231		11.046	212.935	6.949	228.733	0.663	307.798	96.577	63.204	945.369

* Includes service center personnel from Albuquerque and Oak Ridge.

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

DOE Occupational Radiation Exposure: 2010 Annual Report

Exhibit B-8. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Accelerator Facilities, 2010.

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	1,363	134	24	11								1,532	11%	169	11.220	0.066
Los Alamos National Laboratory	55	7	1									63	13%	8	0.479	0.060
Thomas Jefferson Natl. Accel. Facil.	1,395	58	8	1								1,462	5%	67	3.111	0.046
Brookhaven National Laboratory	1,110	81	4									1,195	7%	85	2.281	0.027
Sandia National Laboratories	396	5										401	1%	5	0.089	0.018
Stanford Linear Accelerator Center	2,330	4										2,334	0%	4	0.053	0.013
Battelle - PNNL	1											1	0%	0	0.000	0.000
Oak Ridge Office	11											11	0%	0	0.000	0.000
Totals	6,661	289	37	12								6,999	5%	338	17.233	0.051

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

DOE Occupational Radiation Exposure: 2010 Annual Report

Exhibit B-9. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Fuel Facilities, 2010.

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)
ENRICHMENT																
Bechtel Jacobs - Paducah	109	31										140	22%	31	0.231	0.007
Totals	109	31										140	22%	31	0.231	0.007
FABRICATION																
PROCESSING																
SRNS Construction	46	26	7	3								82	44%	36	2.387	0.066
Savannah River Nuclear Solutions	495	219	10									724	32%	229	8.383	0.037
SRNS Service Subs	51	4										55	7%	4	0.114	0.029
Misc. DOE Contractors - SR	1	1										2	50%	1	0.017	0.017
Savannah River Field Office	28	2										30	7%	2	0.032	0.016
SRNS Construction Subs		3										3	100%	3	0.035	0.012
SRR Operations	11	6										17	35%	6	0.065	0.011
Misc. S.R.S. Const. Subcontractors		1										1	100%	1	0.007	0.007
Wackenhut Services Inc. - SR	84	1										85	1%	1	0.006	0.006
DeNuke Services (SPRU-LA)	75											75	0%	0	0.000	0.000
Totals	791	263	17	3								1,074	26%	283	11.046	0.039

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

DOE Occupational Radiation Exposure: 2010 Annual Report

Exhibit B-10. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Maintenance and Support, 2010.

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)
SRR Operations	5	9	8	2								24	79%	19	2.237	0.118
Los Alamos National Laboratory	5,085	824	194	100	37	5	1					6,246	19%	1,161	120.106	0.103
CH2M Hill Plateau Remediation Company (CHPRC)	1,225	630	207	52	1							2,115	42%	890	75.047	0.084
NSTec - NTS	1,190	42	4									1,236	4%	46	2.182	0.047
Misc. S.R.S. Const. Subcontractors		1										1	100%	1	0.046	0.046
NSTec - Washington Aerial Meas.	31	9	1									41	24%	10	0.415	0.042
Brookhaven National Laboratory	1,046	58	5									1,109	6%	63	2.166	0.034
Savannah River Nuclear Solutions	121	84	6									211	43%	90	2.968	0.033
SRNS Construction	8	3										11	27%	3	0.097	0.032
NSTec - Special Tech. Lab.	47	1										48	2%	1	0.031	0.031
Advanced Technologies and Laboratories, Int'l	24	9										33	27%	9	0.274	0.030
Bechtel Nevada - Las Vegas	140	6										146	4%	6	0.180	0.030
Washington River Protection Solutions, LLC	60	15										75	20%	15	0.456	0.030
Nevada Miscellaneous Contractors	22	2										24	8%	2	0.056	0.028
Washington Closure Hanford, LLC (WCH)	3	2										5	40%	2	0.055	0.028
Mission Support Alliance (MSA)	1,210	186	6	1								1,403	14%	193	4.991	0.026
Bechtel Nevada - NTS	201	2										203	1%	2	0.046	0.023
NSTec - Las Vegas	500	11										511	2%	11	0.250	0.023
Bechtel Nevada - Los Alamos	19	5										24	21%	5	0.109	0.022
SRNS Service Subs	32	3										35	9%	3	0.067	0.022
Sandia National Laboratories	458	3										461	1%	3	0.059	0.020
Battelle - PNNL	53	7										60	12%	7	0.133	0.019
Nevada Operations	593	1										594	0%	1	0.019	0.019
NNSA Los Alamos Site Office	112	3										115	3%	3	0.058	0.019
Protection Technologies Los Alamos	322	70										392	18%	70	0.887	0.013
Argonne National Laboratory	1											1	0%	0	0.000	0.000
Battelle - Pantex	1											1	0%	0	0.000	0.000
Bechtel Nevada - Amador Valley	3											3	0%	0	0.000	0.000
Bechtel Nevada - NTS - subcontractors	4											4	0%	0	0.000	0.000
Bechtel Nevada - Special Tech. Lab.	1											1	0%	0	0.000	0.000
DOE-Richland Field Office	9											9	0%	0	0.000	0.000
FLUOR Hanford Inc.	2											2	0%	0	0.000	0.000
Johnson Controls Inc.	51											51	0%	0	0.000	0.000
Misc. DOE Contractors - SR	4											4	0%	0	0.000	0.000
Nye County Sheriff	6											6	0%	0	0.000	0.000
Savannah River Field Office	7											7	0%	0	0.000	0.000
SRNS Construction Subs	1											1	0%	0	0.000	0.000
SRR Service Subs	10											10	0%	0	0.000	0.000
UT-Battelle: ORNL	10											10	0%	0	0.000	0.000
Wackenhut Services Inc. - NV	351											351	0%	0	0.000	0.000
Wackenhut Services Inc. - SR	1											1	0%	0	0.000	0.000
Westinghouse Savannah River Co.	2											2	0%	0	0.000	0.000
Yucca Mountain Project	5											5	0%	0	0.000	0.000
Totals	12,976	1,986	431	155	38	5	1					15,592	17%	2,616	212.935	0.081

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

DOE Occupational Radiation Exposure: 2010 Annual Report

Exhibit B-11. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Reactor Facilities, 2010.

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)
Brookhaven National Laboratory	140	23	10	7	1							181	23%	41	5.109	0.125
Sandia National Laboratories	61	10	7	1								79	23%	18	1.840	0.102
Battelle - PNNL	1											1	0%	0	0.000	0.000
Totals	202	33	17	8	1							261	23%	59	6.949	0.118

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

DOE Occupational Radiation Exposure: 2010 Annual Report

Exhibit B-12. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Research, General, 2010.

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)
Los Alamos National Laboratory	105	8			1	2						116	9%	11	2.339	0.213
Argonne National Laboratory	2,425	105	28	21	10	4	5					2,598	7%	173	30.799	0.178
UT-Battelle: Foster Wheeler	61	130	100	47								338	82%	277	38.128	0.138
Lawrence Livermore National Laboratory	7,073	101	17	10	8	2	1					7,212	2%	139	17.974	0.129
Battelle - PNNL	676	124	15	12	9	5						841	20%	165	20.349	0.123
Bechtel Jacobs - ORNL	342	31	12	3								388	12%	46	3.840	0.083
Uranium Disposition Services - Portsmouth Sub	203	9	4									216	6%	13	1.068	0.082
BBWI-AMWTP	502	205	71	15								793	37%	291	22.730	0.078
UT-Battelle: ORNL	8,605	341	42	22	8	3						9,021	5%	416	32.045	0.077
Lawrence Berkeley Laboratory	969	14	1	1								985	2%	16	1.097	0.069
INL - BEA LLC - Services	2,061	600	89	27	6							2,783	26%	722	43.305	0.060
Lawrence Livermore National Laboratory - Nevada	206	5	1									212	3%	6	0.332	0.055
Materials & Energy Corporation	6	14										20	70%	14	0.758	0.054
Lawrence Livermore Lab - Government	128	1										129	1%	1	0.043	0.043
Brookhaven National Laboratory	16	6	1									23	30%	7	0.270	0.039
LATA/Parralax Portsmouth LLC	893	49	1									943	5%	50	1.892	0.038
Savannah River Nuclear Solutions	486	202	16	5								709	31%	223	8.528	0.038
Wackenhut Services	245	1										246	0%	1	0.034	0.034
Paducah Remediation Services (PRS)	950	9										959	1%	9	0.292	0.032
SRNS Construction	45	11										56	20%	11	0.323	0.029
Ames Laboratory (Iowa State)	120	32										152	21%	32	0.907	0.028
UDS - Paducah Subs	156	2										158	1%	2	0.052	0.026
SRR Operations	6	3										9	33%	3	0.062	0.021
LATA Kentucky	765	7										772	1%	7	0.138	0.020
Sandia National Laboratories	364	10										374	3%	10	0.201	0.020
SRNS Service Subs	59	21	1									81	27%	22	0.426	0.019
Wackenhut Services Inc. - SR	61	7										68	10%	7	0.115	0.016
Bechtel Jacobs - ETPP	1,952	29										1,981	1%	29	0.429	0.015
Isotek (Bldg 3019)	90	3										93	3%	3	0.033	0.011
Savannah River Field Office	13	2										15	13%	2	0.019	0.010
SRNS Construction Subs	10	2										12	17%	2	0.018	0.009
Misc. DOE Contractors - SR	2	2										4	50%	2	0.016	0.008
Westinghouse Savannah River Co.	5	2										7	29%	2	0.016	0.008
National Renewable Energy Lab (NREL) - GO	11	3										14	21%	3	0.022	0.007
USEC - Oak Ridge	118	1										119	1%	1	0.007	0.007
Univ. of Georgia Ecology Laboratory	7	2										9	22%	2	0.011	0.006
Oak Ridge Inst. for Sci. & Educ. (ORISE)	77	56										133	42%	56	0.114	0.002
Bechtel Jacobs - Y-12	102	1										103	1%	1	0.001	0.001
Idaho Field Office	2											2	0%	0	0.000	0.000
LATA Sharp	60											60	0%	0	0.000	0.000
SEC Oak Ridge	110											110	0%	0	0.000	0.000
Swift & Staley Mech Contr Inc (Pad)	140											140	0%	0	0.000	0.000
Theta Pro2Serve Management Co. (Ports)	385											385	0%	0	0.000	0.000
Totals	30,612	2,151	399	163	42	16	6					33,389	8%	2,777	228.733	0.082

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Exhibit B-13. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Research, Fusion, 2010.

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)
Princeton Plasma Physics Laboratory	295	79										374	21%	79	0.663	0.008
Los Alamos National Laboratory	2											2	0%	0	0.000	0.000
Sandia National Laboratories	48											48	0%	0	0.000	0.000
Totals	345	79										424	19%	79	0.663	0.008

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

DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-14. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for
Waste Processing, 2010.

WASTE PROCESSING

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	350	143	46	13	1						1	554	37%	204	48.739	0.239
West Valley Nuclear Services Inc.	341	148	115	40	5							649	47%	308	41.873	0.136
Energy Solutions - UMTRA Project - Moab	118	120	50	67								355	67%	237	31.497	0.133
SPRU-NY (Building remediation)	152	57	4	9	4							226	33%	74	7.850	0.106
Misc. DOE Contractors - SR	28	5	5									38	26%	10	1.039	0.104
ICP - CWI - Support	767	342	94	57	7							1,267	39%	500	51.155	0.102
Brookhaven National Laboratory	48	11	5	2								66	27%	18	1.703	0.095
Westinghouse Savannah River Co.	20	4	1									25	20%	5	0.418	0.084
Savannah River Nuclear Solutions	586	228	68	21								903	35%	317	23.935	0.076
SRR Operations	982	438	95	34	1							1,550	37%	568	40.756	0.072
Bechtel Construction - SR	168	289	68	15								540	69%	372	24.990	0.067
ICP - CWI - Subcontractors	395	64	13	3								475	17%	80	5.297	0.066
SRR Service Subs	91	27	1	2								121	25%	30	1.893	0.063
Advance Technology Laboratories	36	18	4									58	38%	22	1.275	0.058
SRNS Construction	220	121	20									361	39%	141	5.992	0.042
CH2M Hill Hanford Group Inc.	924	359	25	1								1,309	29%	385	14.688	0.038
Bechtel Jacobs - Paducah	89	20	2									111	20%	22	0.617	0.028
Misc. S.R.S. Const. Subcontractors	44	19	2									65	32%	21	0.591	0.028
INL - BEA LLC - Services	210	29										239	12%	29	0.794	0.027
Sandia National Laboratories	81	8										89	9%	8	0.211	0.026
Wackenhut Services Inc. - SR	272	36										308	12%	36	0.857	0.024
Washington TRU Solutions LLC-WIPP	948	61	1									1,010	6%	62	1.199	0.019
ICP - CWI - Projects	163	19										182	10%	19	0.316	0.017
Savannah River Field Office	58	13										71	18%	13	0.099	0.008
SRNS Construction Subs	15	2										17	12%	2	0.014	0.007
Battelle - PNNL	2											2	0%	0	0.000	0.000
Bechtel National Corporation	2											2	0%	0	0.000	0.000
Carlsbad Field Office	65											65	0%	0	0.000	0.000
CH2M Hill Plateau Remediation Company (Hanford)	1											1	0%	0	0.000	0.000
Los Alamos National Laboratory	5											5	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	21											21	0%	0	0.000	0.000
WTS Subcontractors - WIPP	17											17	0%	0	0.000	0.000
Totals	7,223	2,581	619	264	18						1	10,706	33%	3,483	307.798	0.088

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

DOE Occupational Radiation Exposure: 2010 Annual Report

Exhibit B-15. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Weapons Fabrication, 2010.

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	2,704	207	61	27								2,999	10%	295	25.695	0.087 ◀
B & W - Security	55	5	2									62	11%	7	0.420	0.060
BWXT Y-12	5,197	1,441	164	25	1	1	1					6,830 ◀	24%	1,633 ◀	69.429 ◀	0.043
Sandia National Laboratories	219	7	1									227	4%	8	0.301	0.038
SRNS Construction	19	6										25	24%	6	0.169	0.028
SRNS Service Subs	3	1										4	25% ◀	1	0.020	0.020
B & W - Subcontractors	11	1										12	8%	1	0.016	0.016
Savannah River Nuclear Solutions	279	36	1									316	12%	37	0.454	0.012
Savannah River Field Office	10	3										13	23%	3	0.027	0.009
Kansas City Plant	49	10										59	17%	10	0.046	0.005
Los Alamos National Laboratory	1											1	0%	0	0.000	0.000
PXSO/NNSA and DOE Couriers	4											4	0%	0	0.000	0.000
SRR Operations	1											1	0%	0	0.000	0.000
Westinghouse Savannah River Co.	17											17	0%	0	0.000	0.000
Totals	8,569	1,717	229	52	1	1	1					10,570	19%	2,001	96.577	0.048

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

DOE Occupational Radiation Exposure: 2010 Annual Report

Exhibit B-16. Distribution of TED by Facility Type Listed in Descending Order of Average Measurable TED for Other, 2010.

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)
CH2M Hill Hanford Group Inc.	470	61	21	16								568	17%	98	11.515	0.118 ◀
CH2M Hill Plateau Remediation Company (Hanford)	1269	240	46	13								1,568	19%	299 ◀	20.617 ◀	0.069
Battelle - PNNL	1098	94	8	3	1	2						1,206	9%	108	7.018	0.065
Office of River Protection	101	4	1									106	5%	5	0.283	0.057
Mission Support Alliance (MSA)	54	2	1									57	5%	3	0.154	0.051
Bechtel Hanford	1411	236	16	3								1,666	15%	255	10.595	0.042
DOE - Richland Field Office	561	27	3									591	5%	30	1.051	0.035
Advance Technology Laboratories	19	1										20	5%	1	0.031	0.031
SRNS Construction	124	23	2									149	17%	25	0.764	0.031
ICP - CWI - Construction Subs	1477	217	6									1,700	13%	223	5.941	0.027
Sandia National Laboratories	438	7										445	2%	7	0.184	0.026
SRNS Construction Subs	4	2										6	33%	2	0.050	0.025
Savannah River Nuclear Solutions	370	85	3									458	19%	88	2.086	0.024
SRNS Service Subs	413	25	2									440	6%	27	0.640	0.024
Los Alamos National Laboratory	2601	80	2									2,683 ◀	3%	82	1.520	0.019
Idaho Field Office	150	24										174	14%	24	0.394	0.016
Bechtel BWXT Idaho - Construction	1	1										2	50%	1	0.013	0.013
AdvancedMed Hanford	35	1										36	3%	1	0.012	0.012
Savannah River Field Office	36	3										39	8%	3	0.034	0.011
SRR Service Subs	7	1										8	13%	1	0.010	0.010
Boeing North America Inc. - Research	49	54										103	52% ◀	54	0.292	0.005
Bechtel Construction - SR	1											1	0%	0	0.000	0.000
Bechtel National Corporation	18											18	0%	0	0.000	0.000
Fluor Hanford Inc.	1											1	0%	0	0.000	0.000
Misc. DOE Contractors - SR	12											12	0%	0	0.000	0.000
NNSA Los Alamos Site Office	3											3	0%	0	0.000	0.000
Protection Technologies Los Alamos	1											1	0%	0	0.000	0.000
SR construction - Parsons Subcontractors	1											1	0%	0	0.000	0.000
SRR Operations	1											1	0%	0	0.000	0.000
Univ. of Georgia Ecology Laboratory	1											1	0%	0	0.000	0.000
Wackenhut Services Inc. - SR	4											4	0%	0	0.000	0.000
Westinghouse Savannah River Co.	6											6	0%	0	0.000	0.000
Totals	10,737	1,188	111	35	1	2						12,074	11%	1,337	63.204	0.047

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

DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-17. Internal Dose by Facility Type and Nuclide, 2008-2010.

Facility Type	Nuclide*	No. of Individuals with New Intakes**			Collective CED (person-rem)			Average CED (rem)		
		2008	2009	2010	2008	2009	2010	2008	2009	2010
Accelerator	Hydrogen-3		1			0.002			0.002	
	Total		1			0.002			0.002	
Fuel Fabrication	Total									
Fuel Processing	Americium		1			0.085			0.085 ◀	
	Hydrogen-3	2			0.014		0.007			
	Plutonium	6	14	9	0.023	0.079	0.037	0.004	0.006	0.004
	Total	8	15	9	0.037	0.164	0.037	0.005	0.011	0.004
Fuel/Uranium Enrichment	Total									
Maintenance and Support	Americium	1	3	1	0.150	0.096	0.013	0.150 ◀	0.032	0.013
	Hydrogen-3	22	12	7	0.264	0.027	0.014	0.012	0.002	0.002
	Mixed	7	12	18	0.121	0.159	0.050	0.017	0.013	0.003
	Plutonium	19	5	8	2.088	0.067	0.208	0.110	0.013	0.026
	Uranium		7			0.145			0.021	
	Total	49	39	34	2.623	0.494	0.285	0.054	0.013	0.008
Other	Americium		3			0.054			0.018	
	Hydrogen-3	3		2	0.018		0.004	0.006		0.002
	Mixed	2			0.002			0.001		
	Plutonium	6	3	24	0.025	0.064	0.255	0.004	0.021	0.011
	Thorium	1			0.011			0.011		
	Total	12	6	26	0.056	0.118	0.259	0.005	0.020	0.010
Reactor	Hydrogen-3		2			0.004			0.002	
	Uranium	2			0.003			0.002		
	Total	2	2		0.003	0.004		0.002	0.002	
Research, Fusion	Hydrogen-3		9	8		0.070	0.026		0.008	0.003
	Total		9	8		0.070	0.026		0.008	0.003
Research, General	Americium	7		14	0.108		0.329	0.015		0.024
	Hydrogen-3	10	11	19	0.044	0.052	0.101	0.004	0.005	0.005
	Mixed	1			0.001			0.001		
	Other	13	2		0.047	0.016		0.004	0.008	
	Plutonium	2	1	13	0.014	0.022	0.466	0.007	0.022	0.036
	Uranium	16	3	21	0.151	0.090	0.614	0.009	0.030	0.029
	Total	49	17	67	0.365	0.180	1.510	0.007	0.011	0.023
Waste Processing/Management	Americium	1	7		0.004	0.451		0.004	0.064	
	Hydrogen-3	3	1		0.020	0.071		0.007	0.071	
	Mixed			1			0.077			0.077
	Plutonium	15	37	21	0.631	0.398	31.698	0.042	0.011	1.509 ◀
	Uranium			109			3.743			0.034
	Total	19	45	131	0.655	0.920	35.518	0.034	0.020	0.271
Weapons Fabrication and Testing	Hydrogen-3	13	8	6	0.063	0.060	0.019	0.005	0.008	0.003
	Mixed	18	39	19	0.462	0.463	0.091	0.026	0.012	0.005
	Other			2			0.013			0.007
	Plutonium		1	1		0.020	0.001		0.020	0.001
	Thorium			1			0.374			0.374
	Uranium	1,053 ◀	1,106 ◀	1,342 ◀	53.736 ◀	48.605 ◀	56.762 ◀	0.051	0.044	0.042
	Total	1,084	1,154	1,371	54.261	49.148	57.260	0.050	0.043	0.042
	Totals	1,223	1,288	1,646	58.000	51.100	94.895	0.047	0.040	0.058

*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: 2010 Annual Report
Exhibit B-18a. Distribution of TED by Labor Category - 2008.**

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	128		2									130	2%	2	0.267	0.134 ◀
Construction	3,733	1,032	119	29								4,913	24%	1,180	57.820	0.049
Laborers	1,315	358	80	18	1	1						1,773	26%	458	32.416	0.071
Management	6,709	716	60	33	8							7,526	11%	817	42.862	0.052
Miscellaneous	4,141	826	127	44	3							5,141	19%	1,000	60.552	0.061
Production	2,594	1,303	360	109	4	3						4,373	41% ◀	1,779	140.112 ◀	0.079
Scientists	20,367	1,681	100	31	9	3						22,191	8%	1,824	68.141	0.037
Service	3,360	403	30	3	1							3,797	12%	437	12.477	0.029
Technicians	6,473	1,524	303	68	17	3	3					8,391	23%	1,918 ◀	136.215	0.071
Transport	1,386	156	29	1								1,572	12%	186	9.704	0.052
Unknown	21,715	1,342	215	85	30	10	3	1				23,401 ◀	7%	1,686	129.617	0.077
Totals	71,921	9,341	1,425	421	73	20	6	1				83,208	14%	11,287	690.183	0.061

Note: Arrowed values indicate the greatest value in each column.

**DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-18b. Distribution of TED by Labor Category - 2009.**

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. TEDE	No. with Meas. TED	Collective TED (Person-rem)	Avg. Meas. TED (rem)
Agriculture	119	4	1	1								125	5%	6	0.627	0.105 ◀
Construction	3,871	972	128	38	1							5,010	23%	1,139	59.811	0.053
Laborers	1,397	349	90	32	1							1,869	25%	472	38.346	0.081
Management	7,127	730	62	11								7,930	10%	803	29.875	0.037
Miscellaneous	5,398	971	131	42								6,542	17%	1,144	61.237	0.054
Production	2,754	1,150	293	94	19	2						4,312	36% ◀	1,558	129.169	0.083
Scientists	20,566	1,762	113	31	4	4						22,480	9%	1,914	68.051	0.036
Service	3,107	305	17	10	1							3,440	10%	333	10.668	0.032
Technicians	6,937	1,481	278	109	20	8	3					8,836	21%	1,899	152.436	0.080
Transport	1,755	195	28	3		2	3					1,986	12%	231	17.402	0.075
Unknown	21,619	1,804	257	120	25	12	4					23,841 ◀	9%	2,222 ◀	158.783 ◀	0.072
Totals	74,650	9,723	1,398	491	71	28	10	0	0	0	0	86,371	14%	11,721	726.405	0.062

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

DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-18c. 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	84	7	4	1								96	12%	12	1.319	0.110 ◀
Construction	4,000	1,308	192	42	1							5,543	28%	1,543	82.798	0.054
Laborers	974	385	80	43	2							1,484	34%	510	40.225	0.079
Management	7,665	755	65	22	1	1						8,509	10%	844	36.108	0.043
Miscellaneous	7,028	987	216	68	14	2	1				1	8,317	15%	1,289	128.317	0.100
Production	2,244	1,323	423	162	7	1						4,160	46% ◀	1,916	173.48	0.091
Scientists	18,332	1,840	134	44	10	1	1					20,362	10%	2,030	84.196	0.041
Service	2,644	256	12	10	1							2,923	10%	279	10.559	0.038
Technicians	6,446	1,802	448	172	53	15	5					8,941	28%	2,495 ◀	242.793 ◀	0.097
Transport	1,176	214	63	33								1,486	21%	310	25.606	0.083
Unknown	27,632	1,441	223	95	12	4	1					29,408 ◀	6%	1,776	119.968	0.068
Totals	78,225	10,318	1,860	692	101	24	8				1	91,229	14%	13,004	945.369	0.073

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

**DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-19. Internal Dose by Labor Category, 2008-2010.**

Labor Category	No. of Individuals with New Intakes*			Collective CED Dose from Intake (person-rem)			Average CED		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
Agriculture		1	1		0.013	0.022		0.013	0.022
Construction	164	193	263	5.738	6.117	6.554	0.035	0.032	0.025
Laborers	75	69	86	4.903	4.291	3.888	0.065	0.062 ▼	0.045
Management	119	122	122	4.786	4.273	5.036	0.040	0.035	0.041
Miscellaneous	7	13	42	0.285	0.167	33.067 ▼	0.041	0.013	0.787 ▼
Production	371 ▼	337 ▼	402 ▼	25.278 ▼	19.460 ▼	21.668	0.068 ▼	0.058	0.054
Scientists	144	156	176	4.272	3.389	4.227	0.030	0.022	0.024
Service	8	7	9	0.338	0.291	0.353	0.042	0.042	0.039
Technicians	178	159	193	6.506	6.937	6.815	0.037	0.044	0.035
Transport	3	4	65	0.013	0.025	2.077	0.004	0.006	0.032
Unknown	154	227	287	5.881	6.150	11.188	0.038	0.027	0.039
Totals	1,223	1,288	1,646	58.000	51.100	94.895	0.047	0.040	0.058

*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: 2010 Annual Report
Exhibit B-20. Dose Distribution by Labor Category and Occupation, 2010.

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	25	5	4	1								35	29%	10	1.300	0.130
	Groundskeepers	59	2										61	3%	2	0.019	0.010
Construction	Carpenters	329	116	32	2	1							480	31%	151	10.076	0.067
	Electricians	1,229	349	37	6								1,621	24%	392	16.740	0.043
	Masons	19	12	4									35	46%	16	1.058	0.066
	Mechanics/Repairers	424	162	41	18								645	34%	221	17.458	0.079
	Miners/Drillers	134	10										144	7%	10	0.186	0.019
	Misc. Repair/Construction	1,288	446	41	2								1,777	28%	489	19.608	0.040
	Painters	155	38	4									197	21%	42	1.512	0.036
	Pipe Fitter	422	175	33	14								644	34%	222	16.160	0.073
Laborers	Handlers/Laborers/Helpers	974	385	80	43	2							1,484	34%	510	40.225	0.079
Management	Sales	18											18				
	Admin. Support & Clerical Sec.	2,086	118	4	2								2,210	6%	124	3.104	0.025
	Manager - Administrator	5,561	637	61	20	1	1						6,281	11%	720	33.004	0.046
Miscellaneous	Military	3	4										7	57%	4	0.061	0.015
	Miscellaneous	7,025	983	216	68	14	2	1				1	8,310	15%	1,285	128.256	0.100
Production	Welders and Solderers	24	10	1									35	31%	11	0.443	0.040
	Machine Setup/Operators	134	171	66	21								392	66%	258	22.812	0.088
	Machinists	130	38	5	4	1							178	27%	48	4.089	0.085
	Misc. Precision/Production	512	226	52	15	1	1						807	37%	295	21.453	0.073
	Operators, Plant/ System/Util.	1,350	840	289	122	5							2,606	48%	1,256	122.054	0.097
	Sheet Metal Workers	94	38	10									142	34%	48	2.629	0.055
Scientists	Health Physicist	451	84	5	4								544	17%	93	3.623	0.039
	Misc. Professional	6,593	726	53	21	1		1					7,395	11%	802	32.578	0.041
	Scientist	4,916	384	30	9	3	1						5,343	8%	427	19.647	0.046
	Engineer	6,298	636	45	10	6							6,995	10%	697	28.013	0.040
	Doctors and Nurses	74	10	1									85	13%	11	0.335	0.030
Service	Firefighters	404	48	2									454	11%	50	0.968	0.019
	Food Service Employees	8	4	1	1								14	43%	6	0.762	0.127
	Janitors	447	45	2	3	1							498	10%	51	3.065	0.060
	Misc. Service	294	10		1								305	4%	11	0.719	0.065
	Security Guards	1,491	149	7	5								1,652	10%	161	5.045	0.031
Technicians	Engineering Technicians	1,645	173	33	13	6	1						1,871	12%	226	18.710	0.083
	Technicians	1,256	308	83	55	27	8	1					1,738	28%	482	68.767	0.143
	Science Technicians	387	199	20	5								611	37%	224	11.886	0.053
	Radiation Monitors/Techs.	1,083	858	261	80	13	4						2,299	53%	1,216	110.062	0.091
	Health Technicians	82	34	4	2								122	33%	40	2.693	0.067
	Misc. Technicians	1,993	230	47	17	7	2	4					2,300	13%	307	30.675	0.100
Transport	Bus Drivers	11	1										12	8%	1	0.012	0.012
	Equipment Operators	257	91	33	25								406	37%	149	15.512	0.104
	Misc. Transport	159	47	9									215	26%	56	2.575	0.046
	Pilots	1											1				
	Truck Drivers	748	75	21	8								852	12%	104	7.507	0.072
Unknown	Unknown	27,632	1,441	223	95	12	4	1					29,408	6%	1,776	119.968	0.068
Totals		78,225	10,318	1,860	692	101	24	8				1	91,229	14%	13,004	945.369	0.073

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

DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-21. Internal Dose Distribution by Site and Nuclide, 2010.

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	Plutonium		1										1	0.022	0.022
Argonne National Laboratory	Americium	2	3										5	0.134	0.027
Hanford - Hanford Site	Americium	1											1	0.013	0.013
Hanford - Hanford Site	Plutonium	6		1									7	0.148	0.021
National Laboratory	Hydrogen-3	1											1	0.001	0.001
Idaho National Laboratory	Americium	5	4										9	0.195	0.022
Idaho National Laboratory	Mixed		1										1	0.077	0.077
Idaho National Laboratory	Plutonium	4	6	1									11	0.471	0.043
Laboratory	Hydrogen-3	16	1										17	0.087	0.005
Laboratory	Plutonium		1										1	0.028	0.028
Laboratory	Uranium		1										1	0.042	0.042
Los Alamos National Laboratory	Plutonium		1										1	0.060	0.060
Los Alamos National Laboratory	Hydrogen-3	9											9	0.018	0.002
Los Alamos National Laboratory	Mixed	18											18	0.050	0.003
Technology Park	Uranium	2	5										7	0.164	0.023
Laboratory	Hydrogen-3	1											1	0.013	0.013
Security Complex	Mixed	1											1	0.009	0.009
Security Complex	Plutonium	1											1	0.001	0.001
Security Complex	Thorium				1								1	0.374	0.374
Security Complex	Uranium	692	503	126	18	1	1	1					1,342	56.762	0.042
Plant	Uranium	5	8										13	0.408	0.031
Pantex Plant	Mixed	18											18	0.082	0.005
Pantex Plant	Other	2											2	0.013	0.006
Laboratory	Hydrogen-3	8											8	0.026	0.003
Savannah River Site	Hydrogen-3	6											6	0.019	0.003
Savannah River Site	Plutonium	49	4									1	54	31.935	0.591
UMTRA Project - Moab	Uranium	43	61	5									109	3.743	0.034
Totals		890	600	133	19	1	1	1				1	1,646	94.895	0.058

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

**DOE Occupational Radiation Exposure: 2010 Annual Report
Exhibit B-22. Extremity Dose Distribution by Site, 2010.**

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	101	50	1						152	51		2.270	0.045
Argonne National Laboratory	2,461	66	50	18	4				2,599	138	4	91.561	0.663
Boeing North America, Inc. - Research	103								103				
Brookhaven National Laboratory	2,529	13	23	8	1				2,574	45	1	27.264	0.606
Fermi National Accelerator Laboratory	1,528	2	2						1,532	4		0.630	0.158
Hanford - Hanford Site	7,027	139	273	18					7,457	430		127.060	0.295
Hanford - Office of River Protection	1,694	227	246	22					2,189	495		111.599	0.225
Hanford - Pacific Northwest National Laboratory	1,847	115	108	33	8				2,111	264	8	182.207	0.690
Honeywell, FM&T/KC Production	58	1							59	1		0.030	0.030
Idaho National Laboratory	5,551	1,528	479	57	1	1			7,617	2,066 ◀	2	311.071	0.151
Lawrence Berkeley National Laboratory	952	18	8	4	3				985	33	3	31.251	0.947
Lawrence Livermore National Laboratory	7,497	8	25	20	3				7,553	56	3	82.812	1.479 ◀
Los Alamos National Laboratory	8204	924	381	148	22				9,679	1,475	22 ◀	629.597	0.427
Nevada Test Site	3,011	7	5						3,023	12		1.741	0.145
Oak Ridge - East Tennessee Technology Park	2,000	1							2,001	1		0.013	0.013
Oak Ridge - Oak Ridge Institute for Science and Education	133								133				
Oak Ridge - Oak Ridge National Laboratory	9635	24	78	11	5	3	1		9,757 ◀	122	9	150.273	1.232
Oak Ridge - Y-12 National Security Complex	6,897	14	11	11					6,933	36		23.986	0.666
Paducah Gaseous Diffusion Plant	2280								2,280				
Pantex Plant	2,799	95	140	44					3,078	279		123.740	0.444
Portsmouth Gaseous Diffusion Plant	1,544								1,544				
Princeton Plasma Physics Laboratory	374								374				
Sandia National Laboratory	2,124								2,124				
Savannah River Site	7,257	241	674	166	8	6			8,352	1,095	14	693.308 ◀	0.633
SPRU-NY	226								226				
Stanford Linear Accelerator Laboratory	2,334								2,334				
Thomas Jefferson National Accelerator Facility	1,454	1	4	3					1,462	8		5.710	0.714
UMTRA PROJECT - MOAB	355								355				
West Valley Project	597	26	26						649	52		6.010	0.116
Site Office Personnel*	1,992	2							1,994	2		0.051	0.026
Totals	84,564	3,502	2,534	563	55	10	1	-	91,229	6,665	66	2602.184	0.39

* 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 service center personnel from Albuquerque and Oak Ridge.

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