

DOE Occupational Radiation Exposure: 2009 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 M 231.1-1A. Occupation Codes are grouped into Labor Categories for the purposes of analysis and summary in this report. The occupation codes are listed in DOE M 231.1-1A, Appendix G, 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	0562	Groundskeepers
	0570	Forest Workers
	0580	Misc. Agriculture
Construction/Repair	0610	Mechanics/Repairers
	0641	Masons
	0642	Carpenters
	0643	Electricians
	0644	Painters
	0645	Pipe Fitter
	0650	Miners/Drillers
	0660	Misc. Repair/Construction
Laborers	0850	Handlers/Laborers/Helpers
Management	0110	Manager - Administrator
	0400	Sales
	0450	Admin. Support and Clerical
Misc.	0910	Military
	0990	Miscellaneous
Production	0681	Machinists
	0682	Sheet Metal Workers
	0690	Operators, Plant/System/Utility
	0710	Machine Setup/Operators
	0771	Welders and Solderers
	0780	Misc. Precision/Production
Professional	0160	Engineer
	0170	Scientist
	0184	Health Physicist
	0200	Misc. Professional
	0260	Doctors and Nurses
Service Workers	0512	Firefighters
	0513	Security Guards
	0521	Food Service Employees
	0524	Janitors
	0525	Misc. Service
Technicians	0350	Technicians
	0360	Health Technicians
	0370	Engineering Technicians
	0380	Science Technicians
	0383	Radiation Monitors/Techs.
	0390	Misc. Technicians
Transport Workers	0820	Truck Drivers
	0821	Bus Drivers
	0825	Pilots

Labor Category	Occupation Code	Occupation Name
	0830	Equipment Operators
	0840	Misc. Transport
Unknown	0001	Unknown

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit A-2. Organizations Reporting to DOE REMS, 2005-2009

Thirty sites reported occupational exposure data in 2008. The following is a list of all organizations reporting to the DOE REMS from 2004-2008. The list provides the Operations Field Office and Site groupings used in this report as well as the organization reporting code and name.

Operations/ Field Office	Site	Organization Code	Organization Name	Year Reported *				
				2005	2006	2007	2008	2009
Albuquerque	Operations and Other Facilities	0530001	NNSA Kansas City Site Office	●	●			
		0531002	Honeywell FM & T/KC Production	●	●	●	●	●
		0590001	Waste Isolation Pilot Project (WIPP)	●	●	●	●	●
		0593001	Carlsbad Area Office	●	●	●		
		0593004	Carlsbad Area Miscellaneous Contractors	●	●	●	●	
		0593004	WIPP Project - Carlsbad Field Office					●
	Golden Field Office	2806003	National Renewable Energy Lab (NREL) - GO	●	●	●	●	●
	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.	●	●	●	●	●
	Pantex Plant (PP)	0510001	NNSA Amarillo Site Office	●	●		●	
		0510001	B & W Pantex					●
		0514004	Battelle - Pantex			●		
		0515002	BWXT - Amarillo	●	●	●	●	
		0515002	B & W Pantex					●
		0515006	BWXT - Amarillo - Subcontractors	●	●	●	●	
		0515006	B & W Pantex					●
		0515009	BWXT - Amarillo - Security Forces	●	●	●	●	
	0515009	B & W Pantex					●	
	Sandia National Laboratories (SNL)	0578003	Sandia National Laboratories	●	●	●	●	●
Chicago	Operations and Other Facilities	1000503	Ames Laboratory (Iowa State)	●	●	●	●	●
		1002001	Environmental Meas. Lab. - Research	●				
		1004031	New Brunswick Laboratory - Research	●	●	●	●	●
		1005003	Princeton Plasma Physics Laboratory	●	●	●	●	●
	Argonne National Laboratory (ANL)	1000703	Argonne National Laboratory	●	●	●	●	●
		1000703	National Security Technologies, LLC (NSTec)					●
	Brookhaven National Laboratory (BNL)	1001003	Brookhaven National Laboratory	●	●	●	●	●
Fermi National Accelerator Lab. (FERMI)	1002503	Fermilab	●	●	●	●	●	
DOE HQ	DOE Headquarters	1504001	DOE Headquarters	●	●		●	
		1523016	Separation Process Research Unit					●
Hanford	Office of River Protection	4700805	Bechtel National Corporation	●	●	●	●	●
		4701001	DOE, Office of River Protection	●	●	●	●	●
		4702004	Advance Technology Laboratories	●	●	●	●	●
		4707104	Washington River Protection Solutions, LLC	●	●	●	●	●
								●
	Richland Operations Office	NA-2100	National Nuclear Security Administration					●
		NA-2101	National Nuclear Security Administration					●
		NA-2110	National Nuclear Security Administration					●
		NA-2120	National Nuclear Security Administration					●
		NA-2130	National Nuclear Security Administration					●
		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	●	●	●	●	●
		7505099	Protection Technology - Hanford Security	●				
		7505214	Mission Support Services					●
7505304	CH2M Hill Plateau Remediation Company				●	●		

Operations/ Field Office	Site	Organization Code	Organization Name	Year Reported *					
				2005	2006	2007	2008	2009	
Idaho	Idaho Site	7506001	DOE, Office of Science	●	●	●	●	●	
		3004001	Idaho Field Office	●	●	●	●		
		3004001	ICP-DOE					●	
		3004001	CH2M-WG: INL					●	
		3004402	BBWI - AMWTP					●	
		3004404	BBWI Service Subs					●	
		3005003	INL - BEA, LLC - Research					●	
		3005003	INL - BEA, LLC - Services					●	
		3005004	INL - BEA, LLC - Services	●	●	●	●	●	
		3005016	ICP - BBWI - Construction Subs	●	●	●	●		
		3005064	INL - BEA, Sub - Red Inc.					●	
		3006002	INL - CWI - Projects					●	
		3006004	ICP - CWI - Subcontractors					●	
		3006016	ICP - CWI - Construction Subs	●	●	●	●	●	
		3060634	Stoller Service Subs - Grand Junction	●					
		3260605	SM Stoller - EM	●	●				
3260645	Uranium Mill Tailings Remedial Action					●			
Nevada	Nevada Test Site (NTS)	3500000	Nevada Operations	●	●	●	●		
		3500000	National Security Technologies, LLC (NSTec)					●	
		3501204	Bechtel Nevada - Las Vegas	●	●	●	●	●	
		3501405	Bechtel Nevada - NTS	●	●	●	●	●	
		3501416	Bechtel Nevada - NTS Subcontractors	●	●	●	●	●	
		3501503	Bechtel Nevada - Special Tech Laboratory	●	●	●	●	●	
		3501604	Bechtel Nevada - Washington Aerial Measurement	●	●	●	●		
		3501604	National Security Technologies, LLC (NSTec)					●	
		3507514	Nevada Miscellaneous Contractors	●	●	●	●		
		3507514	National Security Technologies, LLC (NSTec)					●	
		3508004	Nye County Sheriff	●	●	●	●		
		3508004	National Security Technologies, LLC (NSTec)					●	
		3509009	Wackenhut Services, Inc. - NV	●	●	●	●		
		3509009	National Security Technologies, LLC (NSTec)					●	
		9700000	Yucca Mountain Project	●	●	●	●		
		9700000	National Security Technologies, LLC (NSTec)					●	
Oak Ridge	Operations and Other Facilities	4004203	Oak Ridge Inst. For Science & Educ. (ORISE)	●	●	●	●	●	
		4004501	Oak Ridge Office	●	●	●	●		
		4004501	Jefferson Laboratory					●	
		4009503	Thomas Jefferson National Accel. Facility	●	●	●	●		
		4009503	Jefferson Laboratory					●	
	Oak Ridge Site	1522005	DeNuke Services: SPRU LA				●	●	
		4003602	UT-Battelle: Isotek			●	●		
		4003602	UT-Battelle: ORNL-Isotek					●	
		4004602	UT-Battelle: Foster Wheeler	●	●	●	●		
		4004602	UT-Battelle: ORNL-Foster Wheeler					●	
		4005104	USEC: Oak Ridge	●	●	●	●		
		4005104	USEC - OR, K25					●	
		4006002	Bechtel-Jacobs Co., LLC-ETTP	●	●	●	●	●	
		4006012	USEC: Oak Ridge	●					
		4006105	UT-Battelle - Materials & Energy Corp.			●	●		
		4006105	Materials & Energy Corporation					●	
		4006302	British Nuclear Fuels Limited (BNFL) (ETTP)	●					
		4006503	UT-Battelle - ORNL	●	●	●	●	●	
		4006510	Bechtel Jacobs - ORNL	●	●	●	●	●	
		4007509	Wackenhut Services, Inc. - OR Security	●	●	●	●		
		4007509	BJC, LLC: Wackenhut					●	
		4007509	UT-Battelle: ORNL-Wackenhut					●	
		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				●	●

Operations/ Field Office	Site	Organization Code	Organization Name	Year Reported *					
				2005	2006	2007	2008	2009	
	Portsmouth Gaseous Diff. Plant (PORTS)	4007002	Swift & Staley - Paducah						●
		6203004	UT-Battelle - Paducah Remediaton Services		●	●	●		
		6203004	Paducah Remediation Services						●
		6203106	Uranium Disposition Services - Paducah Sub	●	●	●			
		6203204	Swift & Staley Mech Contr, Inc. - Paducah	●	●	●			
		4002502	Bechtel-Jacobs - Portsmouth	●					
		6202106	Uranium Disposition Services - Portsmouth Sub	●	●	●	●		
		6202106	UT-Battelle: GLQ-UDS Portsmouth						●
		6202204	Theta Pro2Serve Management Co. - Portsmouth	●	●	●	●		
		6202204	UT-Battelle: GLA-Theta Pro2Serve Mgmt. Co.						●
		6202304	LATA/Parralax Portsmouth LLC	●	●	●	●		
		6202304	UT-Battelle: GLQ-LATA/Parallax Portsmouth, LLC						●
Oakland	Ops. and Other Facilities	8001003	Boeing North America, Inc. - Research	●	●	●	●	●	
		8007001	Oakland Field Office	●	●				
	Lawrence Berkeley Nat'l Lab. (LBNL)	8003003	Lawrence Berkeley National Laboratory	●	●	●	●	●	
	Lawrence Livermore Nat'l Lab. (LLNL)	0580403	Lawrence Livermore National Laboratory			●	●	●	
		8004003	Lawrence Livermore National Laboratory		●	●	●		
		0580701	Lawrence Livermore National Laboratory				●	●	
		0580404	LLNL Services				●		
		8004004	LLNL Services	●	●				
		0580503	LLNL - Nevada			●	●		
		0580503	Lawrence Livermore National Laboratory - NTS					●	
	Stanford Linear Acc. Center (SLAC)	8008003	Stanford Linear Accelerator Center	●	●	●	●	●	
		8009005	Separation Process Research Unit		●	●			
Ohio	Ops. and Other Facilities	4510001	Miamisburg Envir. Mgmt. Project Office	●					
	Fernald Environmental	4521001	Fernald Closure Project (FCP)	●	●				
		4521004	FEMP Office Service Subcontractors	●	●				
		4523702	Fluor Fernald - FEMP	●	●				
		4523704	Fluor Fernald Service Vendors	●					
		4523706	Fluor Fernald Construction Subcontractors	●	●				
	Mound Plant	4516002	CH2M Hill-Mound, Inc.	●	●				
		4516004	CH2M Hill-Mound, Inc. - Service Subs	●	●				
	West Valley Project	4530001	West Valley Demonstration Project Office	●					
		4539004	West Valley Nuclear Services, Inc. (WVNS)		●	●			
		4539004	West Valley Environmental Services, LLC					●	
		4542005	RMI Environmental Services	●	●				
4542005		RMI Titanium Company					●		
Rocky Flats	Rocky Flats Env. Tech. Site (RFETS)	7700001	Rocky Flats Office	●					
		7707002	Rocky Flats Prime Contractors	●					
		7707004	Rocky Flats Subcontractors	●					
Savannah River	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	●	●	●	●		
		8501044	Savannah River Nuclear Solutions, Inc.					●	
		8505001	S.R. Forest Station		●	●			
		8505004	SRS - WSRC			●	●		
		8505004	Savannah River Nuclear Solutions, Inc.					●	
		8505501	Savannah River Field Office	●	●	●	●		
		8505501	Savannah River Nuclear Solutions, Inc.					●	
		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.					●	
		8507004	Miscellaneous DOE Contractors - SR	●	●	●	●		
		8509003	Univ. of Georgia Ecology Laboratories	●	●	●	●		

Operations/ Field Office	Site	Organization Code	Organization Name	Year Reported *				
				2005	2006	2007	2008	2009
		8509003	Savannah River Nuclear Solutions, Inc.					●
		8509504	Wackenhut Services, Inc. - SRS			●	●	
		8509504	Savannah River Nuclear Solutions, Inc.					●
		8509509	Wackenhut Services, Inc. - SR	●	●	●	●	
		8509509	Savannah River Nuclear Solutions, Inc.					●
		8511002	Savannah River Nuclear Solutions, Inc.					●
		8511004	Savannah River Nuclear Solutions, Inc.					●
		8511005	Savannah River Nuclear Solutions, Inc.					●
		8511006	Savannah River Nuclear Solutions, Inc.					●
Not included in this report (see Appendix D)								
Pittsburg Naval Reactor Office	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	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					●

* Those organizations no longer reporting radiation exposure information have either ceased operations requiring the monitoring and reporting of radiation records, are no longer under contract or subcontract at the DOE facility, or have changed organization codes or the name of the organization.

DOE Occupational Radiation Exposure: 2009 Annual Report Exhibit A-3. Facility Type Codes.

The following is a list of Facility Type Codes reported to REMS in accordance with DOE M 231.1-1A. 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: 2009 Annual Report
Exhibit B-1. Site Dose Data - 2007

2007								
Site	Collective TEDE (person-rem)	Percent Change from 2006	Number with Meas. Dose	Percent Change from 2006	Avg. Meas. TEDE (rem)	Percent Change from 2006	Percentage of Coll. TEDE above 0.500 rem	Percent Change from 2006
Ames Laboratory	0.2		6		0.026			
Argonne National Laboratory	9.2	-3% ▼	146	-8% ▼	0.063	5% ▲	12%	53% ▲
Boeing North America, Inc. - Research	0.2		14		0.012			
Brookhaven National Laboratory	6.3	3% ▲	191	30% ▲	0.033	-21% ▼		
Fermi National Accelerator Laboratory	16.6	-36% ▼	213	-73% ▼	0.078	134% ▲	6%	226% ▲
Hanford - Hanford Site	124.2	17% ▲	1,650	14% ▲	0.075	3% ▲	18%	25% ▲
Hanford - Office of River Protection	22.8	69% ▲	397	43% ▲	0.057	18% ▲		
Hanford - Pacific Northwest National Laboratory	11	-17% ▼	181	-1% ▼	0.061	-17% ▼		
Honeywell, FM&T/KC Production	0.1		22		0.004			
Idaho National Laboratory	133.7	-17% ▼	1,871	-8% ▼	0.071	-11% ▼	7%	-59% ▼
Lawrence Berkeley National Laboratory	0.8		17		0.045			
Lawrence Livermore National Laboratory	15.5	-5% ▼	137	2% ▲	0.113	-7% ▼	40%	-3% ▼
Los Alamos National Laboratory	149.6	-9% ▼	1,392	-30% ▼	0.107	30% ▲	46%	34% ▲
Nevada Test Site	5.7	219% ▲	70	79% ▲	0.082	78% ▲		
New Brunswick Laboratory	0		2		0.014			
Oak Ridge - East Tennessee Technology Park	0.2		15		0.014			
Oak Ridge - Oak Ridge Institute for Science and Education	0.1		35		0.004			
Oak Ridge - Oak Ridge National Laboratory	31.8	24% ▲	424	2% ▲	0.075	22% ▲	19%	116% ▲
Oak Ridge - Y-12 National Security Complex	74.3	39% ▲	1,258	7% ▲	0.059	30% ▲	5%	
Paducah Gaseous Diffusion Plant	1.7	-25% ▼	29	16% ▲	0.057	-35% ▼		
Pantex Plant	23.9	-40% ▼	293	-10% ▼	0.082	-33% ▼	25%	40% ▲
Portsmouth Gaseous Diffusion Plant	1.5	-35% ▼	18	-55% ▼	0.081	44% ▲		
Princeton Plasma Physics Laboratory	1.4	-11% ▼	153	-1% ▼	0.009	-9% ▼		
Sandia National Laboratory	7.8	-64% ▼	175	-35% ▼	0.045	-46% ▼		
Savannah River Site	112.4	5% ▲	2,135	-11% ▼	0.053	17% ▲	7%	971% ▲
Stanford Linear Accelerator Laboratory	1.5	-52% ▼	41	-60% ▼	0.035	19% ▲		
Thomas Jefferson National Accelerator Facility	0.8		19		0.041			
West Valley Project	44.5	177% ▲	188	-1% ▼	0.237	179% ▲	42%	
Site Office Personnel*	0.3		10		0.025			
Totals	797.8	-2% ▼	11,102	-14% ▼	0.072	15% ▲	19%	21% ▲

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

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-2. Site Dose Data - 2008

2008								
Site	Collective TEDE (person-rem)	Percent Change from 2007	Number with Meas. Dose	Percent Change from 2007	Avg. Meas. TEDE (rem)	Percent Change from 2007	Percentage of Coll. TEDE above 0.500 rem	Percent Change from 2007
Ames Laboratory	0.5		30		0.017			
Argonne National Laboratory	13.2	43% ▲	128	-12% ▼	0.103	63% ▲	33%	65% ▲
Boeing North America, Inc. - Research	0.1		15		0.009			
Brookhaven National Laboratory	5.4	-13% ▼	149	-22% ▼	0.036	11% ▲		
DOE - NNSA	0.1		5		0.016			
Fermi National Accelerator Laboratory	15.4	-7% ▼	166	-22% ▼	0.093	19% ▲	7%	54% ▲
Hanford - Hanford Site	76.5	-38% ▼	1,778	8% ▲	0.043	-43% ▼	1%	-2541% ▼
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% ▼		
Honeywell, FM&T/KC Production	0.1		39		0.003			
Idaho National Laboratory	120.1	-10% ▼	1,957	5% ▲	0.061	-14% ▼	5%	-55% ▼
Lawrence Berkeley National Laboratory	0.4		8		0.054			
Lawrence Livermore National Laboratory	20.4	31% ▲	129	-6% ▼	0.158	39% ▲	63%	37% ▲
Los Alamos National Laboratory	107.3	-28% ▼	1,219	-12% ▼	0.088	-18% ▼	30%	-51% ▼
Nevada Test 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%	-53% ▼
Oak Ridge - Y-12 National Security Complex	72.1	-3% ▼	1,301	3% ▲	0.055	-6% ▼	5%	36% ▲
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 Laboratory	7.2	-8% ▼	160	-9% ▼	0.045	1% ▲		
Savannah River Site	127.1	13% ▲	2,151	1% ▲	0.059	12% ▲	4%	-96% ▼
Stanford Linear Accelerator Laboratory	0.6		25		0.022			
Thomas Jefferson National Accelerator Facility	1.5	97% ▲	51	168% ▲	0.030	-27% ▼		
West Valley Project	22.2	-50% ▼	157	-16% ▼	0.141	-40% ▼		
WIPP	1.1		63		0.017			
Site Office Personnel*	0.6		22		0.026			
Totals	690.2	-13% ▼	11,287	2% ▲	0.061	-14% ▼	10%	-84% ▼

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

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-3. Site Dose Data - 2009

2009								
Site	Collective TEDE (person-rem)	Percent Change from 2008	Number with Meas. Dose	Percent Change from 2008	Avg. Meas. TEDE (rem)	Percent Change from 2008	Percentage of Coll. TEDE above 0.500 rem	Percent Change from 2008
Ames Laboratory	0.7		31		0.023			
Argonne National Laboratory	17.5	33% ▲	135	5% ▲	0.130	26% ▲	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	111.2	-7% ▼	1,808	-8% ▼	0.061	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% ▲	183	42% ▲	0.143	-10% ▼	67%	5% ▲
Los Alamos National Laboratory	115.7	8% ▲	1,392	14% ▲	0.083	-6% ▼	22%	-26% ▼
Nevada Test 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	61.7	-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			
SLAC National Accelerator Laboratory	0.2		6		0.028			
Thomas Jefferson National Accelerator Facility	0.7		27		0.026			
Uranium Mill Tailings Remediation Action Project	3.6		92		0.039			
West Valley Demonstration Project	37	67% ▲	230	46% ▲	0.161	14% ▲	23%	
Waste Isolation Pilot Plant	0.9		68		0.013			
Site Office Personnel*	0.5	-8% ▼	15	4% ▲	0.034	-12% ▼		
Totals	726.0	5% ▲	11,720	4% ▲	0.062	2% ▲	11%	7% ▲

* Includes site office 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: 2009 Annual Report
Exhibit B-4. Internal Dose by Site, 2007-2009.

Site	No. of Individuals with New Intakes*			Collective CEDE Dose from Intake (person-rem)			Average CEDE		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Argonne National Laboratory	20	6	6	0.324	0.105	0.118	0.016	0.017	0.020
Brookhaven National Laboratory	17	5	8	0.336	0.012	0.136	0.020	0.002	0.017
Hanford - Hanford Site	14	14	1	0.061	0.219	0.001	0.004	0.016	0.001
Hanford - Office of River Protection	9			0.014			0.002		
Hanford - Pacific Northwest National Laboratory	9	7		0.434	0.010		0.048	0.001	
Idaho National Laboratory	4	7	9	0.086	0.544	0.231	0.022	0.078 ◀	0.026
Lawrence Livermore National Laboratory	11	10	8	0.020	0.023	0.015	0.002	0.002	0.002
Los Alamos National Laboratory	30	36	31	8.003	2.336	0.349	0.267 ◀	0.065	0.011
Nevada Test Site	5	9	4	0.765	0.134	0.048	0.153	0.015	0.012
New Brunswick Laboratory		1			0.010			0.010	
Oak Ridge - Oak Ridge National Laboratory	4	22	6	0.024	0.190	0.054	0.006	0.009	0.009
Oak Ridge - Y-12 National Security Complex	1,057 ◀	1,054 ◀	1,125 ◀	54.874 ◀	53.955 ◀	49.020 ◀	0.052	0.051	0.044
Paducah Gaseous Diffusion Plant	1	1	2	0.013	0.011	0.089	0.013	0.011	0.045 ◀
Pantex Plant	19	18	21	0.065	0.244	0.068	0.003	0.014	0.003
Princeton Plasma Physics Laboratory			9			0.070			0.008
Savannah River Site	36	32	58	0.399	0.217	0.382	0.011	0.007	0.007
West Valley Demonstration Project	1	1		0.001	0.004		0.001	0.004	
Totals	1,237	1,223	1,288	65.419	58.014	50.581	0.053	0.047	0.039

*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: 2009 Annual Report
Exhibit B-5. Neutron Dose Distribution by Site, 2009.

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	158								158				
Argonne National Laboratory	2,386	6							2,392	6	0%	0.314	0.052
Brookhaven National Laboratory	2,567	3							2,570	3	0%	0.038	0.013
Energy Technology Engineering Center	92								92				
Fermi National Accelerator Laboratory	1,570								1,570				
Hanford - Hanford Site	6,482	685	19						7,186	704	10%	12.387	0.018
Hanford - Office of River Protection	1,547	17	2						1,566	19	1%	0.833	0.044
Hanford - Pacific Northwest National Laboratory	1,913	76	1						1,990	77	4%	1.943	0.025
Idaho National Laboratory	7,142	186	18	5					7,351	209	3%	10.815	0.052
Kansas City Plant	60								60				
Lawrence Berkeley National Laboratory	1,013								1,013				
Lawrence Livermore National Laboratory	7,358	34	11	4	1				7,408	50	1%	5.211	0.104
Los Alamos National Laboratory	8,192	985	140	35	11	3			9,366	1,174	13%	67.178	0.057
Nevada Test Site	3,238	13	1						3,252	14	0%	0.619	0.044
New Brunswick Laboratory	31								31				
Oak Ridge - East Tennessee Technology Park	2,180								2,180				
Oak Ridge - Oak Ridge Institute for Science and Education	121								121				
Oak Ridge - Oak Ridge National Laboratory	8,547	317	19	5	1				8,889	342	4%	11.872	0.035
Oak Ridge - Y-12 National Security Complex	5,843	5							5,848	5	0%	0.114	0.023
Paducah Gaseous Diffusion Plant	1,148	16							1,164	16	1%	0.073	0.005
Pantex Plant	2,865	51	2						2,918	53	2%	1.611	0.030
Portsmouth Gaseous Diffusion Plant	1,212	7							1,219	7	1%	0.502	0.072
Princeton Plasma Physics Laboratory	369								369				
Sandia National Laboratories	2,461	7		1					2,469	8	0%	0.584	0.073
Savannah River Site	7,493	168	29	12					7,702	209	3%	14.69	0.070
Separations Process Research Unit	97								97				
SLAC National Accelerator Laboratory	3,552								3,552				
Thomas Jefferson National Accelerator Facility	1,293								1,293				
Uranium Mill Tailings Remediation Action Project	294								294				
West Valley Demonstration Project	598								598				
Site Office Personnel**	1,653								1,653				
Totals	83,475	2,576	242	62	13	3			86,371	2,896	3%	128.784	0.044

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-6a. Distribution of TEDE by Facility Type - 2007

Total Effective Dose Equivalent (TEDE)

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
Accelerator	11,525	473	64	26	8	1						12,097	5%	572	37.084	0.065
Fuel Processing	993	342	33	11	2							1,381	28%	388	19.146	0.049
Maintenance and Support	9,906	1,492	265	135	33	11	2					11,844	16%	1,938	161.100	0.083 ◀
Reactor	150	39	5	1								195	23%	45	1.990	0.044
Research, General	27,131	1,636	238	74	20	17	6				1	29,123 ◀	7%	1,992	148.484	0.075
Research, Fusion	265	157										422	37% ◀	157	1.452	0.009
Waste Processing/Management	5,219	1,914	366	165	51							7,715	32%	2,496 ◀	201.298 ◀	0.081
Weapons Fabrication and Testing	9,166	1,334	255	52	15	1						10,823	15%	1,657	102.152	0.062
Other	11,194	1,564	202	55	18	4	14					13,051	14%	1,857	125.120	0.067
Totals	75,549	8,951	1,428	519	147	34	22				1	86,651	13%	11,102	797.826	0.072

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-6b. Distribution of TEDE by Facility Type - 2008

Total Effective Dose Equivalent (TEDE)

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (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: 2009 Annual Report
Exhibit B-6c. Distribution of TEDE by Facility Type - 2009

Total Effective Dose Equivalent (TEDE)

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (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	144.719	0.068
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	197.039	0.065
Weapons Fabrication and Testing	8,028	1,498	205	44	9	1						9,785	18%	1,757	89.265	0.051
Other	11,806	1,179	108	62	6	1	2					13,164	10%	1,358	74.609	0.055
Totals	74,651	9,724	1,396	491	71	28	10					86,371	14%	11,720	725.975	0.062

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-7a. Collective TEDE by Site and Facility Type - 2007

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							0.158					0.158
Argonne National Laboratory	2.786				0.074		4.912		1.428		0.042	9.242
Boeing North America, Inc. - Research											0.162	0.162
Brookhaven National Laboratory	3.686				1.138	0.227	0.793		0.433			6.277
Fermi National Accelerator Laboratory	16.560 ◀											16.560
Hanford - Hanford Site					108.186 ◀						16.020	124.206
Hanford - Office of River Protection					2.097				19.123		1.600	22.820
Hanford - Pacific Northwest National Laboratory					0.033		7.262				3.696	10.991
Honeywell, FM&T/KC Production										0.098		0.098
Idaho National Laboratory							30.775		55.635		47.261	133.671
Lawrence Berkeley National Laboratory							0.770					0.770
Lawrence Livermore National Laboratory							15.498					15.498
Los Alamos National Laboratory	11.273				35.120	0.006	47.310 ◀	0.018	1.202		54.649 ◀	149.578 ◀
Nevada Test Site					5.706							5.706
New Brunswick Laboratory							0.027					0.027
Oak Ridge - East Tennessee Technology Park							0.208					0.208
Oak Ridge - Oak Ridge Institute for Science and Education							0.136					0.136
Oak Ridge - Oak Ridge National Laboratory							31.849					31.849
Oak Ridge - Y-12 National Security Complex										74.286 ◀		74.286
Paducah Gaseous Diffusion Plant							1.664					1.664
Pantex Plant										23.943		23.943
Portsmouth Gaseous Diffusion Plant							1.453					1.453
Princeton Plasma Physics Laboratory								1.380 ◀				1.380
Sandia National Laboratory	0.553				0.807	1.757 ◀	0.521	0.054	0.282	3.404	0.432	7.810
Savannah River Site				19.146 ◀	7.891		4.945		78.696 ◀	0.421	1.258	112.357
Stanford Linear Accelerator Laboratory	1.453											1.453
Thomas Jefferson National Accelerator Facility	0.773											0.773
West Valley Project									44.499			44.499
Site Office Personnel*					0.048		0.203					0.251
Totals	37.084			19.146	161.100	1.990	148.484	1.452	201.298	102.152	125.120	797.826

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

* Includes site office personnel from Albuquerque and Oakland.

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-7b. Collective TEDE 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 ◀
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
Site Office Personnel*							0.468				0.014	0.482
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 site office personnel from Albuquerque and Oakland.

**DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-7c. Collective TEDE 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											17.488	17.488
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							45.224		60.397		5.538	111.159
Kansas City Plant										0.525		0.525
Lawrence Berkeley National Laboratory							0.613					0.613
Lawrence Livermore National Laboratory							26.099					26.099
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			61.671		61.697
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
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
Site Office Personnel*							0.511					0.511
Totals	22.923	0.249		8.920	185.810	1.644	144.719	0.797	197.039	89.265	74.609	725.975

* Includes site office personnel from Albuquerque and Oak Ridge.

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

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit B-8. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Accelerator Facilities, 2009

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
Fermi National Accelerator Laboratory	1,327	181	45	16	1							1,570	15%	243	18.75	0.077
Sandia National Laboratories	300	10		1								311	4%	11	0.589	0.054
Brookhaven National Laboratory	1,148	69	6	1								1,224	6%	76	2.295	0.030
Los Alamos National Laboratory	62	14	1									77	19%	15	0.430	0.029
SLAC National Accelerator Laboratory	3,546	6										3,552	0%	6	0.169	0.028
Thomas Jefferson Natl. Accel. Facil.	1,266	26	1									1,293	2%	27	0.690	0.026
Battelle - PNNL	1											1	0%	0	0.000	0.000
Oak Ridge Office	12											12	0%	0	0.000	0.000
Totals	7,662	306	53	18	1							8,040	5%	378	22.923	0.061

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

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit B-9. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Fuel Facilities, 2009

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
ENRICHMENT																
Bechtel Jacobs - Paducah	92	47										139	34%	47	0.249	0.005
Totals	92	47										139	34%	47	0.249	0.005
FABRICATION																
PROCESSING																
Savannah River Nuclear Solutions	774	266	13									1,053	26%	279	8.605	0.031
Westinghouse Savannah River Co.	14	4										18	22%	4	0.082	0.021
Savannah River Field Office	19	2										21	10%	2	0.035	0.018
Wackenhut Services Inc. - SR	91	8										99	8%	8	0.123	0.015
SRNS Service Subs	80	6										86	7%	6	0.075	0.013
DeNuke Services (SPRU-LA)	78											78	0%	0	0.000	0.000
Los Alamos National Laboratory	1											1	0%	0	0.000	0.000
SRNS Construction	1											1	0%	0	0.000	0.000
SRNS Construction Subs	1											1	0%	0	0.000	0.000
Totals	1,059	286	13									1,358	22%	299	8.920	0.030

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

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit B-10. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Maintenance and Support, 2009.

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
Fluor Hanford Inc.	459	61	6			2	3					531	14%	72	8.265	0.115
Los Alamos National Laboratory	4,810	805	161	97	22	10	1					5,906	19%	1,096	106.55	0.097
Bechtel Nevada - NTS	1,339	45	16	2								1,402	4%	63	4.849	0.077
CH2M Hill Plateau Remediation Company (Hanford)	1,212	627	146	25	1							2,011	40%	799	51.287	0.064
Savannah River Nuclear Solutions	123	101	12									236	48%	113	4.796	0.042
CH2M Hill Hanford Group Inc.	53	26										79	33%	26	0.937	0.036
Advance Technology Laboratories	17	17										34	50%	17	0.581	0.034
Johnson Controls Inc.	41	4										45	9%	4	0.136	0.034
Bechtel Nevada - Las Vegas	784	15	1									800	2%	16	0.501	0.031
Bechtel Nevada - Special Tech. Lab.	49	1										50	2%	1	0.030	0.030
Brookhaven National Laboratory	1,006	57	5									1,068	6%	62	1.770	0.029
Sandia National Laboratories	466	10										476	2%	10	0.254	0.025
Bechtel Hanford	4	2										6	33%	2	0.047	0.024
Battelle - PNNL	43	7										50	14%	7	0.161	0.023
Bechtel Nevada - Washington Aerial Meas.	56	6										62	10%	6	0.139	0.023
Mission Support Alliance (MSA)	1,027	197	11	1								1,236	17%	209	4.458	0.021
NNSA Los Alamos Site Office	103	11										114	10%	11	0.184	0.017
Protection Technologies Los Alamos	436	74										510	15%	74	0.787	0.011
SRNS Service Subs	31	5										36	14%	5	0.057	0.011
Westinghouse Savannah River Co.	2	2										4	50%	2	0.021	0.011
Argonne National Laboratory	4											4	0%	0	0.000	0.000
B.N. - NTS Subcontractors	14											14	0%	0	0.000	0.000
DOE-Richland Field Office	6											6	0%	0	0.000	0.000
Fluor Federal Services	1											1	0%	0	0.000	0.000
Fluor Northwest Services	1											1	0%	0	0.000	0.000
Nevada Miscellaneous Contractors	22											22	0%	0	0.000	0.000
Nevada Operations	473											473	0%	0	0.000	0.000
Nye County Sheriff	8											8	0%	0	0.000	0.000
Office of River Protection	1											1	0%	0	0.000	0.000
Savannah River Field Office	7											7	0%	0	0.000	0.000
Wackenhut Services Inc. - NV	415											415	0%	0	0.000	0.000
Wackenhut Services Subcontractors - SR	1											1	0%	0	0.000	0.000
Yucca Mountain Project	6											6	0%	0	0.000	0.000
Totals	13,020	2,073	358	125	23	12	4					15,615	17%	2,595	185.810	0.072

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

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit B-11. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Reactor Facilities, 2009

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
Sandia National Laboratories	61	15	2	1								79	23% ◀	18	1.364 ◀	0.076 ◀
Brookhaven National Laboratory	189	20										209 ◀	10%	20 ◀	0.280	0.014
Battelle - PNNL	1											1	0%	0	0.000	0.000
Totals	251	35	2	1								289	13%	38	1.644	0.043

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

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit B-12. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Research, General, 2009

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
Lawrence Livermore National Laboratory	6,857	138	11	6	6	10	4					7,032	2%	175	25.820	0.148
Los Alamos National Laboratory	169	16	4	1	2	1						193	12%	24	3.504	0.146
Bechtel Jacobs - ORNL	126	14	2	4								146	14%	20	2.186	0.109
Wackenhut Services	202	4		1								207	2%	5	0.404	0.081
Battelle - PNNL	602	107	14	8	3							734	18%	132	10.001	0.076
UT-Battelle: Foster Wheeler	46	194	50	13								303	85%	257	19.535	0.076
Uranium Disposition Services - Portsmouth Sub	140	8	6									154	9%	14	1.053	0.075
INL - BEA LLC - Research	1,845	479	99	46	1							2,470	25%	625	44.459	0.071
UT-Battelle: ORNL	8,058	321	40	17	2	2						8,440	5%	382	25.178	0.066
Lawrence Berkeley National Laboratory	999	12	2									1,013	1%	14	0.613	0.044
Lawrence Livermore National Laboratory - NTS	237	7										244	3%	7	0.265	0.038
Savannah River Nuclear Solutions	616	177	12	4								809	24%	193	7.143	0.037
Bechtel Jacobs - ETRP	2,137	18	1									2,156	1%	19	0.591	0.031
Brookhaven National Laboratory	22	11										33	33%	11	0.336	0.031
Materials & Energy Corporation	6	18										24	75%	18	0.532	0.030
LATA/Parralax Portsmouth LLC	720	18										738	2%	18	0.487	0.027
Ames Laboratory (Iowa State)	127	31										158	20%	31	0.717	0.023
INL - BEA LLC - Services	229	34	1									264	13%	35	0.747	0.021
Paducah Remediation Services (PRS)	972	8										980	1%	8	0.167	0.021
Sandia National Laboratories	359	13										372	3%	13	0.279	0.021
Idaho Field Office	1	1										2	50%	1	0.018	0.018
Isotek (Bldg 3019)	93	5										98	5%	5	0.078	0.016
Lawrence Livermore Lab - Government	131	1										132	1%	1	0.014	0.014
Savannah River Field Office	12	3										15	20%	3	0.043	0.014
Bechtel Jacobs - Y-12	55	2										57	4%	2	0.026	0.013
SRNS Service Subs	63	25										88	28%	25	0.208	0.008
National Renewable Energy Lab (NREL)- GO	10	5										15	33%	5	0.029	0.006
Wackenhut Services Inc. - SR	59	6										65	9%	6	0.036	0.006
Westinghouse Savannah River Co.	10	3										13	23%	3	0.019	0.006
Oak Ridge Inst. for Sci. & Educ. (ORISE)	59	62										121	51%	62	0.231	0.004
Advance Technology Laboratories	1											1	0%	0	0.000	0.000
DOE-Richland Field Office	2											2	0%	0	0.000	0.000
INL - BEA Sub - Red Inc.	8											8	0%	0	0.000	0.000
SR construction - Parsons	1											1	0%	0	0.000	0.000
SRFS Service Subcontractors	1											1	0%	0	0.000	0.000
SRNS Construction Subs	1											1	0%	0	0.000	0.000
Theta Pro2Serve Management Co. (Ports)	327											327	0%	0	0.000	0.000
Univ. of Georgia Ecology Laboratory	6											6	0%	0	0.000	0.000
USEC - Oak Ridge	127											127	0%	0	0.000	0.000
Totals	25,436	1,741	242	100	14	13	4					27,550	8%	2,114	144.719	0.068

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

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit B-13. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Research, Fusion, 2009

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
Sandia National Laboratories	56	1										57	2%	1	0.011	0.011 ◀
Princeton Plasma Physics Laboratory	268	101										369 ◀	27% ◀	101 ◀	0.786 ◀	0.008
Los Alamos National Laboratory	2											2	0%	0	0.000	0.000
Totals	326	102										428	24%	102	0.797	0.008

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

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit B-14. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Waste Processing, 2009

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
West Valley Nuclear Services Inc.	368	119	57	40	13	1						598	38%	230	36.985	0.161
BBWI-AMWTP	459	285	69	20								833	45%	374	25.878	0.069
ICP - CWI - Projects	995	334	73	16	1							1,419	30%	424	29.004	0.068
Savannah River Nuclear Solutions	1,538	921	166	59	4							2,688	43%	1,150	75.386	0.066
SR construction - Parsons Subcontractors	1	1										2	50%	1	0.061	0.061
Advance Technology Laboratories	23	13	2									38	39%	15	0.775	0.052
Brookhaven National Laboratory	25	11										36	31%	11	0.510	0.046
SRNS Service Subs	416	154	17	4								591	30%	175	7.899	0.045
ICP - CWI - Subcontractors	410	92	7	2								511	20%	101	4.149	0.041
Energy Solutions - UMTRA Project - Moab	202	87	5									294	31%	92	3.624	0.039
CH2M Hill Hanford Group, Inc.	770	213	15									998	23%	228	7.985	0.035
Bechtel Jacobs - Paducah	21	23	1									45	53%	24	0.735	0.031
Separations Process Research Unit	87	9	1									97	10%	10	0.288	0.029
BBWI Service Subs	104	46	2									152	32%	48	1.366	0.028
Sandia National Laboratories	89	4										93	4%	4	0.107	0.027
Westinghouse Savannah River Co.	26	13										39	33%	13	0.317	0.024
SRR Service Subs	3	14										17	82%	14	0.315	0.023
SR Construction - Legin Subs	2	3										5	60%	3	0.060	0.020
Wackenhut Services Subcontractors - SR	5	1										6	17%	1	0.017	0.017
Wackenhut Services Inc. - SR	285	37										322	11%	37	0.563	0.015
Washington TRU Solutions LLC-WIPP	76	1										77	1%	1	0.013	0.013
Washington TRU Solutions-WIPP Contractors	972	67										1,039	6%	67	0.896	0.013
Savannah River Field Office	63	8										71	11%	8	0.099	0.012
Los Alamos National Laboratory	5	1										6	17%	1	0.007	0.007
Bechtel National Corporation	2											2	0%	0	0.000	0.000
CH2M Hill Plateau Remediation Company (Hanford)	1											1	0%	0	0.000	0.000
Duratek Federal Services, Inc.	2											2	0%	0	0.000	0.000
Idaho Field Office	1											1	0%	0	0.000	0.000
Mission Support Alliance (MSA)	1											1	0%	0	0.000	0.000
NNSA Los Alamos Site Office	1											1	0%	0	0.000	0.000
SR construction - Parsons	1											1	0%	0	0.000	0.000
SRNS Construction Subs	17											17	0%	0	0.000	0.000
Totals	6,971	2,457	415	141	18	1						10,003	30%	3,032	197.039	0.065

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

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit B-15. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Weapons Fabrication, 2009

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
B & W Pantex	2,406	222	52	19	4							2,703	11%	297	24.838	0.084 ◀
B & W - Security	109	5										114	4%	5	0.320	0.064
Sandia National Laboratories	608	21	4	1								634	4%	26	1.463	0.056
Kansas City Plant	50	9		1								60	17%	10	0.525	0.053
BWXT Y-12	4,414	1,199	149	23	5	1						5,791 ◀	24% ◀	1,377 ◀	61.671 ◀	0.045
Savannah River Nuclear Solutions	302	41										343	12%	41	0.439	0.011
Westinghouse Savannah River Co.	14	1										15	7%	1	0.009	0.009
B & W - Subcontractors	21											21	0%	0	0.000	0.000
Los Alamos National Laboratory	2											2	0%	0	0.000	0.000
Savannah River Field Office	17											17	0%	0	0.000	0.000
SRNS Service Subs	3											3	0%	0	0.000	0.000
Wackenhut Services Inc. - SR	2											2	0%	0	0.000	0.000
Totals	7,948	1,498	205	44	9	1						9,705	18%	1,757	89.265	0.051

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

DOE Occupational Radiation Exposure: 2009 Annual Report

Exhibit B-16. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Other , 2009

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
CH2M Hill Hanford Group Inc.	223	23	12	21								279	20%	56	10.316	0.184
Argonne National Laboratory	2,253	92	22	14	4	1	2					2,388	6%	135	17.488	0.130
Bechtel Hanford	1,139	230	36	17	1							1,423	20%	284	19.911	0.070
Battelle - PNNL	1,101	92	7	4								1,204	9%	103	5.164	0.050
CH2M Hill Plateau Remediation Company (Hanford)	1,032	196	19	3								1,250	17%	218	8.432	0.039
Mission Support Alliance (MSA)	48	7	1									56	14%	8	0.299	0.037
Savannah River Nuclear Solutions	447	63	5									515	13%	68	2.015	0.030
ICP - CWI - Construction Subs	1,335	185	2									1,522	12%	187	5.345	0.029
Los Alamos National Laboratory	2,334	158	4	3	1							2,500	7%	166	4.125	0.025
Fluor Hanford Inc.	65	2										67	3%	2	0.044	0.022
Savannah River Field Office	28	1										29	3%	1	0.020	0.020
SRNS Service Subs	336	11										347	3%	11	0.206	0.019
AdvancedMed Hanford	36	1										37	3%	1	0.017	0.017
DOE-Richland Field Office	494	38										532	7%	38	0.586	0.015
Idaho Field Office	156	13										169	8%	13	0.193	0.015
Westinghouse Savannah River Co.	76	9										85	11%	9	0.131	0.015
Fluor Northwest Services	2	1										3	33%	1	0.012	0.012
Sandia National Laboratories	442	5										447	1%	5	0.058	0.012
Office of River Protection	112	4										116	3%	4	0.045	0.011
NNSA Los Alamos Site Office	2	1										3	33%	1	0.010	0.010
Univ. Of Georgia Ecology Laboratory		1										1	100%	1	0.008	0.008
Energy Technology Engineering Center	49	43										92	47%	43	0.125	0.003
Advance Technology Laboratories	17											17	0%	0	0.000	0.000
Bechtel National Corporation	1											1	0%	0	0.000	0.000
COGEMA Engineering Corporation	1											1	0%	0	0.000	0.000
Duratek Federal Services Inc.	5											5	0%	0	0.000	0.000
Fluor Federal Services	14											14	0%	0	0.000	0.000
Johnson Controls Inc.	3											3	0%	0	0.000	0.000
Protection Technologies Los Alamos	3											3	0%	0	0.000	0.000
SR Construction - Parsons Subcontractors	1											1	0%	0	0.000	0.000
SRNS Construction Subs	19											19	0%	0	0.000	0.000
Wackenhut Services Inc. - SR	4											4	0%	0	0.000	0.000
Totals	11,778	1,176	108	62	6	1	2					13,133	10%	1,355	74.550	0.055

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-17. Internal Dose by Facility Type and Nuclide, 2007-2009

Facility Type	Nuclide*	No. of Individuals with New Intakes**			Collective CEDE (person-rem)			Average CEDE (rem)		
		2007	2008	2009	2007	2008	2009	2007	2008	2009
Accelerator	Hydrogen-3			1			0.002			0.002
	Mixed	1			0.026			0.026		
	Total	1		1	0.026		0.002	0.026		0.002
Fuel Fabrication	Total									
Fuel Processing	Americium			1			0.085			0.085 ◀
	Hydrogen-3		2			0.014		0.007		
	Plutonium	3	6	14	0.247	0.023	0.079	0.082	0.004	0.006
	Total	3	8	15	0.247	0.037	0.164	0.082	0.005	0.011
Fuel/Uranium Enrichment	Total									
Maintenance and Support	Americium	1	1	3	0.039	0.150	0.096	0.039	0.150 ◀	0.032
	Hydrogen-3	2	22	12	0.008	0.264	0.027	0.004	0.012	0.002
	Mixed	1	7	12	0.002	0.121	0.159	0.002	0.017	0.013
	Other	5			0.010			0.002		
	Plutonium	13	19	5	0.912	2.088	0.067	0.070	0.110	0.013
	Uranium			7			0.145			0.021
	Total	22	49	39	0.971	2.623	0.494	0.044	0.054	0.013
Other	Americium			3			0.054			0.018
	Hydrogen-3	12	3		0.050	0.018		0.004	0.006	
	Mixed	4	2		0.064	0.002		0.016	0.001	
	Other	4			0.008			0.002		
	Plutonium	15	6	3	0.074	0.025	0.064	0.005	0.004	0.021
	Thorium		1			0.011			0.011	
	Total	35	12	6	0.196	0.056	0.118	0.006	0.005	0.020
Reactor	Americium	10			0.176			0.018		
	Hydrogen-3			2			0.004			0.002
	Uranium		2			0.003			0.002	
	Total	10	2	2	0.176	0.003	0.004	0.018	0.002	0.002
Research, Fusion	Hydrogen-3			9			0.070			0.008
	Total			9			0.070			0.008
Research, General	Americium	8	7		0.144	0.108		0.018	0.015	
	Hydrogen-3	21	10	11	0.066	0.044	0.052	0.003	0.004	0.005
	Mixed	6	1		7.734	0.001		1.289 ◀	0.001	
	Other	5	13	2	0.014	0.047	0.016	0.003	0.004	0.008
	Plutonium	14	2	1	0.565	0.014	0.022	0.040	0.007	0.022
	Uranium	2	16	3	0.030	0.151	0.090	0.015	0.009	0.030
	Total	56	49	17	8.553	0.365	0.180	0.153	0.007	0.011
Waste Processing/Management	Americium	7	1	7	0.124	0.004	0.201	0.018	0.004	0.029
	Hydrogen-3	2	3	1	0.007	0.020	0.002	0.004	0.007	0.002

Facility Type	Nuclide*	No. of Individuals with New Intakes**			Collective CEDE (person-rem)			Average CEDE (rem)		
		2007	2008	2009	2007	2008	2009	2007	2008	2009
Weapons Fabrication and Testing	Other	4			0.007			0.002		
	Plutonium	14	15	37	0.144	0.645	0.198	0.010	0.043	0.005
	Total	27	19	45	0.282	0.669	0.401	0.010	0.035	0.009
	Hydrogen-3	7	13	8	0.029	0.063	0.060	0.004	0.005	0.008
	Mixed	20	18	39	0.243	0.462	0.463	0.012	0.026	0.012
	Plutonium	1		1	0.018		0.020	0.018		0.020
	Uranium	1,055	1,053	1,106	54.678	53.736	48.605	0.052	0.051	0.044
	Total	1,083	1,084	1,154	54.968	54.261	49.148	0.051	0.050	0.043
	Totals	1,237	1,223	1,288	65.419	58.014	50.581	0.053	0.047	0.039

*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: 2009 Annual Report
Exhibit B-18a. Distribution of TEDE by Labor Category - 2007

Total Effective Dose Equivalent (TEDE)																
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. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
Agriculture	134	2										136	1%	2	0.037	0.018
Construction	3,254	907	122	29	8	1						4,321	25%	1,067	59.000	0.055
Laborers	1,366	253	86	34	5							1,744	22%	378	36.306	0.096
Management	7,182	748	89	40	11	1						8,071	11%	889	52.939	0.060
Miscellaneous	5,035	708	129	30	4	2	3					5,911	15%	876	61.389	0.070
Production	2,177	1,201	305	151	56	9						3,899	44% ◀	1,722	181.249 ◀	0.105 ◀
Scientists	20,711	1,691	116	33	3							22,554	8%	1,843	66.111	0.036
Service	3,708	422	17	5	1							4,153	11%	445	11.129	0.025
Technicians	7,355	1,455	309	102	20	2	1					9,244	20%	1,889 ◀	145.881	0.077
Transport	1,288	148	45	8	2							1,491	14%	203	15.556	0.077
Unknown	23,339	1,416	210	87	37	19	18				1	25,127 ◀	7%	1,788	168.229	0.094
Totals	75,549	8,951	1,428	519	147	34	22				1	86,651	13%	11,102	797.826	0.072

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-18b. Distribution of TEDE by Labor Category - 2008

Total Effective Dose Equivalent (TEDE)																
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. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (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: 2009 Annual Report
Exhibit B-18c. Distribution of TEDE by Labor Category - 2009

Total Effective Dose Equivalent (TEDE)

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. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
Agriculture	119	4	1	1								125	5%	6	0.627	0.104 ◀
Construction	3,861	972	128	38	1							5,000	23%	1,139	59.776	0.052
Laborers	1,394	347	90	32	1							1,864	25%	470	38.287	0.081
Management	7,142	735	63	12								7,952	10%	810	30.471	0.038
Miscellaneous	5,516	1,008	135	42								6,701	18%	1,185	62.676	0.053
Production	2,741	1,137	290	94	19	2						4,283	36% ◀	1,542	128.248	0.083
Scientists	20,475	1,749	112	31	4	4						22,375	8%	1,900	67.744	0.036
Service	3,108	304	17	10	1							3,440	10%	332	10.642	0.032
Technicians	6,935	1,477	276	109	20	8	3					8,828	21%	1,893	151.971	0.080
Transport	1,737	190	28	3		2	3					1,963	12%	226	17.321	0.077
Unknown	21,623	1,801	256	119	25	12	4					23,840 ◀	9%	2,217 ◀	158.212 ◀	0.071
Totals	74,651	9,724	1,396	491	71	28	10					86,371	14%	11,720	725.975	0.062

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-19. Internal Dose by Labor Category, 2007-2009.

Labor Category	No. of Individuals with New Intakes*			Collective CEDE Dose from Intake (person-rem)			Average CEDE		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Agriculture			1			0.013			0.013
Construction	162	164	193	5.231	5.738	6.117	0.032	0.035	0.032
Laborers	73	75	69	4.903	4.903	4.291	0.067	0.065	0.062 ◀
Management	125	119	122	6.022	4.786	4.273	0.048	0.040	0.035
Miscellaneous	9	7	13	0.110	0.285	0.167	0.012	0.041	0.013
Production	381 ◀	371 ◀	337 ◀	25.43 ◀	25.278 ◀	19.46 ◀	0.067	0.068 ◀	0.058
Scientists	169	144	156	4.763	4.272	3.389	0.028	0.030	0.022
Service	6	8	7	0.150	0.338	0.291	0.025	0.042	0.042
Technicians	194	178	159	7.758	6.506	6.937	0.040	0.037	0.044
Transport	4	3	4	0.046	0.013	0.025	0.012	0.004	0.006
Unknown	114	154	227	11.006	5.895	5.618	0.097 ◀	0.038	0.025
Totals	1,237	1,223	1,288	65.419	58.014	50.581	0.053	0.047	0.039

*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: 2009 Annual Report
Exhibit B-20. Dose Distribution by Labor Category and Occupation, 2009.

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
Agriculture	Misc. Agriculture	37	3	1	1								42	12%	5	0.612	0.122
	Groundskeepers	82	1										83	1%	1	0.015	0.015
Construction	Carpenters	273	72	15	3								363	25%	90	5.124	0.057
	Electricians	1,190	280	22	3								1,495	20%	305	10.476	0.034
	Masons	29	7										36	19%	7	0.120	0.017
	Mechanics/Repairers	501	152	23	7	1							684	27%	183	12.238	0.067
	Miners/Drillers	125	12	1									138	9%	13	0.275	0.021
	Misc. Repair/Construction	1,242	296	31	7								1,576	21%	334	14.625	0.044
	Painters	129	36	1									166	22%	37	0.996	0.027
	Pipe Fitter	372	117	35	18								542	31%	170	15.922	0.094
Laborers	Handlers/Laborers/Helpers	1,394	347	90	32	1							1,864	25%	470	38.287	0.081
Management	Sales	2											2				
	Admin. Support & Clerical Sec.	2,513	204	28	6								2,751	9%	238	11.787	0.050
	Manager - Administrator	4,627	531	35	6								5,199	11%	572	18.684	0.033
Miscellaneous	Military	6											6				
	Miscellaneous	5,510	1,008	135	42								6,695	18%	1,185	62.676	0.053
Production	Welders and Solderers	53	12										65	18%	12	0.236	0.020
	Machine Setup/Operators	134	122	60	9	4	1						330	59%	196	20.211	0.103
	Machinists	113	18										131	14%	18	0.503	0.028
	Misc. Precision/Production	855	283	40	24	1							1,203	29%	348	23.454	0.067
	Operators, Plant/ System/Util.	1,449	684	186	60	14	1						2,394	39%	945	82.393	0.087
	Sheet Metal Workers	137	18	4	1								160	14%	23	1.451	0.063
Scientists	Health Physicist	528	79	6	1								614	14%	86	2.878	0.033
	Misc. Professional	7,200	723	54	17								7,994	10%	794	26.563	0.033
	Scientist	5,797	336	14	5	3	3						6,158	6%	361	16.125	0.045
	Engineer	6,874	605	36	8	1	1						7,525	9%	651	21.779	0.033
	Doctors and Nurses	76	6	2									84	10%	8	0.399	0.050
Service	Firefighters	534	23	2									559	4%	25	0.600	0.024
	Food Service Employees	7	3	3	1								14	50%	7	0.870	0.124
	Janitors	481	41	5	2	1							530	9%	49	3.412	0.070
	Misc. Service	223	16		1								240	7%	17	0.519	0.031
	Security Guards	1,863	221	7	6								2,097	11%	234	5.241	0.022
Technicians	Engineering Technicians	1,673	163	14	12	2	4						1,868	10%	195	15.139	0.078
	Technicians	1,066	191	38	7	3							1,305	18%	239	15.819	0.066
	Science Technicians	498	186	25	4		2	1					716	30%	218	13.825	0.063
	Radiation Monitors/Techs.	1,339	705	166	55	8	1						2,274	41%	935	75.572	0.081
	Health Technicians	98	23	3	2								126	22%	28	2.186	0.078
	Misc. Technicians	2,261	209	30	29	7	1	2					2,539	11%	278	29.430	0.106
Transport	Bus Drivers	17											17				

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. TEDE	No. with Meas. TEDE	Collective TEDE (Person-rem)	Avg. Meas. TEDE (rem)
	Equipment Operators	453	82	19	2		2	3					561	19%	108	12.407	0.115
	Misc. Transport	498	17	3	1								519	4%	21	1.191	0.057
	Pilots	15											15				
	Truck Drivers	754	91	6									851	11%	97	3.723	0.038
Unknown	Unknown	21,623	1,801	256	119	25	12	4					23,840 ◀	9%	2,217 ◀	158.212 ◀	0.071
Totals		74,651	9,724	1,396	491	71	28	10					86,371	14%	11,720	725.975	0.062

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-21. Internal Dose Distribution by Site and Nuclide, 2009.

Site	Nuclide	Number of Individuals Receiving Doses in Each Dose Range											Total Individ. with Meas. CEDE	Collective CEDE (person-rem)	Avg. CEDE (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	2	1										3	0.064	0.021
	Americium	2	1										3	0.054	0.018
Brookhaven National Laboratory	Americium		4										4	0.128	0.032
	Hydrogen-3	4											4	0.008	0.002
Hanford - Hanford Site	Uranium	1											1	0.001	0.001
Idaho National Laboratory	Americium	4	2										6	0.169	0.028
	Plutonium	1	2										3	0.062	0.021
Lawrence Livermore National Laboratory	Hydrogen-3	7											7	0.014	0.002
	Uranium	1											1	0.001	0.001
Los Alamos National Laboratory	Uranium	3	3										6	0.144	0.024
	Hydrogen-3	12											12	0.027	0.002
	Mixed	11		1									12	0.159	0.013
	Plutonium	1											1	0.019	0.019
Nevada Test Site	Plutonium	4											4	0.048	0.012
Oak Ridge - Oak Ridge National Laboratory	Hydrogen-3	4											4	0.038	0.01
	Other	2											2	0.016	0.008
	Mixed	13	4	1									18	0.395	0.022
	Plutonium		1										1	0.02	0.02
	Uranium	543	427	115	16	4	1						1,106	48.605	0.044
Paducah Gaseous Diffusion	Uranium		2										2	0.089	0.044
Pantex Plant	Mixed	21											21	0.068	0.003
Princeton Plasma Physics	Hydrogen-3	9											9	0.07	0.008
Savannah River Site	Americium		1										1	0.085	0.085
	Hydrogen-3	7	1										8	0.06	0.008
	Plutonium	49											49	0.237	0.005
Totals		701	449	117	16	4	1						1,288	50.581	0.039

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

DOE Occupational Radiation Exposure: 2009 Annual Report
Exhibit B-22. Extremity Dose Distribution by Site, 2009.

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 rem)**	Collective Extremity Dose (person-rem)	Avg. Meas. Extremity Dose (rem)
Ames Laboratory	148	10							158	10		0.400	0.040
Argonne National Laboratory	2,303	46	31	9	3				2,392	89	3	54.018	0.607
Brookhaven National Laboratory	2,518	19	26	7					2,570	52		19.140	0.368
Energy Technology Engineering Center	92								92				
Fermi National Accelerator Laboratory	1,556	2	10	2					1,570	14		5.740	0.410
Hanford - Hanford Site	6,962	61	149	14					7,186	224		70.915	0.317
Hanford - Office of River Protection	1,180	165	186	35					1,566	386		122.097	0.316
Hanford - Pacific Northwest National Laboratory	1,743	93	123	30	1				1,990	247	1	112.923	0.457
Idaho National Laboratory	7,019	147	161	24					7,351	332		97.253	0.293
Kansas City Plant	58	2							60	2		0.080	0.040
Lawrence Berkeley National Laboratory	987	16	3	6	1				1,013	26	1	23.964	0.922
Lawrence Livermore National Laboratory	7,354	8	21	17	5	3			7,408	54	8	130.431	2.415
Los Alamos National Laboratory	7,906	964	347	137	9	2	1		9,366	1,460	12	568.866	0.390
Nevada Test Site	3,235	4	13						3,252	17		3.423	0.201
New Brunswick Laboratory	31								31				
Oak Ridge - East Tennessee Technology Park	2,179		1						2,180	1		0.921	0.921
Oak Ridge - Oak Ridge Institute for Science and Education	121								121				
Oak Ridge - Oak Ridge National Laboratory	8,775	28	73	9	4				8,889	114	4	75.653	0.664
Oak Ridge - Y-12 National Security Complex	5,816	12	9	11					5,848	32		26.350	0.823
Paducah Gaseous Diffusion Plant	1,164								1,164				
Pantex Plant	2,572	175	134	35	2				2,918	346	2	133.540	0.386
Portsmouth Gaseous Diffusion Plant	1,219								1,219				
Princeton Plasma Physics Laboratory	369								369				
Sandia National Laboratories	2,469								2,469				
Savannah River Site	6,677	269	610	137	6	3			7,702	1,025	9	552.968	0.539
Separations Process Research Unit	97								97				
SLAC National Accelerator Laboratory	3,552								3,552				
Thomas Jefferson National Accelerator Facility	1,293								1,293				
Uranium Mill Tailings Remediation Action Project	294								294				
West Valley Demonstration Project	545	17	35	1					598	53		15.870	0.299
Site Office Personnel***	1,652	1							1,653	1		0.022	0.022
Totals	81,886	2,039	1,932	474	31	8	1		86,371	4,485	40	2,014.574	0.449

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

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

***Includes site office personnel from Albuquerque and Oak Ridge.

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