

DOE Occupational Radiation Exposure: 2006 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 0383 0390	Science Technicians Radiation Monitors/Techs. Misc. Technicians
Transport Workers	0820 0821 0825 0830 0840	Truck Drivers Bus Drivers Pilots Equipment Operators Misc. Transport
Unknown	0001	Unknown

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A-2. Organizations Reporting to DOE REMS, 2002-2006

Thirty four sites reported occupational exposure data in 2006. The following is a list of all organizations reporting to the DOE REMS from 2002-2006. 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*					
				'02	'03	'04	'05	'06	
Albuquerque	Ops. and Other Facilities	501001	Albuquerque Operations Office	●					
		530001	NNSA Kansas City Site Office	●	●	●	●		
		531002	Honeywell FM & T/KC Production	●	●	●	●	●	
		590001	Waste Isolation Pilot Project (WIPP)	●	●	●	●	●	
		593001	Carlsbad Area Office				●	●	
		593004	Carlsbad Area Miscellaneous Contractors	●	●	●	●	●	
	Golden Field Office	2806003	National Renewable Energy Lab (NREL) - GO	●	●	●	●		
	Los Alamos National Lab. (LANL)	540001	NNSA Los Alamos Site Office	●	●	●	●	●	
		544003	Los Alamos National Laboratory	●	●	●	●	●	
		544809	Protection Technologies Los Alamos	●	●	●	●	●	
		544904	Johnson Controls, Inc.	●	●	●	●	●	
	Pantex Plant (PP)	510001	NNSA Amarillo Site Office	●	●	●	●	●	
		515002	BWXT - Amarillo	●	●	●	●	●	
		515006	BWXT - Amarillo - Subcontractors	●	●	●	●	●	
		515009	BWXT - Amarillo - Security Forces	●		●	●	●	
	Sandia National Lab. (SNL)	570001	NNSA Sandia Site Office	●					
		578003	Sandia National Laboratory	●	●	●	●	●	
	Chicago	Ops. and Other Facilities	1000503	Ames Laboratory (Iowa State)	●	●	●	●	●
			1001501	Argonne Site Office	●	●	●		
			1001606	Chicago Office Subs	●	●	●		
1002001			Environmental Meas. Lab. - Research	●	●	●	●		
1004031			New Brunswick Laboratory - Research	●	●	●	●	●	
1005003			Princeton Plasma Physics Laboratory	●	●	●	●	●	
Argonne Nat'l Lab. - East (ANL-E)		1000703	Argonne National Laboratory - East	●	●	●			
Argonne National Lab (ANL)		1000703	Argonne National Laboratory				●	●	
Argonne Nat'l Lab. - West (ANL-W)		1000713	Argonne National Laboratory - West	●	●	●			
Brookhaven Nat'l Lab. (BNL)		1001003	Brookhaven National Laboratory	●	●	●	●	●	
Fermi Nat'l Accelerator Lab. (FERMI)		1002503	Fermilab	●	●	●	●	●	
DOE HQ	DOE Headquarters	1504001	DOE Headquarters	●		●	●	●	
		1509503	Thomas Jefferson National Accel. Facility			●			
	N. Korea Project	8011001	Russian Federation Project	●					
Idaho		3004001	Idaho Field Office	●	●	●	●	●	
		3004402	BBWI - AMWTP	●	●	●			

	Idaho Site	3005004	INL - BEA, LLC - Services	●	●	●	●	●
		3005016	ICP - BBWI - Construction Subs	●	●	●	●	●
		3006016	ICP - CWI - Construction Subs				●	●
		3009004	Bechtel BWXT Idaho, LLC - WVDP			●		
		3060634	Stoller Service Subs - Grand Junction				●	
		3260605	SM Stoller - EM		●		●	●
		3260616	SM Stoller Subs - LM		●			
		3260634	SM Stoller Service Subs - Grand Junction	●		●		
Nevada	Nevada Test Site (NTS)	3500000	Nevada Operations	●	●	●	●	●
		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				●	●
		0521503	Bechtel Nevada - Special Technologies Labs			●		
		0521604	Bechtel Nevada - Washington Aerial Meas.	●	●	●		
		3507514	Nevada Miscellaneous Contractors	●	●	●	●	●
		3508004	Nye County Sheriff	●	●	●	●	●
		3508703	Science Applications Int'l. Corp. - NV	●				
		3509009	Wackenhut Services, Inc. - NV	●	●	●	●	●
		9700000	Yucca Mountain Project				●	●
Oak Ridge	Ops. and Other Facilities	4004203	Oak Ridge Inst. for Science & Educ. (ORISE)	●	●	●	●	●
		4004501	Oak Ridge Office	●	●	●	●	●
		4009503	Thomas Jefferson National Accel. Facility	●	●	●	●	●
	Oak Ridge Site	4004602	UT-Battelle: Foster Wheeler		●	●	●	●
		4005104	USEC: Oak Ridge				●	●
		4006002	Bechtel-Jacobs Co., LLC-ETTP	●	●	●	●	●
		4006012	USEC: Oak Ridge			●		
		4006302	British Nuclear Fuels Limited (BNFL) (ETTP)	●	●	●	●	
		4006503	UT-Battelle - ORNL	●	●	●	●	●
		4006510	Bechtel Jacobs - ORNL	●	●	●	●	●
		4007509	Wackenhut Services - OR Security	●	●	●	●	●
		4008010	Bechtel-Jacobs, Y-12	●	●	●	●	●
		4018102	BWXT LLC, Y-12	●	●	●	●	●
	Paducah Gas. Diff. Plant (PGDP)	4007002	Bechtel-Jacobs Co., LLC - Paducah	●	●	●	●	●
		6203106	Uranium Disposition Services - Paducah Sub				●	●
		6203204	Swift & Staley Mech Contr, Inc. - Paducah				●	●
		4002502	Bechtel-Jacobs - Portsmouth	●	●	●	●	

	Portsmouth Gas. Diff. Plant (PORTS)	6202106	Uranium Disposition Services - Portsmouth Sub						
		6202204	Theta Pro2Serve Management Co. - Portsmouth						
		6202304	LATA/Parralax Portsmouth LLC						
Oakland	Ops. and Other Facilities	8001003	Boeing North America, Inc. - Research						
		8001023	Rocketdyne - Boeing						
		8006103	U. of Cal./Davis, Radiobiology Lab. - LEHR						
		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						
		0580404	LLNL Services						
		8004004	LLNL Services						
		0580503	LLNL - Nevada						
		8005003	LLNL - Nevada						
	Stanford Linear Acc. Center (SLAC)	8008003	Stanford Linear Accelerator Center						
		8009005	Separation Process Research Unit						
Ohio	Ops. and Other Facilities	4500001	Ohio Field Office						
		4510001	Miamisburg Envir. Mgmt. Project Office						
		4510006	MEMP Office Subs						
		4517003	Battelle Memorial Institute - Columbus						
	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						
		4516009	CH2M Hill-Mound, Inc. - Security Forces						
	West Valley Project	4530001	West Valley Demonstration Project Office						
		4539004	West Valley Nuclear Services, Inc. (WVNS)						
		4542005	RMI Environmental Services						
	Rocky Flats	Rocky Flats Env. Tech. Site (RFETS)	7700001	Rocky Flats Office					
7707002			Rocky Flats Prime Contractors						
7707004			Rocky Flats Subcontractors						
Richland	Office of River Protection	4700805	Bechtel National, Inc. - WTP						
		4701001	Office of River Protection						
		4702004	Advance Technology Laboratories						
		4707104	CH2M Hill Hanford Group						
	Hanford Site	7500503	Battelle Memorial Institute (PNL)						

		7500605	Washington Closure Hanford, LLC						
		7502504	Advance Med Hanford						
		7505004	Fluor Daniel - Hanford						
		7505005	Fluor Daniel Northwest						
		7505006	Fluor Daniel Northwest Services						
		7505024	Duratek Federal Services, Inc. - Hanford						
		7505025	Duratek Federal Services, Inc.						
		7505034	Duke Engineering Services Hanford						
		7505044	NUMATEC Hanford						
		7505055	Lockheed Martin Services, Inc.						
		7505075	COGEMA Engineering Corporation						
		7505099	Protection Technology - Hanford Security						
		7506001	DOE - Richland Field Office						
		7509104	Verizon/Qwest						
Savannah River	Savannah River Site (SRS)	8500505	Bechtel Construction - SR						
		8500516	Miscellaneous SRS Construction Subs						
		8501002	Westinghouse Savannah River Co.						
		8501014	Westinghouse S.R. Subcontractors						
		8505001	S.R. Forest Station						
		8505501	Savannah River Field Office						
		8507004	Miscellaneous DOE Contractors - SR						
		8507504	Southern Bell Tel. & Tel.						
		8509003	Univ. of Georgia Ecology Laboratories						
		8509509	Wackenhut Services, Inc. - SR						
		Not included in this report (see Appendix D)							
Pittsburg Naval Reactor Office	Pittsburg Naval Reactor Office	0561001	Pittsburgh N.R. Office						
		0561054	Westinghouse Plant Aparatus Division						
		0561803	Bechtel Bettis, Inc. (BAPL)						
		0561903	Bechtel Bettis, Inc. (NRF)						
Schenectady Naval Reactor Office	Schenectady Naval Reactor Office	0561914	Newport News Reactor Services						
		0562403	LM-KAPL - Kesselring						
		0562405	Gen. Dynam. - Kesselring - Electric Boat						
		0562503	LM-KAPL - Knollis						
		0562504	LM-KAPL - Knolls Service Subs						
		0562516	CH2MHILL Knolls SPRU Project						
		0562703	LM-KAPL - Windsor						
		0562705	LM-KAPL - Windsor - Electric Boat						
		0562001	Schenectady N.R. Office						

*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.

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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 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

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Exhibit B-1. Site Dose Data - 2003.

2003								
Site	Collective TEDE (person-rem)	Percent Change from 2002	Number with Meas. Dose	Percent Change from 2002	Avg. Meas. TEDE (rem)	Percent Change from 2002	Percentage of Coll. TEDE above 0.500 rem	Percent Change from 2002
Albuquerque Site Office and Other Facilities	1.3	-47% ▼	107	-9% ▼	0.012	-42% ▼	0%	0%
Los Alamos National Laboratory	240.0	47% ▲	2,047	21% ▲	0.117	22% ▲	49%	14% ▲
Pantex Plant	35.9	-24% ▼	290	-1% ▼	0.124	-24% ▼	26%	-6% ▼
Sandia National Laboratory	10.2	125% ▲	250	129% ▲	0.041	-2% ▼	0%	0%
Chicago Site Office and Other Facilities	1.2	-73% ▼	153	-16% ▼	0.008	-68% ▼	0%	-12% ▼
Argonne National Laboratory - East	21.4	-9% ▼	231	-1% ▼	0.093	-8% ▼	8%	-31% ▼
Argonne National Laboratory - West	28.8	15% ▲	277	0%	0.104	16% ▲	22%	14% ▲
Brookhaven National Laboratory	12.2	-54% ▼	306	-30% ▼	0.040	-33% ▼	5%	-15% ▼
Fermi Nat'l. Accelerator Laboratory	25.7	101% ▲	612	57% ▲	0.042	28% ▲	7%	7% ▲
Idaho Site	64.0	-16% ▼	1,141	5% ▲	0.056	20% ▲	3%	-1% ▼
Nevada Test Site	3.2	251% ▲	69	130% ▲	0.047	53% ▲	0%	0%
Oakland Site Office and Other Facilities	0.9	-72% ▼	64	-21% ▼	0.014	65% ▲	0%	-19% ▼
Lawrence Berkeley National Laboratory	1.0	16% ▲	20	-39% ▼	0.052	91% ▲	0%	0%
Lawrence Livermore National Laboratory	36.4	30% ▲	202	24% ▲	0.180	5% ▲	69%	9% ▲
Stanford Linear Accelerator Center	3.1	2% ▲	109	38% ▲	0.029	-26% ▼	0%	0%
Oak Ridge Site Office and Other Facilities	1.3	-8% ▼	98	-5% ▼	0.013	-3% ▼	0%	0%
Oak Ridge Site	116.0	8% ▲	2,389	4% ▲	0.049	4% ▲	6%	2% ▲
Paducah Gaseous Diffusion Plant	3.2	-64% ▼	38	-84% ▼	0.084	122% ▲	0%	0%
Portsmouth Gaseous Diffusion Plant	0.6	-39% ▼	26	-30% ▼	0.023	-13% ▼	0%	0%
Ohio Site Office and Other Facilities	0.7	27% ▲	47	-4% ▼	0.016	33% ▲	0%	0%
Battelle Memorial Institute - Columbus	35.9	-19% ▼	100	-3% ▼	0.359	-17% ▼	73%	-6% ▼
Fernald Environmental Management Project	16.2	-5% ▼	631	10% ▲	0.026	-14% ▼	0%	0%
Mound Plant	5.8	112% ▲	237	20% ▲	0.025	77% ▲	0%	0%
West Valley Project	41.7	37% ▲	207	-13% ▼	0.202	58% ▲	64%	41% ▲
Rocky Flats Environmental Technology Site	198.6	-21% ▼	1,761	-19% ▼	0.113	-2% ▼	27%	3% ▲
Hanford Site	280.8	2% ▲	2,626	1% ▲	0.107	2% ▲	37%	8% ▲
Savannah River Site	258.6	30% ▲	3,446	7% ▲	0.075	21% ▲	16	1% ▲
Totals	1,444.6	6% ▲	17,484	3% ▲	0.083	4% ▲	29%	5% ▲

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

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Exhibit B-2. Site Dose Data - 2004.

2004								
Site	Collective TEDE (person-rem)	Percent Change from 2003	Number with Meas. Dose	Percent Change from 2003	Avg. Meas. TEDE (rem)	Percent Change from 2003	Percentage of Coll. TEDE above 0.500 rem	Percent Change from 2003
Albuquerque Site Office and Other Facilities	1.3	3% ▲	116	8% ▲	0.012	-5% ▼	0%	0%
Los Alamos National Laboratory	124.5	-48% ▼	1,709	-17% ▼	0.073	-38% ▼	27%	-44% ▼
Pantex Plant	24.3	-32% ▼	270	-7% ▼	0.090	-27% ▼	15%	-40% ▼
Sandia National Laboratory	17.1	68% ▲	317	27% ▲	0.054	32% ▲	12%	100% ▲
Chicago Site Office and Other Facilities	2.5	108% ▲	173	13% ▲	0.015	84% ▲	0%	
Argonne National Laboratory - East	20.5	-4% ▼	172	-26% ▼	0.119	29% ▲	41%	387% ▲
Argonne National Laboratory - West	28.0	-2% ▼	326	18% ▲	0.086	-17% ▼	22%	2% ▲
Brookhaven National Laboratory	23.7	94% ▲	301	-2% ▼	0.079	98% ▲	38%	675% ▲
Fermi Nat'l. Accelerator Laboratory	20.6	-20% ▼	498	-19% ▼	0.041	-2% ▼	0%	
Idaho Site	109.5	71% ▲	1,471	29% ▲	0.074	33% ▲	9%	159% ▲
Nevada Test Site	6.6	104% ▲	116	68% ▲	0.057	21% ▲	0%	
Lawrence Berkeley National Laboratory	0.7	-29% ▼	18	-10% ▼	0.041	-21% ▼	0%	
Lawrence Livermore National Laboratory	31.2	-14% ▼	232	15% ▲	0.135	-25% ▼	55%	-20% ▼
Stanford Linear Accelerator Center	3.9	25% ▲	149	37% ▲	0.026	-8% ▼	0%	0%
Oak Ridge Site Office and Other Facilities	1.4	6% ▲	92	-6% ▼	0.015	-13% ▼	0%	0%
Oak Ridge Site	115.5	0% ▼	2,132	-11% ▼	0.054	12% ▲	6%	4% ▲
Paducah Gaseous Diffusion Plant	3.4	6% ▲	41	8% ▲	0.083	-1% ▼	0%	0%
Portsmouth Gaseous Diffusion Plant	1.9	221% ▲	32	23% ▲	0.059	161% ▲	0%	0%
Ohio Site Office and Other Facilities	0.2	-74% ▼	14	-70% ▼	0.014	-11% ▼	0%	0%
Fernald Environmental Management Project	15.5	-4% ▼	615	-3% ▼	0.025	-2% ▼	0%	0%
Mound Plant	4.6	-22% ▼	152	-36% ▼	0.030	22% ▲	39%	100% ▲
West Valley Project	39.7	-5% ▼	241	16% ▲	0.165	-18% ▼	22%	-66% ▼
Rocky Flats Environmental Technology Site	77.4	-61% ▼	1,021	-42% ▼	0.076	-33% ▼	12%	-55% ▼
Hanford Site	205.2	-16% ▼	2,278	5% ▲	0.090	-19% ▼	18%	-57% ▼
Office of River Protection	14.0	-62% ▼	288	-36% ▼	0.049	-42% ▼	0%	0%
Savannah River Site	201.2	-22% ▼	2,966	-14% ▼	0.068	-10% ▼	18%	17% ▲
Totals	1,094.4	-24% ▼	15,740	-10% ▼	0.070	-16% ▼	17%	-40% ▼

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

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Exhibit B-3. Site Dose Data - 2006.

2006								
Site	Collective TEDE (person-rem)	Percent Change from 2005	Number with Meas. Dose	Percent Change from 2005	Avg. Meas. TEDE (rem)	Percent Change from 2005	Percentage of Coll. TEDE above 0.500 rem	Percent Change from 2005
Ames Laboratory	0.2	-46% ▼	8	-43% ▼	0.023	-6% ▼		
Argonne National Laboratory	9.5	-44% ▼	158	-41% ▼	0.060	-5% ▼	8%	-43% ▼
Boeing North America, Inc. - Research	0.0	-97% ▼	5	-83% ▼	0.007	-82% ▼		
Brookhaven National Laboratory	6.1	-40% ▼	147	-32% ▼	0.042	-12% ▼		
Fermi National Accelerator Laboratory	25.7	60% ▲	776	83% ▲	0.033	-13% ▼	2%	
Fernald Environmental Management Project	16.8	-66% ▼	462	-45% ▼	0.036	-37% ▼		
Hanford								
Hanford Site	106.1	-38% ▼	1,451	-21% ▼	0.073	-22% ▼	15%	-38% ▼
Office of River Protection	13.5	2% ▲	278	2% ▲	0.049	0%		
Pacific Northwest National Laboratory	13.3	-34% ▼	182	-6% ▼	0.073	-30% ▼		
Honeywell, FM&T/KC Production	0.2	74% ▲	26	8% ▲	0.006	60% ▲		
Idaho Site Office	161.7	-11% ▼	2,023	-2% ▼	0.080	-10% ▼	17%	30% ▲
Lawrence Berkeley National Laboratory	0.9	-21% ▼	16	-27% ▼	0.059	9% ▲		
Lawrence Livermore National Laboratory	16.4	63% ▲	134	-28% ▼	0.122	125% ▲	41%	77% ▲
Los Alamos National Laboratory	164.0	5% ▲	1,985	-8% ▼	0.083	15% ▲	34%	25% ▲
Mound Plant	0.2	-84% ▼	15	-87% ▼	0.010	24% ▲		
Nevada Test Site	1.8	-50% ▼	39	-45% ▼	0.046	-9% ▼		
New Brunswick Laboratory	0.1	-47% ▼	2	-50% ▼	0.043	6% ▲		
Oak Ridge								
East Tennessee Technology Park	0.5	-90% ▼	22	-86% ▼	0.021	-24% ▼		
Oak Ridge Institute for Science and Education	0.0	-82% ▼	8	-78% ▼	0.006	-20% ▼		
Oak Ridge National Laboratory	25.6	-20% ▼	416	-24% ▼	0.062	5% ▲	9%	31% ▲
Y-12 NSC	53.3	-18% ▼	1,171	-8% ▼	0.045	-10% ▼	13%	
Paducah Gaseous Diffusion Plant	2.2	-21% ▼	25	-44% ▼	0.088	43% ▲		
Pantex Plant	39.7	-10% ▼	327	-2% ▼	0.121	-8% ▼		
Portsmouth Gaseous Diffusion Plant	2.2	-15% ▼	40	-11% ▼	0.056	-4% ▼		
Princeton Plasma Physics Laboratory	1.5	33% ▲	155	14% ▲	0.010	16% ▲		
RMI Environmental Services	1.5		66		0.023	11% ▲		
Sandia National Laboratory	22.0	158% ▲	268	21% ▲	0.082	114% ▲	44%	
Savannah River Site	107.2	-12% ▼	2,387	1% ▲	0.045	-13% ▼	1%	-77% ▼
Stanford Linear Accelerator Center	3.0	-71% ▼	102	-72% ▼	0.030	3% ▲		
Thomas Jefferson National Accelerator Facility	0.5	-65% ▼	29	-60% ▼	0.018	-12% ▼		
West Valley Project	16.1	11% ▲	189	-10% ▼	0.085	23% ▲		
Site Office Personnel*	0.7	-45% ▼	41	-52% ▼	0.018	14% ▲		
Totals	812.6	-18% ▼	12,953	-20% ▼	0.063	2% ▲	16%	8% ▲

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: 2006 Annual Report

Exhibit B-4. Internal Dose by Site, 2004-2006.

Site	No. of Individuals with New Intakes*			Collective CEDE Dose from Intake (person-rem)			Average CEDE		
	2004	2005	2006	2004	2005	2006	2004	2005	2006
Argonne National Laboratory			17			0.466			0.027
Argonne National Laboratory -East	15	20		0.349	0.535		0.023	0.027	
Argonne National Laboratory -West	4	0		0.049	0		0.012	0	
BMI-Columbus	0	0		0	0		0	0	
Brookhaven National Laboratory	29	3		0.398	0.064		0.014	0.021	
Fernald	16	6	36	0.068	0.083	0.199	0.004	0.014	0.006
Hanford									
Hanford Site	224	28	30	4.972	0.342	0.284	0.022	0.012	0.009
Office of River Protection		3	7		0.007	0.025		0.002	0.004
Pacific Northwest National Laboratory			3			0.090			0.030
Idaho Site	28	27	30	0.584	1.017	1.055	0.021	0.038	0.035
Lawrence Berkeley National Laboratory	2	0		0.013	0		0.007	0	
Lawrence Livermore National Laboratory	14	24	9	0.041	0.651	0.070	0.003	0.027	0.008
Los Alamos National Laboratory	90	116	36	8.613	5.618	1.376	0.096	0.048	0.038
Mound Plant	177	119	15	4.459	0.990	0.156	0.025	0.008	0.010
Oak Ridge									
East Tennessee Technology Park			1			0.015			0.015
Oak Ridge National Laboratory			5			0.093			0.019
Oak Ridge Site	1,276	1,140		50.320	52.214		0.039	0.046	
Y-12 NSC			999			41.442			0.041
Ohio Site Office and Other Facilities	0	1		0	0.001		0	0.001	
Paducah	13	0		0.153	0		0.012	0	
Pantex	43	62	47	0.305	0.819	0.841	0.007	0.013	0.018
Portsmouth	8	1		0.068	0.012		0.009	0.012	
Rocky Flats**	68	5		5.730	0.655		0.084	0.131	
Sandia National Laboratory	0	0		0	0		0	0	
Savannah River Site	87	45	25	1.189	0.453	1.117	0.014	0.010	0.045
West Valley Nuclear Services	0	0		0	0		0	0	
Totals	2,094	1,600	1,260	77.311	63.461	47.229	0.037	0.040	0.037

*Only includes intakes that occurred during the monitoring year. Individuals may be counted more than once.

**In the fall of 2005, Rocky Flats ceased all operations.

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-5. Neutron Dose Distribution by Site, 2006.

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	155								155	0	0%	0.000	
Argonne National Laboratory	3,066	32	2						3,100	34	1%	1.164	0.034
Boeing North America, Inc.	210								210	0	0%	0.000	
Brookhaven National Lab	2,163	6							2,169	6	0%	0.104	0.017
Fermilab	1,675								1,675	0	0%	0.000	
Fernald	1,419								1,419	0	0%	0.000	
Hanford													
Hanford Site	4,766	713	7	3					5,489	723	13%	10.556	0.015
Office of River Protection	1,191	13							1,204	13	1%	0.312	0.024
Pacific Northwest National Laboratory	1,511	54	3						1,568	57	4%	1.894	0.033
Honeywell FM&T/KC Prod	95								95	0	0%	0.000	
Idaho National Laboratory	6,955	152	5	1					7,113	158	2%	4.517	0.029
LATA-Sharp Remediation	1,245	1							1,246	1	0%	0.040	0.040
Lawrence Berkeley National Laboratory	1,098	4							1,102	4	0%	0.078	0.020
Lawrence Livermore National Laboratory	9,434	39	4	2					9,479	45	0%	2.170	0.048
Los Alamos National Lab	8,635	1,237	163	50	15	7	1		10,108	1,473	15%	85.065	0.058
Mound Plant	110								110	0	0%	0.000	
Nevada Test Site	3,579	11							3,590	11	0%	0.418	0.038
New Brunswick Laboratory	23								23	0	0%	0.000	
Oak Ridge													
East Tennessee Technology Park	2,083	3							2,086	3	0%	0.081	0.027
Oak Ridge Institute for Science and Education	78								78	0	0%	0.000	
Oak Ridge National Laboratory	7,759	74	15						7,848	89	1%	4.389	0.049
Y-12 NSC	5,172	6							5,178	6	0%	0.089	0.015
Paducah Gaseous Diffusion Plant	1,523	19	1						1,543	20	1%	0.934	0.047
Pantex Plant	4,753	95	6						4,854	101	2%	3.758	0.037
Portsmouth Gaseous Diffusion Plant	747	15							762	15	2%	0.709	0.047
Princeton Plasma Physics Laboratory	359								359	0	0%	0.000	
RMI Environmental Services	114								114	0	0%	0.000	
Sandia National Laboratory	3,175	10							3,185	10	0%	0.056	0.006
Savannah River Site	7,377	187	3						7,567	190	3%	6.622	0.035
Standard Linear Accelerator Center	6,023								6,023	0	0%	0.000	

Exhibit B-5. Neutron Dose Distribution by Site, 2006

Thomas Jefferson National Accelerator Facility	1,358								1,358	0	0%	0.000	
West Valley	470								470	0	0%	0.000	
Totals	88,321	2,671	209	56	15	7	1		91,280	2,959	0%	122.956	0.042

*Represents the total number of monitoring records. The number of individuals specifically monitored for neutron radiation cannot be determined.
 Note: Arrowed values indicate the greatest value in each column.

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-6a. Distribution of TEDE by Facility Type - 2004.

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	10,518	973	97	30	1		1					11,620	9%	1,102	50.976	0.046
Fuel/Uran. Enrich.	5,748	429	49	13								6,239	8%	491	21.671	0.044
Fuel Fabrication	1,586	599	16									2,201	28%	615	15.464	0.025
Fuel Processing	1,765	931	240	81	28	18						3,063	42%	1,298	129.476	0.100
Maint. and Support	14,343	2,522	452	165	29	7	13					17,531	18%	3,188	236.051	0.074
Other	10,393	1,374	193	114	29	8	3	1				12,115	14%	1,722	132.842	0.077
Reactor	338	164	69	37	16	9						633	47%	295	47.436	0.161
Research, General	21,608	1,415	260	102	28	21	10					23,444	8%	1,836	164.813	0.090
Research, Fusion	290	134	3									427	32%	137	1.542	0.011
Waste Proc./Mgmt.	3,999	1,828	337	60	6							6,230	36%	2,231	125.092	0.056
Weapons Fab. & Test	13,684	2,331	370	101	20		1	1				16,508	17%	2,824	168.995	0.060
Totals	84,272	12,700	2,086	703	157	63	28	1	1			100,011	16%	15,739	1,094.358	0.070

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-6b. Distribution of TEDE by Facility Type - 2005.

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	11,050	1,204	87	22	3							12,366	11%	1,316	51.298	0.039
Fuel/Uran. Enrich.	475	106										581	18%	106	1.985	0.019
Fuel Fabrication	872	716	87	36	7							1,718	49%	846	48.829	0.058
Fuel Processing	1,112	485	67	23	3							1,690	34%	578	35.307	0.061
Maint. and Support	11,409	1,750	334	142	51	15	3					13,704	17%	2,295	193.899	0.084
Other	11,452	1,908	282	177	38	9	3	1				13,870	17%	2,418	194.786	0.081
Reactor	148	43	8	10								209	29%	61	6.038	0.099
Research, General	29,473	2,084	274	96	25	13	8					31,973	8%	2,500	169.528	0.068
Research, Fusion	264	149	1	1								415	36%	151	1.988	0.013
Waste Proc./Mgmt.	5,526	2,197	372	74	3							8,172	32%	2,646	146.265	0.055
Weapons Fab. & Test	10,124	2,895	240	63	11	5	4					13,342	24%	3,218	139.058	0.043
Totals	81,905	13,537	1,752	644	141	42	18	1				98,040	16%	16,135	988.981	0.061

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-6c. Distribution of TEDE by Facility Type - 2006.

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	10,320	1,105	67	34	8	4	5					11,543	11%	1,223	59.536	0.049
Fuel Fabrication	957	418	38	6								1,419	33%	462	16.774	0.036
Fuel Processing	908	443	36	2								1,389	35%	481	20.989	0.044
Fuel Uran. Enrich.	258	17	5	3								283	9%	25	2.206	0.088
Maint. and Support	10,152	1,632	276	135	25	10	4					12,234	17%	2,082	160.808	0.077
Other	11,697	1,724	226	76	32	10	8					13,773	15%	2,076	138.849	0.067
Reactor	117	24	8	6	5	5						165	29%	48	11.793	0.246
Research, Fusion	266	162	1									429	38%	163	1.856	0.011
Research, General	28,720	1,932	280	98	31	5	4					31,070	8%	2,350	158.480	0.067
Waste Proc./ Mgmt.	5,230	2,032	324	91	9	1						7,687	32%	2,457	146.973	0.060
Weapons Fab. & Test	9,702	1,326	180	69	10	1						11,288	14%	1,586	94.298	0.059
Totals	78,327	10,815	1,441	520	120	36	21					91,280	14%	12,953	812.562	0.063

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-7a. Collective TEDE by Operations/Site and Facility Type - 2004

Site	Accelerator	Fuel / Uranium Enrichment	Fuel Fabrication	Fuel Processing	Maintenance and Support	Reactor	Research, General	Research, Fusion	Waste Processing/ Management	Weapons, Fab. and Testing	Other	Totals
Albuquerque Site Office and Other Facilities									1.2	0.1		1.3
Los Alamos National Laboratory	7.7				38.0	0.1	34.3	0.1	1.0	0.1	43.3	124.5
Pantex Plant										24.3		24.3
Sandia National Laboratory	3.6				2.8	3.1	2.4	0.3	0.7	1.7	2.6	17.1
Chicago Site Office and Other Facilities							1.2	1.1			0.2	2.5
Argonne National Laboratory - East	6.2				0.2		10.4		2.4		1.4	20.5
Argonne National Laboratory - West							28.0					28.0
Brookhaven National Laboratory	7.9				2.1	11.6	1.0		1.0			23.7
Fermi National Accelerator Laboratory	20.6											20.6
Idaho Site				29.8	7.0	32.7	9.2		29.6		1.3	109.5
Nevada Test Site					6.6							6.6
Oakland Site Office and Other Facilities												
Lawrence Berkeley National Laboratory	0.1						0.7					0.7
Lawrence Livermore National Laboratory							31.2					31.2
Stanford Linear Accelerator Center	3.9											3.9
Oak Ridge Site Office and Other Facilities	1.1						0.2					1.3
Oak Ridge Site		16.4					35.0			64.1		115.5
Paducah Gaseous Diffusion Plant		3.4										3.4
Portsmouth Gaseous Diffusion Plant		1.9										1.9
Ohio Site Office and Other Facilities											0.2	0.2
Fernald Environmental Management Project			15.5									15.5
Mound Plant					3.8					0.7	0.0	4.6
West Valley											39.7	39.7
Rocky Flats Environmental Technology Site										77.4		77.4
Hanford Site					154.9		11.2		0.3		38.8	205.2
Office of River Protection					2.1				10.0		1.9	14.0
Savannah River Site				99.7	18.5				78.9	0.6	3.5	201.2
Totals	51.0	21.7	15.5	129.5	236.1	47.4	164.8	1.5	125.1	169.0	132.8	1,094.4

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-7b. Collective TEDE by Site and Facility Type - 2005

Site	Accelerator	Fuel / Uranium Enrichment	Fuel Fabrication	Fuel Processing	Maintenance and Support	Reactor	Research, General	Research, Fusion	Waste Processing/Management	Weapons, Fab. and Testing	Other	Totals
Albuquerque Site Office and Other Facilities							0.0		1.1	0.1		1.2
Los Alamos National Laboratory	11.8			0.0	42.7	0.0	38.1	0.3	1.5	0.0	60.9	155.3
Pantex Plant										44.2		44.2
Sandia National Laboratory	.8				1.0	2.3	1.2	0.5	0.2	1.1	1.4	8.5
Chicago Site Office and Other Facilities							0.5	1.2			0.1	1.8
Argonne National Laboratory, - East	7.1				0.1		7.7		1.9		0.2	17.0
Brookhaven National Laboratory	3.5				1.2	3.8	1.1		0.6			10.2
Fermi National Accelerator Laboratory	16.1											16.1
Idaho Site							48.1		48.5		85.0	181.6
Nevada Test Site					3.6							3.6
Lawrence Berkeley National Laboratory							1.2					1.2
Lawrence Livermore National Laboratory							9.4				0.6	10.0
Oakland Site Office and Other Facilities							1.1					1.1
Stanford Linear Accelerator Center	10.4											10.4
Oak Ridge Site Office and Other Facilities	1.5						0.3					1.8
Oak Ridge Site		2.0					34.6			64.8		101.4
Paducah Gaseous Diff. Plant							2.8					2.8
Portsmouth Gaseous Diff. Plant							2.6					2.6
Ohio Site Office and Other Facilities									0.0		0.0	0.0
Fernald Environmental Mgmt. Project			48.8									48.8
Mound Plant									1.0			1.0
West Valley									14.5			14.5
Rocky Flats Environmental Tech. Site										28.3		28.3
Hanford Site					135.8	0.0	13.5		0.4		41.1	190.8
Office of River Protection					1.4				10.4		1.4	13.2
Savannah River Site				35.3	8.1		7.2		66.1	0.6	4.0	121.3
Totals	51.2	2.0	48.8	35.3	193.9	6.1	149.3	2.0	146.2	139.1	194.7	988.7

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

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Exhibit B-7c. Collective TEDE by Site and Facility Type - 2006

Site	Accelerator	Fuel / Uranium Enrichment	Fuel Fabrication	Fuel Processing	Maintenance and Support	Reactor	Research, General	Research, Fusion	Waste Processing/Management	Weapons Fab. and Testing	Other	Totals
Ames National Laboratory							0.182					0.182
Argonne National Laboratory	4.146				0.165		3.318		0.923		0.974	9.526
Boeing North America, Inc.							0.035					0.035
Brookhaven National Laboratory	3.055				0.840	0.693	0.988		0.531			6.107
Fermi National Accelerator Laboratory	25.740											25.740
Fernald Environmental Mgmt. Project			16.774									16.774
Hanford: Office of River Protection					1.187				11.622		0.691	13.500
Hanford: Pacific Northwest National Laboratory					0.119	8.495					4.658	13.272
Hanford: Site					92.827						13.314	106.141
Honeywell FM & T/KC Production										0.151		0.151
Idaho							52.789		48.966		59.948	161.703
Lawrence Berkeley National Laboratory							0.937					0.937
Lawrence Livermore National Laboratory							16.370					16.370
Los Alamos National Laboratory	18.319				54.712		34.854	0.221	1.452	0.023	54.382	163.963
Mound Plant									0.156			0.156
Nevada Test Site					1.786							1.786
New Brunswick Laboratory							0.085					0.085
Oak Ridge: East Tennessee Technology Park							0.456					0.456
Oak Ridge: Oak Ridge Institute for Science and Education							0.045					0.045
Oak Ridge: Oak Ridge National Laboratory							25.620					25.620
Oak Ridge: Y-12 NSC							0.097			53.155		53.252
Paducah Gaseous Diff. Plant		2.206										2.206
Pantex Plant										39.654		39.654
Portsmouth Gaseous Diff. Plant							2.239					2.239
Princeton Plasma Physics Laboratory								1.544				1.544
RMI Titanium Company											1.543	1.543
Sandia National Laboratory	4.694				1.710	11.100	1.949	0.091	0.438	0.957	1.036	21.975
Savannah River Site				20.989	7.462		9.745		66.386	0.358	2.291	107.231
Stanford Linear Accelerator Center	3.046											3.046
Thomas Jefferson National Accelerator Facility	0.536											0.536
West Valley									16.062			16.062

Exhibit B-7c. Collective TEDE by Site and Facility Type - 2006

Site Office Personnel*							0.276		0.437		0.012	0.725
Totals	59.536	2.206	16.774	20.989	160.808	20.288	149.985	1.856	146.973	94.298	138.849	812.562

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

* Includes site office personnel from Albuquerque and Oakland.

DOE Occupational Radiation Exposure: 2006 Annual Report**Exhibit B-8. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Accelerator Facilities, 2006.****Accelerators**

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

Site/Contractor	Less than Meas.	Meas. 0-0.1	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	>2	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
Los Alamos National Laboratory	386	105	12	7	5	4	4		523	26%	137	18.319	0.134
Sandia National Laboratory	363	42	2	3	1		1		412	12%	49	4.694	0.096
Argonne National Laboratory	426	42	9	3	1				481	11%	55	4.146	0.075
Brookhaven National Laboratory	988	67	6	2					1,063	7%	75	3.055	0.041
Fermi National Accelerator Lab	899	720	36	19	1				1,675	46%	776	25.740	0.033
Stanford Linear Accelerator Center	5,921	100	2						6,023	2%	102	3.046	0.030
Thomas Jefferson Nat'l Accel Facil	1,329	29							1,358	2%	29	0.536	0.018
Johnson Controls, Inc.	2								2	0%		0	
Oak Ridge Field Office	6								6	0%		0	
Totals	10,320	1,105	67	34	8	4	5		11,543	11%	1,223	59.536	0.049

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

DOE Occupational Radiation Exposure: 2006 Annual Report**Exhibit B-9. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Fuel Facilities, 2006.****FUEL FACILITIES**

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

Site/Contractor	Less than Meas.	Meas. 0-0.1	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	>2	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
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ENRICHMENT

UDS - Paducah Subcontractors	91	13	4	3					111	18% ◀	20 ◀	1.999 ◀	0.100 ◀
Swift & Staley Mech Contractors, Inc.	167	4	1						172 ◀	3%	5	0.207	0.041
Totals	258	17	5	3					283	9%	25	2.206	0.088

FABRICATION

Fluor Fernald, Inc.	564	249	23	4					840 ◀	33% ◀	276 ◀	10.584 ◀	0.038 ◀
Fluor Fernald Construction Subcontractors	387	169	15	2					573	32%	186	6.190	0.033
Fluor Fernald Office Service Subcontractors	6								6	0%	0	0	0
Totals	957	418	38	6					1,419	33%	462	16.774	0.036

PROCESSING

Westinghouse Savannah River Co.	749	421	36	2					1,208 ◀	38% ◀	459 ◀	20.531 ◀	0.045 ◀
Westinghouse S. R. Subcontractor	44	12							56	21%	12	0.321	0.027
Savannah River Field Office	15	2							17	12%	2	0.038	0.019
Misc. S.R.S. Construction Subcontractors	5	3							8	38% ◀	3	0.053	0.018
Wackenhut Services, Inc. - SR	94	5							99	5%	5	0.046	0.009
Los Alamos National Laboratory	1								1	0%		0	
Totals	908	443	36	2					1,389	35%	481	20.989	0.044

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-10. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Maintenance and Support, 2006.

MAINTENANCE AND SUPPORT

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

Site/Contractor	Less than Meas.	Meas. 0-0.1	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	>4.00	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
Los Alamos National Laboratory	1,067	235	55	28	9	3	3				1,400	24%	333	35.994	0.108
Bechtel Nevada - Washington Aerial Meas	59	1	2								62	5%	3	0.314	0.105
Fluor Northwest Services	18	17	8	3							46	61%	28	2.844	0.102
Fluor Hanford, Inc.	1,595	827	159	84	14	7					2,686	41%	1,091	89.283	0.082
Johnson Controls, Inc.	1,223	222	34	15	1	1					1,496	18%	273	18.423	0.067
Westinghouse Savannah River Co.	98	128	13	2	1						242	60%	144	7.327	0.051
Sandia National Laboratory	579	31	1	2							613	6%	34	1.710	0.050
Bechtel Nevada - NTS	1,843	29	1	1							1,874	2%	31	1.309	0.042
Battelle - PNNL	29	3									32	9%	3	0.119	0.040
CH2M Hill Hanford Group, Inc.	55	25	1								81	32%	26	1.031	0.040
Fluor Federal Services	34	12	1								47	28%	13	0.495	0.038
Bechtel Nevada - Las Vegas	645	4									649	1%	4	0.139	0.035
Duratek Federal Services	29	4									33	12%	4	0.131	0.033
Duratek Federal Services, Inc.	10	2									12	17%	2	0.054	0.027
Brookhaven National Laboratory	937	33	1								971	4%	34	0.840	0.025
Bechtel Nevada - Special Tech Lab	39	1									40	3%	1	0.024	0.024
Argonne National Laboratory	268	7									275	3%	7	0.165	0.024
Advance Technology Laboratories	31	8									39	21%	8	0.156	0.020
Bechtel Hanford	2	1									3	33%	1	0.016	0.016
Westinghouse S.R. Subcontractors	10	11									21	52%	11	0.135	0.012
NNSA Los Alamos Site Office	73	8									81	10%	8	0.091	0.011
Protection technologies Los Alamos	515	21									536	4%	21	0.204	0.010
Lockheed Martin Services, Inc.	13	2									15	13%	2	0.004	0.002
Bechtel Nevada - NTS Subcontractors	25										25	0%		0	
Cogema Engineering Corp	5										5	0%		0	
DOE Richland Field Office	7										7	0%		0	
Nevada Misc Contractors	14										14	0%		0	
Nevada Operations	469										469	0%		0	

Numatec Hanford, Inc.	2										2	0%		0	
Nye County Sheriff	7										7	0%		0	
Savannah River Field Office	1										1	0%		0	
Wackenhut Services, Inc. - NV	442										442	0%		0	
Yucca Mountain Project	8										8	0%		0	
Totals	10,152	1,632	276	135	25	11	3				12,234	17%	2,082	160.808	0.077

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

DOE Occupational Radiation Exposure: 2006 Annual Report**Exhibit B-11. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Reactor Facilities, 2006.****REACTOR FACILITIES**

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

Site/Contractor	Less than Meas.	Meas. 0-0.1	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	>2	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
Sandia National Laboratory	72	18	5	6	5	5			111 ◀	35% ◀	39 ◀	11.100 ◀	0.285 ◀
Brookhaven National Laboratory	41	6	3						50	18%	9	0.693	0.077
Battelle - PNNL	1								1	0%		0	
Los Alamos National Laboratory	3								3	0%		0	
Totals	117	24	8	6	5	5			165	29%	48	11.793	0.246

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-12. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Research, General, 2006.

RESEARCH, GENERAL

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

Site/Contractor	Less than Meas.	Meas. 0-0.1	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.00-3.00	3.00-4.00	>4.00	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
Lawrence Livermore National Laboratory	8,197	98	16	11	6		2				8,330	2%	133	16.338	0.123
Uranium Disposition Services - Portsmouth Sub	22	8	10								40	45%	18	1.694	0.094
Oakland Field Office	133	1									134	1%	1	0.085	0.085
Battelle - PNNL	568	81	17	9							675	16%	107	8.495	0.079
INL - BEA LLC - Services	1,640	553	91	35	14	1					2,334	30%	694	52.789	0.076
Los Alamos National Laboratory	1,366	377	58	19	7	4	2				1,833	25%	467	34.838	0.075
UT-Battelle: ORNL	6,577	239	37	17	4						6,874	4%	297	21.493	0.072
Argonne National Laboratory	907	37	13	1							958	5%	51	3.318	0.065
Lawrence Berkeley National Laboratory	1,086	15	1								1,102	1%	16	0.937	0.059
Brookhaven National Laboratory	35	15	4								54	35%	19	0.988	0.052
New Brunswick Laboratory - Research	21	2									23	9%	2	0.085	0.043
Sandia National Laboratory	402	45	4	1							452	11%	50	1.949	0.039
Bechtel Jacobs - ORNL	720	87	12								819	12%	99	3.797	0.038
Westinghouse Savannah River Co.	585	227	17	5							834	30%	249	9.233	0.037
Wackenhut Services	252	4									256	2%	4	0.142	0.036
Bechtel Jacobs: Y-12	187	3									190	2%	3	0.097	0.032
Lawrence Livermore National Laboratory - Nevada	484	1									485	0%	1	0.032	0.032
LATA/Parralax, LLC - Portsmouth	574	21									595	4%	21	0.530	0.025
Ames Laboratory (Iowa State)	147	8									155	5%	8	0.182	0.023
Bechtel Jacobs - ETPP	2,064	22									2,086	1%	22	0.456	0.021
UT-Battelle: Foster Wheeler	135	20									155	13%	20	0.330	0.017
USEC - Oak Ridge	111	1									112	1%	1	0.016	0.016
Theta Pro2Serve Management Co. - Ports	126	1									127	1%	1	0.015	0.015
Westinghouse S.R. Subcontractors	59	30									89	34%	30	0.373	0.012
Isotek (Building 3019)	18	3									21	14%	3	0.033	0.011
NNSA Los Alamos Site Office	1	1									2	50%	1	0.009	0.009
University of Georgia - Ecology Laboratory	18	4									22	18%	4	0.036	0.009
Savannah River Field Office	14	2									16	13%	2	0.016	0.008
Misc. S.R.S. Construction	10	7									17	41%	7	0.053	0.008

Subcontractors															
Boeing North America, Inc. - Research	205	5									210	2%	5	0.035	0.007
Protection Technologies Los Alamos	6	1									7	14%	1	0.007	0.007
Wackenhut Services SR	30	5									35	14%	5	0.034	0.007
Oak Ridge Institute for Science & Education (ORISE)	70	8									78	10%	8	0.045	0.006
Advance Technology Laboratories	2										2	0%	0	0	0
Bechtel Jacobs - Paducah	611										611	0%	0	0	0
CH2M HILL Hanford Group, Inc.	1										1	0%	0	0	0
Fluor Hanford, Inc.	1										1	0%	0	0	0
Idaho Field Office	2										2	0%	0	0	0
Johnson Controls, Inc.	5										5	0%	0	0	0
LLNL Subcontractors	664										664	0%	0	0	0
National Renewable Energy Lab: GO	15										15	0%	0	0	0
Paducah Remediation Services	649										649	0%	0	0	0
Totals	28,720	1,932	280	91	31	5	4				31,070	8%	2,350	158.480	0.067

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

DOE Occupational Radiation Exposure: 2006 Annual Report
Exhibit B-13. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Research, Fusion, 2006.

RESEARCH, FUSION

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

Site/Contractor	Less than Meas.	Meas. 0-0.1	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	>2	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
Los Alamos National Laboratory	31	4	1						36	14%	5	0.221	0.044 ◀
Sandia National Laboratory	31	3							34	9%	3	0.091	0.030
Princeton Plasma Physics Laboratory	204	155							359 ◀	43% ◀	155 ◀	1.544 ◀	0.010
Totals	266	162	1						429	38%	163	1.856	0.011

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-14. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Waste Processing, 2006.

WASTE PROCESSING

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

Site/Contractor	Less than Meas.	Meas. 0-0.1	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	>2	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
West Valley Site Office	281	129	47	13					470	40%	189	16.062	0.085
INL - BEA, LLC - Services	1,266	458	116	28	9	1			1,878	33%	612	48.966	0.080
Westinghouse Savannah River Co.	1,745	950	123	43					2,861	39%	1,116	60.789	0.054
Los Alamos National Lab	39	21	5	1					66	41%	27	1.452	0.054
Brookhaven National Lab	21	9	1						31	32%	10	0.531	0.053
CH2M Hill Hanford Group, Inc.	571	197	25	2					795	28%	224	11.580	0.052
Westinghouse S.R. Subcontractors	139	78	6	4					227	39%	88	4.229	0.048
Argonne National Laboratory	17	20	1						38	55%	21	0.923	0.044
Sandia National Laboratory	94	17							111	15%	17	0.438	0.026
Misc. S.R.S. Construction Subcontractors	16	10							26	38%	10	0.223	0.022
Carlsbad Area Misc. Contractors	598	30							628	5%	30	0.437	0.015
Advanced Technology Laboratories	17	3							20	15%	3	0.042	0.014
Wackenhut Services, Inc. - SR	227	86							313	27%	86	1.049	0.012
Savannah River Field Office	47	9							56	16%	9	0.096	0.011
CH2M Hill Mound, Inc.	95	15							110	14%	15	0.156	0.010
Bechtel National Corporation	2								2	0%	0	0	0
Carlsbad Site Office	1								1	0%	0	0	0
Fluor Hanford, Inc.	3								3	0%	0	0	0
NNSA Los Alamos Site Office	1								1	0%	0	0	0
Savannah River Forest Station	1								1	0%	0	0	0
Waste Isolation Pilot Project	49								49	0%	0	0	0
Totals	5,230	2,032	324	91	9	1			7,687	32%	2,457	146.973	0.060

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

DOE Occupational Radiation Exposure: 2006 Annual Report
Exhibit B-15. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Weapons Fabrication, 2006.

WEAPONS FABRICATION

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

Site/Contractor	Less than Meas.	Meas. 0-0.1	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.0-3.0	>3	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
BWXT - Amarillo	3,641	205	51	50	10	1				3,958	8%	317	38.790	0.122
BWXT - Amarillo Security Forces	725	7	3							735	1%	10	0.864	0.086
BWXT, Y-12	3,820	1,024	125	19						4,988	23%	1,168	53.155	0.046
Sandia National Laboratory	756	33	1							790	4%	34	0.957	0.028
Westinghouse Savannah River Co.	476	29								505	6%	29	0.358	0.012
Los Alamos National Laboratory	5	2								7	29%	2	0.023	0.012
Honeywell, Federal Manufacturing & Technology	69	26								95	27%	26	0.151	0.006
BWXT Subcontractors	78									78	0%	0	0	0
Misc. DOE Contractors - SR	1									1	0%	0	0	0
NNSA Amarillo Site Office	83									83	0%	0	0	0
NNSA Kansas City Site Office	6									6	0%	0	0	0
Savannah River Field Office	5									5	0%	0	0	0
Wackenhut Services, Inc. - SR	11									11	0%	0	0	0
Westinghouse S.R. Subcontractors	26									26	0%	0	0	0
Totals	9,702	1,326	180	69	10	1				11,288	14%	1,586	94.298	0.059

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-16. Distribution of TEDE by Facility Type Listed in Descending Order of Average Measurable TEDE for Other, 2006.

OTHER

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

Site/Contractor	Less than Meas.	Meas. 0-0.1	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.00	1.00-2.00	2.0-3.0	>3	Total Monitored	Percent of Monitored with Meas. TEDE	No. with Meas. TEDE	Collective TEDE (person-rem)	Avg. Meas. TEDE (rem)
Advancedmed Hanford	26		1							27	4%	1	0.158	0.158
Fluor Northwest Services	73	25	11	4						113	35%	40	3.948	0.099
ICP - CWI, Construction Subs	2,142	523	110	35	14	1	4			2,829	24%	687	58.975	0.086
Los Alamos National Laboratory	3,322	567	73	30	16	9	4			4,021	17%	699	54.098	0.077
Office of River Protection	75	3	1							79	5%	4	0.301	0.075
Battelle - PNNL	788	60	7	5						860	8%	72	4.658	0.065
Westinghouse S.R. Subcontractors	124	6	1							131	5%	7	0.356	0.051
Cogema Engineering Corporation	26	9								36	28%	10	0.479	0.048
Fluor Federal Services	133	38	3	1	1					176	24%	43	2.021	0.047
Duratek Federal Services, Inc.	42	10	1							53	21%	11	0.504	0.046
Argonne National Laboratory	1,324	23		1						1,348	2%	24	0.974	0.041
Fluor Hanford, Inc.	486	58	5		1					550	12%	64	2.369	0.037
SM Stoller - EM	4	27								31	87%	27	0.893	0.033
CH2M Hill Hanford Group, Inc.	145	13								158	8%	13	0.390	0.030
Protection Technologies Los Alamos	45	1								46	2%	1	0.028	0.028
Bechtel Hanford	931	104	5							1,040	10%	109	2.987	0.027
Idaho Field Office	35	3								38	8%	3	0.080	0.027
DOE-Richland Field Office	530	28	1							559	5%	29	0.769	0.027
Duratek Federal Services of Hanford	43	3								46	7%	3	0.079	0.026
Johnson Controls, Inc.	26	9	1							36	28%	10	0.256	0.026
Misc. S.R.S. Construction Subcontractors	84	16	1							101	17%	17	0.423	0.025
Sandia National Laboratory	620	40	2							662	6%	42	1.036	0.025
RMI Titanium Company	48	66								114	58%	66	1.543	0.023
Wackenhut Services, Inc. - SR	3	2								5	40%	2	0.033	0.017
Westinghouse Savannah River Co.	515	88	2							605	15%	90	1.479	0.016
LATA-Sharp Remediation Services, LLC	16	2								18	11%	2	0.012	0.006
Advance Technology Laboratories	27									27	0%	0	0	0
Bechtel BWXT Idaho - Construction	1									1	0%	0	0	0

Exhibit B-16. Distribution of TEDE by Facility Type, Descending Order of Avg. Meas. TEDE, Other - 2006

Lockheed Martin Services, Inc.	29									29	0%	0	0	0
Misc DOE Contractors - SR	18									18	0%	0	0	0
NNSA Los Alamos Site Office	6									6	0%	0	0	0
Savannah River Field Office	10									10	0%	0	0	0
Totals	11,697	1,724	226	76	32	10	8			13,773	15%	2,076	138.849	0.067

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-17. Internal Dose by Facility Type and Nuclide, 2004-2006.

Facility Type	Nuclide*	No. of Individuals with New Intakes**			Collective CEDE (person-rem)			Average CEDE (rem)		
		2004	2005	2006	2004	2005	2006	2004	2005	2006
Accelerator	Americium	2			0.042			0.021		
	Hydrogen-3	1	3	2	0.005	0.031	0.003	0.005	0.010	0.002
	Mixed		2			0.034			0.017	
	Plutonium	1			0.100			0.100		
	Uranium	1			0.011			0.011		
	Total	5	5	2	0.158	0.065	0.003	0.032	0.013	0.002
Fuel Fabrication	Mixed			5			0.039			0.008
	Other	1	1	4	0.001	0.031	0.064	0.001	0.031	0.016
	Thorium	15	5	27	0.067	0.052	0.096	0.004	0.010	0.004
	Uranium									
	Total	16	6	36	0.068	0.083	0.199	0.004	0.014	0.006
Fuel Processing	Americium									
	Hydrogen-3	5		1	0.049		0.003	0.010		0.003
	Plutonium	13	2		0.691	0.030		0.053	0.015	
	Uranium	1			0.012			0.012		
	Total	19	2	1	0.752	0.030	0.003	0.040	0.015	0.003
Fuel/Uranium Enrichment	Americium	6			0.194			0.032		
	Other	2	47		0.005	0.524		0.003	0.011	
	Plutonium	7			0.428			0.061		
	Thorium	10			0.128			0.013		
	Uranium	158			1.688			0.011		
	Total	183	47		2.443	0.524		0.013	0.011	
Maintenance and Support	Americium	11	7	6	0.195	0.082	0.700	0.018	0.012	0.117
	Hydrogen-3	51	7	2	0.483	0.018	0.022	0.009	0.003	0.011
	Mixed and Other	10	12	4	0.014	1.150	0.789	0.001	0.096	0.197
	Plutonium	246	20	27	6.635	0.855	0.164	0.027	0.043	0.006
	Radon-222									
	Thorium	5			0.080			0.016		
	Uranium	10			0.054			0.005		
	Total	333	46	39	7.461	2.105	1.675	0.022	0.046	0.043
Other	Americium		6	3		0.050	0.106		0.008	0.035
	Hydrogen-3	7	18	10	0.021	0.068	0.033	0.003	0.004	0.003
	Mixed	7	10	2	0.076	0.427	0.021	0.011	0.043	0.011
	Other	2			0.004			0.002		
	Plutonium	55	34	19	5.287	1.528	0.464	0.096	0.045	0.024
	Radon-222	12	21	26	0.160	0.625	0.834	0.013	0.030	0.032
	Thorium	9			0.102			0.011		
	Uranium	25			0.100			0.004		
	Total	117	89	60	5.750	2.698	1.458	0.049	0.030	0.024
Reactor	Americium	12	1		0.221	0.010		0.018	0.010	
	Hydrogen-3	2			0.047			0.024		

Exhibit B-17. Internal Dose by Facility Type and Nuclide, 2004-2006

	Mixed	4			0.035			0.009		
	Plutonium	1			0.100			0.100		
	Uranium		1			0.043			0.043	
	Total	19	2		0.403	0.053		0.021	0.027	
Research, Fusion	Hydrogen-3									
	Total									
Research, General	Americium	6	9	7	0.059	0.464	0.268	0.010	0.052	0.038
	Hydrogen-3	26	39	19	0.101	0.162	0.366	0.004	0.004	0.019
	Mixed	14	10	3	0.060	1.086	0.111	0.004	0.109	0.037
	Other		7	3		0.311	0.009		0.044	0.003
	Plutonium	21	27	8	4.572	1.441	0.274	0.218 ◀	0.053	0.034
	Thorium			1			0.010			0.010
	Uranium	15	3	5	0.081	0.038	0.140	0.005	0.013	0.028
	Total	82	95	46	4.873	3.502	1.178	0.059	0.037	0.026
Waste Processing	Americium	5	6	4	0.090	0.096	0.091	0.018	0.016	0.023
	Hydrogen-3	11	27	1	0.062	0.097	0.003	0.006	0.004	0.003
	Mixed		40	13		0.708	0.195		0.018	0.015
	Plutonium	7	63	6	0.230	0.443	0.112	0.033	0.007	0.019
	Thorium		3			0.086			0.029	
	Uranium		1	1		0.008	0.005		0.008	0.005
	Total	23	140	25	0.382	1.438	0.406	0.017	0.010	0.016
Weapons Fab. and Testing	Americium									
	Hydrogen-3	64	82	52	0.543	0.952	0.865	0.008	0.012	0.017
	Mixed	2			0.011			0.006		
	Other	3	5		0.007	0.655		0.002	0.131 ◀	
	Plutonium	88			6.132			0.070		
	Thorium	30			0.245			0.008		
	Uranium	1,110 ◀	1,081 ◀	999 ◀	48.083 ◀	51.356 ◀	41.442 ◀	0.043	0.048	0.041
	Total	1,297	1,168	1,051	55.021	52.963	42.307	0.042	0.045	0.040
Totals	2,094	1,600	1,260	77.311	63.461	47.229	0.037	0.040	0.037	

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-18a. Distribution of TEDE by Labor Category - 2004.

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	148	2										150	1%	2	0.023	0.012
Construction	4,282	1,570	157	45	13	6	1					6,074	30%	1,792	95.341	0.053
Laborers	1,600	339	92	18	4	1						2,054	22%	454	34.430	0.076
Management	8,808	1,690	188	63	13	3						10,765	18%	1,957	104.527	0.053
Miscellaneous	3,234	951	195	78	23	7						4,488	28%	1,254	106.082	0.085
Production	2,756	1,494	477	195	43	12	9	1				4,987	45%	2,231	241.986	0.108
Scientists	21,191	2,172	162	40	5	6	3					23,579	10%	2,388	96.548	0.040
Service	3,629	492	134	16	1							4,272	15%	643	38.431	0.060
Technicians	7,652	1,820	416	156	27	17	6		1			10,095	24%	2,443	218.953	0.090
Transport	1,396	194	12	9								1,611	13%	215	8.802	0.041
Unknown	29,576	1,976	253	83	28	11	9					31,936	7%	2,360	149.235	0.063
Totals	84,272	12,700	2,086	703	157	63	28	1	1			100,011	16%	15,739	1,094.358	0.070

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-18b. Distribution of TEDE by Labor Category - 2005.

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	142	3										145	2%	3	0.072	0.024
Construction	3,564	1,345	150	36	3	1						5,099	30%	1,535	73.347	0.048
Laborers	1,666	451	103	35	10	1						2,266	26%	600	48.725	0.081
Management	8,196	1,276	112	36	4							9,624	15%	1,428	63.631	0.045
Miscellaneous	5,829	1,230	135	96	12	6						7,308	20%	1,479	100.076	0.068
Production	2,554	1,477	409	161	50	14	5					4,670	45%	2,116	216.755	0.102
Scientists	22,701	2,556	131	30	4	3						25,425	11%	2,724	91.219	0.033
Service	3,251	573	26	6	1	3						3,860	16%	609	22.155	0.036
Technicians	8,434	1,990	381	130	25	5						10,965	23%	2,531	184.235	0.073
Transport	1,630	335	35	10								2,010	19%	380	16.190	0.043
Unknown	23,938	2,301	270	104	33	12	9	1				26,668	10%	2,730	172.576	0.063
Totals	81,905	13,537	1,752	644	142	45	14	1				98,040	16%	16,135	988.981	0.061

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-18c. Distribution of TEDE by Labor Category - 2006.

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	138											138	0%	0	0	0
Construction	3,860	961	111	38	13	1						4,984	23%	1,124	62.399	0.056
Laborers	1,503	333	69	14	5	2						1,926	22%	423	30.644	0.072
Management	6,858	818	62	23	2							7,763	12%	905	36.848	0.041
Miscellaneous	4,994	765	133	41	13	1	2					5,949	16%	955	68.092	0.071
Production	2,678	1,419	339	158	19	6	1					4,620	42%	1,942	176.505	0.091
Scientists	21,563	2,232	136	34	6	1						23,972	10%	2,409	82.876	0.034
Service	4,236	477	20	2								4,735	11%	499	11.785	0.024
Technicians	7,098	1,684	295	105	24	5	4					9,215	23%	2,117	158.722	0.075
Transport	1,773	240	23	3								2,039	13%	266	10.442	0.039
Unknown	23,626	1,886	253	102	38	20	14					25,939	9%	2,313	174.249	0.075
Totals	78,327	10,815	1,441	520	120	36	21					91,280	14%	12,953	812.562	0.063

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-19. Internal Dose by Labor Category, 2004-2006.

Labor Category	No. of Individuals with New Intakes*			Collective CEDE Dose from Intake (person-rem)			Average CEDE		
	2004	2005	2006	2004	2005	2006	2004	2005	2006
Construction	389	236	174	8.678	6.769	4.336	0.022	0.029	0.025
Laborers	88	59	56	2.989	2.363	2.513	0.034	0.040	0.045
Management	177	124	125	5.764	4.697	4.556	0.033	0.038	0.036
Miscellaneous	39	19	19	1.786	0.596	0.455	0.046 ◀	0.031	0.024
Production	541 ◀	440 ◀	411 ◀	25.081 ◀	24.549 ◀	22.479 ◀	0.046 ◀	0.056 ◀	0.055 ◀
Scientists	198	168	144	5.638	5.340	3.450	0.028	0.032	0.024
Service	16	19	14	0.440	0.455	0.220	0.028	0.024	0.016
Technicians	269	182	166	10.744	7.215	4.570	0.040	0.040	0.028
Transport	11	2	7	0.143	0.023	0.040	0.013	0.012	0.006
Unknown	366	351	144	16.048	11.454	4.610	0.044	0.033	0.032
Totals	2,094	1,600	1,260	77.311	63.461	47.229	0.037	0.040	0.037

*Only included intakes that occurred during the monitoring year. Individuals may be counted more than once,
 Note: Arrowed values indicate the the greatest value in each column.

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-20. Dose Distribution by Labor Category and Occupation, 2006.

Labor Category	Occupation	Less than Meas.	Meas. 0-0.1	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 with Meas.	No. with Meas.	Collective TEDE	Avg. Meas. TEDE
Agriculture	Groundskeepers	125											125	0%	0	0	0
	Misc. Agriculture	13											13	0%	0	0	0
Construction	Carpenters	258	71	17	3	1							350	26%	92	6.598	0.072
	Electricians	1,053	284	17	2								1,356	22%	303	10.089	0.033
	Masons	20	9										29	31%	9	0.091	0.010
	Mechanics/Repairers	546	110	16	3								675	19%	129	6.501	0.050
	Miners/Drillers	143	6										149	4%	6	0.099	0.017
	Misc. Repair/Construction	1,394	312	30	8	4	1						1,749	20%	355	17.948	0.051
	Painters	117	30	1									148	21%	31	0.956	0.031
	Pipe Fitter	329	139	30	22	8							528	38%	199	20.117	0.101
Laborers	Handlers/Laborers/Helpers	1,503	333	69	14	5	2						1,926	22%	423	30.644	0.072
Management	Admin. Support & Clerical Sec.	2,609	264	27	11								2,911	10%	302	14.328	0.047
	Manager - Administrator	4,244	554	35	12	2							4,847	12%	603	22.520	0.037
	Sales	5											5	0%	0	0	0
Misc.	Military	29											29	0%	0	0	0
	Miscellaneous	4,965	765	133	41	13	1	2					5,920	16%	955	68.092	0.071
Production	Machine Setup/Operators	120	171	49	11								351	66%	231	18.224	0.079
	Machinists	271	41	3	3	1	1						320	15%	49	5.059	0.103
	Misc. Precision/Production	857	138	24	4								1,023	16%	166	9.137	0.055
	Operators, Plant/System/Util.	1,233	1,022	258	139	18	6						2,676	54%	1,443	141.628	0.098
	Sheet Metal Workers	136	37	3	1								177	23%	41	1.808	0.044
	Welders and Solderers	61	10	2									73	16%	12	0.649	0.054
Scientists	Doctors and Nurses	87	8	3									98	11%	11	0.809	0.074
	Engineer	6,841	708	38	15	3	1						7,606	10%	765	27.734	0.036
	Health Physicist	379	90	7	1								477	21%	98	3.517	0.036
	Misc. Professional	5,654	946	42	10	1							6,653	15%	999	28.420	0.028
	Scientist	8,602	480	46	8	2							9,138	6%	536	22.396	0.042
Service	Firefighters	553	39	2									594	7%	41	0.744	0.018
	Food Service Employees	24	3	1									28	14%	4	0.324	0.081
	Janitors	600	58	8	1								667	10%	67	3.470	0.052
	Misc. Service	423	47	4									474	11%	51	1.906	0.037
	Security Guards	2,636	330	5	1								2,972	11%	336	5.341	0.016
Technicians	Engineering Technicians	2,109	193	16	12	4	1	1					2,336	10%	227	17.098	0.075
	Health Technicians	75	11	7	5	4							102	26%	27	5.722	0.212
	Misc. Technicians	2,096	287	26	4	3	2						2,418	13%	322	17.063	0.053
	Radiation Monitors/Techs.	1,364	736	177	54	10	2	3					2,346	42%	982	83.083	0.085
	Science Technicians	696	121	20	6	2							845	18%	149	9.596	0.064
	Technicians	758	336	49	24	1							1,168	35%	410	26.160	0.064
Transport	Bus Drivers	54	4										58	7%	4	0.095	0.024

Exhibit B-20. Dose Distribution by Labor Category and Occupation - 2006

	Equipment Operators	491	90	13	3							597	18%	106	5.822	0.055
	Misc. Transport	549	49	9								607	10%	58	2.878	0.050
	Pilots	21										21	0%	0	0	0
	Truck Drivers	658	97	1								756	13%	98	1.647	0.017
Unknown	Unknown	23,626	1,886	253	102	38	20	14				25,939	9%	2,313	174.249	0.075
Totals		78,327	10,815	1,441	520	120	37	20				91,280	14%	12,953	812.562	0.063

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

DOE Occupational Radiation Exposure: 2005 Annual Report

Exhibit B-21. Internal Dose Distribution by Site and Nuclide, 2005.

Site	Nuclide	Number of Individuals Receiving Doses in Each Dose Range											Total Indiv. with Meas. TEDE	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			
Los Alamos National Laboratory	Americium		2										2	0.005	0.003
	Hydrogen-3		41	2									43	0.193	0.004
	Mixed		19	5	8	1	1	1					35	2.897	0.083
	Other		1										1	0.001	0.001
	Plutonium		14	4	16	1							35	2.522	0.072
Pantex Plant	Hydrogen-3		47	15									62	0.819	0.013
Argonne National Laboratory-East	Americium		1	3									4	0.117	0.029
	Other		2	1									3	0.062	0.021
	Plutonium		7	6									13	0.356	0.027
Brookhaven National Laboratory	Americium		1										1	0.010	0.010
	Hydrogen-3		1										1	0.011	0.011
	Uranium			1									1	0.043	0.043
Idaho Site	Americium		1	1									2	0.035	0.018
	Plutonium			3		1							4	0.357	0.089
	Radon-222		5	16									21	0.625	0.030
Lawrence Livermore National Laboratory	Americium			1									1	0.030	0.030
	Hydrogen-3		19										19	0.065	0.003
	Other				1								1	0.186	0.186
	Plutonium		1	1		1							3	0.370	0.123
Fernald Environmental Mgmt Project	Other			1									1	0.031	0.031
	Thorium		5										5	0.052	0.010
Mound Plant	Hydrogen-3		22	1									23	0.078	0.003
	Mixed		27	12									39	0.508	0.013
	Plutonium		48	5									53	0.310	0.006
	Thorium		1	2									3	0.086	0.029
	Uranium		1										1	0.008	0.008
Ohio	Hydrogen-3		1										1	0.001	0.001
Oak Ridge Site	Americium		3	1	1								5	0.232	0.046
	Hydrogen-3		3										3	0.014	0.005
	Other		47	2									49	0.586	0.012

Exhibit B-21. Internal Dose Distribution by Site and Nuclide - 2005

	Uranium		468	470	128	17									1,083	51.382	0.047
Portsmouth	Uranium		1												1	0.012	0.012
Rocky Flats Environmental Technology Site	Other		1	2	1	1									5	0.655	0.131
Hanford Site	Americium		9	1											10	0.094	0.009
	Hydrogen-3		1												1	0.001	0.001
	Plutonium		13	4											17	0.247	0.015
Office of River Protection	Plutonium		3												3	0.007	0.002
Savannah River Site	Americium				1										1	0.172	0.172
	Hydrogen-3		22	1											23	0.146	0.006
	Plutonium		20	1											21	0.135	0.006
Totals			858	562	156	22	1	1							1,600	63.461	0.040

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

DOE Occupational Radiation Exposure: 2006 Annual Report

Exhibit B-22. Extremity Dose Distribution by Site, 2006.

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	84	64	7						155	71		3.586	0.051
Argonne National Laboratory	3,023	52	19	6					3,100	77		20.216	0.263
Boeing North American, Inc.	210								210	0	0	0	0
Brookhaven National Laboratory	2,115	15	34	5					2,169	54		22.477	0.416
Fermi National Accelerator Laboratory	1,659	9	7						1,675	16		2.460	0.154
Fernald Environmental Mgmt Project	1,419								1,419	0		0	0
Hanford:													
Hanford Site	5,050	113	290	36					5,489	439		165.814	0.378
Office of River Protection	860	143	190	11					1,204	344		87.341	0.254
Pacific Northwest National Laboratory	1,348	84	105	29	2				1,568	220	2	107.989	0.491
Honeywell FM&T/KC Production	88	6	1						95	7		0.420	0.060
Idaho National Laboratory	6,640	308	155	10					7,113	473		81.320	0.172
Lawrence Berkeley National Laboratory	1,075	10	11	4	2				1,102	27	2	22.128	0.820
Lawrence Livermore National Laboratory	9,421	15	25	16	1	1			9,479	58	2	69.119	1.192
Los Alamos National Laboratory	9,433	312	284	76	3				10,108	675	3	280.696	0.416
Mound	110								110	0		0	0
Nevada Test Site	3,572	14	3	1					3,590	18		2.362	0.131
New Brunswick Laboratory	20	2	1						23	3		0.413	0.138
Oak Ridge:													
East Tennessee Technology Park	2,078	8							2,086	8	0	0.366	0.046
Oak Ridge Institute for Science and Education	78								78	0	0	0	0
Oak Ridge National Laboratory	7,776	21	40	11					7,848	72	0	38.750	0.538
Y-12 NSC	5,089	17	61	11					5,178	89	0	44.843	0.504
Paducah Gaseous Diff Plant	1,543								1,543	0	0	0	0
Pantex Plant	4,621	83	98	50	2				4,854	233	2	160.182	0.687
Portsmouth Gaseous Diff Plant	762								762	0	0	0	0
Princeton Plasma Physics Laboratory	359								359	0	0	0	0
RMI Titanium Company	114								114	0	0	0	0
Sandia National Laboratory	3,185								3,185	0	0	0	0
Savannah River Site	6,507	320	592	138	8	2			7,567	1,060	10	581.978	0.549
Stanford Linear Accelerator Center	6,023								6,023	0	0	0	0
Thomas Jefferson National Accelerator Facility	1,358								1,358	0	0	0	0
West Valley Nuclear	218	180	72						470	252	0	20.531	0.081
Site Office Personnel***	1,245		1						1,246	1	0	0.199	0.199

Exhibit B-22. Extremity Dose Distribution by Site - 2006

Totals	87,083	1,776	1,996	404	18	3		91,280	4,197	21	1,713.190	0.408
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* 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 of 5 rem or more in a year.

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

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